RECONSTRUCTION OF WAR-DAMAGED RURAL AREAS

OF KHUZESTAN, IRAN

(Two Volumes)

"Volume one"

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A dissertation submitted for the

degree of DPhil in Architecture

University of York

"Institute of Advanced Architectural Studies"

June, 1989

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preparation of the Field Study.   In Khuzestan, 'Jahade Sazandegi Susangerd', supported the study, by providing transport and also mandating their members to take part as interviewers, in addition to accommodation and food.   Without their generous help the Field Study could not have been carried out in time.   In the data processing and statistical analysis, I was largely guided by my friend Bahman Najarin, from the Psychology Department, University of York.   Furthermore, he assisted me by finding the psychological references I needed.   My grateful thanks to him.

For nearly three years I have benefited from the help of Mrs Amanda Odell, who read and corrected the first draft of texts.   I acknowledge her invaluable help. Obviously there are many others, including my friends at Kings Manor, whose help with this work has been continous in one way or another.   I thank all of them.

DECLARATION:

During the course of this study parts of this and other works were translated into Farsi, presented at Conferences or Workshops, or were published. They are listed chronoligically as follows;

1- Some 50 pages of 'Emergency Shelter Study', (UNDRO, 1977?) was translated into Farsi and circulated in Iran. (1987)

2- A paper entitled 'Reconstruction and Development' was delivered at the 'Shelter Conference', CARDO, The University, Newcastle Upon Tyne. 3-4 March 1988.

3- A revised version of that paper was published with the same title in Open House International, Vol. 13 No.2, 1988. (pp. 22-36)

4- A paper entitled 'War as a Disaster' was contributed to the first 'Workshop on Settlement Reconstruction post-war', IoAAS, Kings Manor, York. 16-17 May 1988.

5- A Report was published from the latter Workshop in 'Disasters', Volume 12. No. 3. 1988. (pp. 209-211)

6- A paper entitled 'Physical reconstruction and psychological recovery' was produced in collaboration with Bahman Najarian, from the Psychology Department, University of York. I presented it to 'The First European Conference on Traumatic Stress Studies', Lincoln, England. September 1988.

7- A revised version of that paper has been accepted for publishing as a Chapter in the 'International Handbook of Traumatic Stress Syndrome', (Editors: Professor John P. Wilson and Beverly, Raphael). Plenum Publication , expected publication date 1990.

8- An introduction to the 'Second York Workshop on Settlement Reconstruction after War' written with Charles Cockburn. February

1989.

9- A contribution was made to the Second York Workshop, entitled 'War as a Disaster:Facts and Gaps'. 16-18 May 1989.

10- A Bibliography on 'Settlement Reconstruction After War' was produced in connection with the Second York Workshop, May 1989.

11- A 'Workshop Report' has been prepared from the Second York Workshop, currently under consideration for publication in 'Disasters' (possibly 1989).

ABSTRACT: As a result of eight years of war between Iraq and Iran, (1980-1988) more than 3,800 villages in Iran were damaged or destroyed. The reconstruction of villages in *Khuzestan Province*, south-west Iran, started in 1982 and continued during the war. Several policies for rebuilding rural settlements were implemented, including the re-establishment of pre-war norms and the total modernisation of the village.

This study has attempted to suggest some guidelines for reconstruction of rural areas of Khuzestan, by the means of examining the efficiency of different approaches, from the viewpoint of inhabitants'. After a review of the literature on natural disasters and war, a Field Survey was carried out, which includes interviews with 132 villagers from 11 sample villages. The analysis of data collected revealed, that many of the problems found in other post-disaster reconstructed villages in the Third World, such as unsuitable housing design, exist also in Khuzestan. It was found that, the more the inhabitants are directly involved in the decision-making and physical work of the reconstruction of their settlements, the higher the degree of satisfaction the end product will give.

After exploring the specific characteristics of 'war as a disaster' and 'reconstruction after war', suggestions are made relating to the present economic and social context of Iran for the reconstruction of rural areas. Basically, the proposal is characterised by minimising the intervention of the State and outside professionals and relying more on the active role of villagers and local institutions and the use of local materials, for quick re-settlement during the immediate period of reconstruction.

FOREWORD:

The eight long years of war between Iraq and Iran, (1980-1988), left behind among much else that was damaged, some 3,800 villages and more than 50 cities devastated or totally razed to the ground. The focus of the present study, however is on the reconstruction of settlements in the rural areas of the south that were damaged or destroyed.

Among the five provinces close to the border which were directly invaded, Khuzestan province, in the south-west of the country suffered the most. Vast areas were occupied and the enemy captured and eventually ruined the cities of Khoramshahr and Hoveize and even managed to come close to the provincial capital, the city of Ahwaz some eighty Km from the border. When these areas were recaptured many villages and some cities were found in ruins, some little more than hills of rubble.

The reconstruction of these vast areas of Khuzestan were started quite early in 1982, shortly after their liberation. As a result, by the end of the war six years later some evidence of settlement reconstruction could be studied.

From the very early days of reconstruction, the School of Architecture of the University of Shahid Beheshti Tehran, Iran, where the author has taught since 1978, organised a research and study group, composed of voluntary lecturers and students, to study the results of the various type of initiatives taken. There were two supporting reasons for carrying out this original work; first, to bring the theoretical studies of the students closer to practice and thus to enhance the quality of education. Secondly, as professional citizens

to exercise our social and moral responsibility by making a small contribution to the recovery of those fellow countrymen far distant from Tehran.

Among a few other colleagues, the author had the honour to go to Khuzestan and to help students with their rural studies. This work continued until 1986, when I came to York. By then, our three years of observations in the area and the studies made of rebuilt villages according to different policies, revealed that there are a number of critical issues and important lessons that have to be faced if reconstruction is to succeed. The revival of devastated villages was not as easy as some authorities initially thought and it is important that they learn from this early experience.

In York, our aim was to look through the literature and other sources to find out if, what we faced in reconstruction of Khuzestan villages had been experienced elsewhere. And what possible strategies, policies and procedures could be usefully applied in Iran. From my early enquires it became clear that documents conveying the experience of post-war reconstruction, particularly in rural areas were scarce. In addition, we concluded that any reconstruction experienced gained in Europe after World War Two, would have little relevance for the rural areas of a county like Iran. We were soon persuaded that the work done on the practice of reconstruction after natural disasters might be useful, as a result a literature survey was carried out.

Meanwhile, the importance of development studies was identified, since dealing with reconstruction of rural areas is difficult, if not impossible to ignore developmental issues. That has encouraged the author to regularly attend the post graduate Rural Development course

in the Politics Department, under supervision of Dr Adrian Leftwich.

It must be mentioned that one of the most useful steps for exploring the little studied theme of reconstruction after war, was the organisation of two York Workshops, in May 1988 and 1989. These two events brought together different views and experiences and generally widened my scope and knowledge of the subject. It appears that through these Workshops the Institute is gradually having its name associated with post-war reconstruction studies.

From October 1987 until January 1988, during a three month field trip, a detailed village survey was conducted in Khuzestan, Iran. The intention was to determine the relative worth of reconstruction policies, programmes and projects, by interviewing the 'users' and recipients of public and private aid. For this purpose, from 11 reconstructed villages 132 households were interviewed.

The present study is separated into two volumes and divided into 15 Chapters. The First Volume, starts with a an Introductory Chapter, that is intended to provide the reader with the background and the context of the study. Chapters 2 to 4 are studies of the literature on natural disasters. The following four chapters, (5 to 8) are in depth studies of some the important issues that emerged from the previous chapters, such as 'Disasters and development', and 'Disasters and people's participation'. Chapters, 9 and 10 deal with 'War as a disaster' and 'Reconstruction after war' respectively.

The Second Volume, on the other hand, starts with Chapter 10 and mainly contains the Field Study report. This is presented in the form of four chapters. (Chapters 11 to 14). The last Chapter, the findings of my literature and field studies are brought together. In

Chapter 15 I attempt to make proposals for reconstruction of war damaged rural areas in Khuzestan. It ends with a brief conclusion, which is a summary of my findings and personal views concerning the most common issues in disaster studies.

As convention dictates, a copy of the Questionnaires used for the Field Survey are attached as Appendix I. In addition, there is also a short paper entitled 'Disasters are acts of God: A spiritual view', which comes as Appendix II. Finally, in 1989 and in connection with the Second York Workshop, a Bibliography was produced by the author on the theme of 'Settlement reconstruction after war', which is Appendix III in the Second Volume.

CHAPTER ONE.

CHAPTER I

IRAN, KHUZESTAN, THE WAR AND THE RECONSTRUCTION

Introduction: This Chapter is an introduction to the context of the study. For this purpose the following subjects will be discussed: Iran; the Islamic Revolution; Khuzestan; The Iraq Iran war; war damage and finally the reconstruction of damaged rural areas.

The description of Iran will be short with only a few words about the geography, surface area and population. But if for centuries Iran has been known to the outside world for its hand made non-competitive carpets and more recently as one of the major world oil exporters, over the last decade world-wide attention has been focused on its Islamic Revolution of 1979 and the prolonged war with Iraq.

It is believed that the Iraqi invasion must be discussed alongside other events, as an attempt to uproot the revolution. Any recommendation on the reconstruction of damaged areas should be assessed in the context of the present social and economic situation of the country, thus it is first necessary to review the history of the Islamic Revolution.

An introduction to Khuzestan Province is relevant since it was the major battlefield and sustained a major share of the damage. Furthermore, our field survey, our previous experience and therefore our examples are from this area. This section will be followed by a review of the events of the war, damages resulting from it and the reconstruction programmes carried out from 1982 until August 1988 when the ceasefire was agreed between the two countries. The reconstruction of damaged areas has been on a new scale since the ceasefire and it is

preferred to underline these recent movements and thoughts in the final chapter where we discuss various proposals put forward.

1-1- Iran- Iran covers more than 1,648,000 square kilometres (636,000 sq. m) and extends between latitude 25 and 40 N, and longitude 44 and 63 E. Its area is more than six times the size of Great Britain. More than half of the country consists of highlands and wasteland. 'The average elevation is 3,000 feet (915 metres) above sea level'[1]. Only about 10% of the total area is arable.

In 1980 the population of the country was about 38.5 millions. The figure for 1984 was estimated over 43 millions[2]. At present with a rapid population growth rate over the last decade, it is estimated that the population must be over 52 million. (see Amirahmadi, 1988, p.1) The previous reference also reveals that almost half of the country's population are rural. This half consists of those who are permanent settlers, semi-permanent settlers and nomads. Among them a recent survey revealed that only 1,152,099 people (i.e. 2%) are nomads[3].

Concerning the ethnicity of the population and religious affiliations Amirahmadi (1987a), writes;

> " Iran is a multi-ethnic country... The majority
> of the population, over 60 per cent, are Persians
> (the core ethnie) as compared with over 22 per cent
> Turks, about 6 per cent Kurds, over 6 per cent
> Lurs, about 2.5 per cent Baluchi's and around 2 per
> cent Arabs. Shii'te Islam (the core religion),
> subscribed to by over 85 per cent of Iranians, [95%

1.Encyclopedia Americana, 1986 p. 369

2.Salname Amari 1363, (Annual Statistical Report, by Irans' Statistical Centre, Ministry of Planning and Budget, 1364. (1985). p. 57

3.Keyhan-e Havaei, 8 Februray, 1989. (67/11/19)

Muslims] is the official religion of the state and Farsi (the core language), spoken by less than 50 per cent of the country's population, is its official language" (p. 373).[4]

These details are important since the 2% Arabs referred to above are the inhabitants of Khuzestan, the region of our study. This was also one of the factors which incited the Iraqis to invade Iranian territory and must be an influential element of policy making by the central Government about the reconstruction of damaged areas. In fact all the provinces on the border with Iraq where they fought are the homes of ethnic groups. However, the most important event of the past decade in Iran is the Revolution of 1979.

1-2- The Islamic Revolution- Understanding the present situation of the country after the ceasefire of 1988 is necessary in order to build an argument on future reconstruction policies. This in turn requires a review of the revolution in the first place, to sketch out its economic, social, cultural and political goals.

Several books are written in English on the Islamic Revolution of Iran. (see for example: Fischer, 1980; Jazani, 1980; Keddie, 1981 & 1983; Nashat, 1983; Afshar, 1985; Bakhash, 1986; Bashiriyeh, 1986 Husain, 1986 and Limbert, 1987) Most of these books attempted to analyse the recent revolution in the light of the historical background of the country. However, the dominant trend of these books is to condemn the way the revolution has developed since it was established. Thus the degree to which these documents can mirror the reality of the

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4.See also, Encyclopedia Americana, 1986, Volume 15, p. 368-371.

events must be viewed cautiously.

The roots of revolutions must be looked for in the past. Fischer (1980), quotes from Wendell Phillips, an 'American abolitionist' that; " Revolutions are not made. They come. A revolution is as natural a growth as an oak. It comes out of the past. Its foundations are laid back in history" (p. 181).

On January 16, 1979 the Shah was forced out of the country for the second time, perhaps with a hope, that like the first time in 1953 with the aid of the of CIA, he would one day return. That did not happen, the end of 2500 years of monarchy had already been endorsed by the demonstration of millions of people. When the Shah boarded his aeroplane a few of his followers and two dogs accompanied him to the airport. Two weeks later, on 1 February, Imam Khomeynie after being in exile for 16 years, returned to the same airport. Millions of exuberant people welcomed him along the road from the airport to the Beheshte Zahra cemetery. There he delivered his first speech to the Iranian people near the grave of countless martyrs shot dead during a year of uprising.

So obvious was the corruption of the shah and his regime that hardly anybody disputes it. He was the successor of his father, Reza Shah, who himself was brought to power in the 1921 coup 'orchestrated by the British General Ironside' (Bonnie and Keddie, 1981, p. 26). Reza Shah was well known by the Iranians for his attempt to secularise the country as part of the process of 'modernisation' and Europeanisation. Fischer (1980), writes;

> " Part of Reza Shah's modernising nationalism was a
> secularist attack on traditional dress and on the
> ulama, [clerical] symbols of Islamic backwardness.

In 1935-36 a campaign was launched to have people adopt European dress" (p. 186).

The riot in 1935 against these orders was met with indiscriminate shooting, the police killing 300 people inside the sacred shrine of Imam Reza[5] in Mashhad.

The Shah, the successor of his father, was openly an American puppet. Like his father he continued the process of alienating religious institutions and expression in a Muslim country. His power was supported by an army of '400,000, a large police force, and a fearsome secret police, SAVAK[6], with 4000 full-time agents and scores of part-time informers' (Bakhash, 1985, p. 9). Religious leaders, young students and whoever opposed the regime were imprisoned and very often assassinated or executed without trial. In 1964 after a series of disturbances against the so called White Revolution of the Shah, Imam Khomeynie was again arrested and sent first to Turkey, then to Iraq where he spent the next 16 years. Bonine and Keddie (1981) (eds), write;

" Widespread hostility to the shah and his regime was brought about by: 1) a 'modernisation' characterised by massive corruption benefiting especially the rich and the royal family; 2) a growing gap between rich and poor, between city and countryside, and between the two cultures; 3) the association of the dynasty with Western control and with everything unislamic; and 4) jailing, execution, tortures, and growing controls on free speech and press. It was natural that this led among many to an idealisation of traditional Islamic ways and a willingness to follow religious

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5.The eighth Imam of the Shiite muslims. The only Imam whose shrine is in Iran. The shrine is the holiest place for Iranian Muslims in their country.

6.SAVAK is the abbreviation of 'Sazemane Amniat Va Atelate Keshvar' (The national security and information organisation)

opponents of the government" (p. 29).

The events of 1977-1979 were in fact new features of an old movement. The chain of events is described in many books written on the Iranian Islamic Revolution. However, Fischer (1980), in particular, has attempted to find the religious roots and context of the movement. During the period of 1977-1979 thousands of people were shot dead in demonstrations mainly organised through mosques and directed by religious leaders. Fischer (1980), claims:

> " If 1979 proves to be a turning point for Iranian Shi'ism, a 'translation' of 'Shi'ism will be involved. Over the past decades Shi'ism has been crafted into a powerful moral platform for criticising the disease of the Pahlavi regime: the intimidation by the secret police, the massive corruption at the top of society, the destruction of agriculture, the punitive price-regulation campaign against the bazaar, the misuse of the talents of the middle class, the subordination of Iranian development to outside imperialist interests, and the separation of the monarchy from accountability and responsiveness to its people" (p. 231).

As examples of the Shah regimes' brutality we mention two cases. On August 19th 1978, SAVAK set the Rex cinema in Abadan on fire and over four hundred people were burned alive. The doors of the cinema were chain locked from outside and petrol was thrown under the closed doors into the saloon. Although the fire station was near-by, the fire-men took a long time to come, when they came their equipment did not work. The police even stopped people going for help. Still, the government blamed the revolutionaries for this event. But the people were not fool and this crime triggered further demonstrations all over the country.

Another example was the 'Black Friday' massacre on 8 September 1978 in Jaleh Square.[7] It was named Black because on that day while thousands of demonstrating people were sitting in the streets, the army violently opened fire on them. It was claimed that helicopters helped the army and shot into the crowd from above. Nobody knows exactly how many people were killed that day. Common belief has it that some four thousand were shot in those few hours. The same day President Carter of the United States sent a message of support to the Shah government! (Fischer 1980, p. 199). This was not the first supporting message, a year earlier, as Housain (1986), writes;

> " The Shah then hosted a dinner for President Carter in Tehran, where the President declared: ' Iran is an oasis of stability in a sea of trouble, and I am sure that the reason for this is the just, the great, the inspired leadership of your Majesty.' President Carter could not have been more wrong" (p. 29).

The role of religion as the main vehicle of revolution and the role of the religious leaders is apparent in the recent history of uprisings in Iran. One of the significant points concerning the religious leaders in Iran, is that they had and still have no financial or official link with the government. The Imams of the mosques are paid by the people or very often have their own income through teaching or farming and so on. That is why in Iran they tend to be close to the masses of Muslim people. In most Islamic countries, on the contrary, the Imams of the mosques are appointed and paid by their governments and are dependent on them. Thus to take any measure against the

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7.This is a square in southern part of Tehran and its new name is 'Meidane Shohada', (Martyrs Square).

government would jeopardise their personal interest and naturally the government would not be likely to appoint any potential opponent to their policies.

What upset the imperialistic Westerners about the revolution in Iran was that they lost their closest friend in the Middle East. They were and still are afraid of similar events in other Muslim countries of the region; most of whom are the suppliers of oil and other raw materials Western industries and a major market for their armaments. On the other hand, the Russians were also not happy because of the millions of Muslims in their republics and therefore the risk of uprisings[8]. This was perhaps one of the reasons why, shortly after the Islamic Revolution in Iran, Russia invaded Afghanistan, and remained there until 1989 when they left after being badly defeated.

The main slogan during the demonstrations was 'No east, No west, the Islamic State'. From the beginning the people insisted that their future government would not be run on a Western or Eastern model one, but would be ruled according to Islamic laws and practices. In the view of Shi'ite Muslims, politics is not separate from the religion. Religion is not only a series of personal instructions such as prayers, but it is a way of political and social life. In brief, the Islamic Revolution of Iran tended to establish a new model for governing the country.

Time magazine (7 January 1980), wrote; ' [The Ayatullah] Khomeini has blown apart the comfortable myth that as the Third World industrialises, it will also adopt Western values.' Thus the Islamic

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8.In recent unrests in Azarbayejan Republic, as I watched on TV news, some o the demonstrators were holding portraits of Imam Khomeynie.

Revolution of Iran was perceived by the dominant superpowers of the world to be dangerous not only in the Middle East but also in all Third World countries, where Western and Eastern countries have rested interests. They were quite right and that is why since 1979 the superpowers have done all they can to stop this revolution growing. These attempts are still going on and as long as the nature of this Revolution is kept pure, the risk of loss for the superpowers and their allies will exist. This hostility of the west and east is one of the major points which must be kept in mind in our later discussions. In fact the Iraqi invasion in 1980, shortly after the revolution was a challenge supported by the superpowers, to destroy or at least to weaken the new revolution.

The American government took several other steps to achieve the same goal. First they attempted to influence the new cabinet and direct affairs towards their own interests. In 1979 they imposed economic sanctions. In April 1980 they carried out a military operation to rescue the US Embassy hostages, who had been captured by university students in November 1979. The students later published several books revealing the documents they found in the embassy.[9] In July 1979 a coup (code-named Nowzheh) was discovered and aborted. Since the Revolution much counter-revolutionary unrest has been supported by outsiders in Kurdisatan in the east, Khuzestan in the south and Turkaman Sahra in the north. Each of these brought a lot of turmoil and most of them were finally settled after armed conflicts.

9.The publication of these documents is still continuing. The important resu of these documents was revealing American plans to sabotage the revolution by coordinating with the liberals and even inciting a coup.

(see also Amirahmadi, 1987a)

With the destruction of the old system completed, the time came to establish the new order. The model society the revolution aimed at, was not a copy of those experienced elsewhere such as some form of socialist model. No single example of an true Islamic State can be found in contemporary history, to provide an example and from which to draw lessons. Only in the very early days of Islam, particularly in the time of the prophet Muhammad, such a model community existed for a short period. The 14 centuries which have elapsed, makes the task of defining the context of the new Islamic society a complicated and time consuming task. It would also require dramatic changes in pre-revolution norms in every aspect of life, from economy to education and culture. There are many who still believe that designing a society according to Islamic ideals is impossible in the 20th century. The removal of the Shah was another of those impossibilities which proved to be a myth.

The debate about the *content* of the new system started soon after the revolution and showed up the divisions among the politicians. The first Prime Minister (Bazargan) and the first President (Banisadr), both failed in their jobs partly because their knowledge could only assume some kind of society based on the liberalisation and technocracy along quasi Western lines. It became apparent that that was not what the revolution was aiming at. Fischer (1980), in relation to this writes;

> "Today Shi'ite leaders have the opportunity to translate their moral opposition and social criticism into a framework for modern politics. Issues such as the nature of politics and economics, the position of women, and the rights of

> religious, linguistic, and cultural minorities take
> on new relevance. It has been well said that the
> Western revolutionary tradition stresses individual
> freedom, sometimes at the expense of economic
> justice, that the Eastern (Communist) revolutionary
> tradition stresses economic justice at the expense
> of freedom, and that the Shi'ite promise is one of
> combining freedom and justice. We wish Iranian
> people well in their attempt to reach for that
> promise" (p. 231).

What we would like to argue is that since the Iraqi invasion started shortly after the revolution, defence and liberation of the invaded territories naturally became the first priority. The economy of the country, development plans and everything else were overshadowed by the war with the aggressors. The eight year-long conflict in fact, to some degree, postponed the 'design and construction' of the new society. However, significant steps were taken by the government towards establishing new development priorities and objectives. In terms of providing services to the rural poor; for instance, with road construction and electricity supply, more has been done over the last ten years than during fifty years of the Pahlavi dynasty. But we must not ignore that without the war many important policies and programmes towards the implementation of the new society could have been taken. What the war has meant, is that after the ceasefire the country must not only rebuild the damage but must also plan its model society, for the whole country's development. Something which without the war would have been done in the first flush of the revolution but must now be done with even greater expedition and determination, to make up for the lost time of an exhausting and wasteful invasion. This must be remembered.

1-3- Khuzestan- Khuzestan Province is located in the south-west

of Iran. Its capital is Ahwaz. It has an area of $64,664$ Km^2. From

the south it is bounded by the Persian Gulf; in the west it is the

neighbour of Iraq and its remaining boundaries are with six other

Iranian provinces.

Fig 1-1: Iran and Khuzestan

Geographically, Khuzestan consists of two major areas, a small

mountainous area in the north and north-east, and a large plane of over

$40,000Km^2$. The capital Ahwaz is only 18 metres above sea level. The

maximum temperature of the capital has been over 51 Centigrade and very

often the minimum temperature in winter is still one or two degrees

above freezing. The average rain fall is over 200 millimetres per

year.[10] *Figure 1-2* illustrates the average rain fall and temperature of

Ahwaz for a period of 23 years (1961-1983).

10.See Annual Statistical Report. pp. 11-13

Temperature
(°C)

Rainfall
(Mm)

40
35
30
25
2●
15
10
5
0

400
350
300
250
200
150
100
50
0

March
April
May
June
July
August
September
October
November
December
January
February

▉ Rainfall
▁▁ Temperature
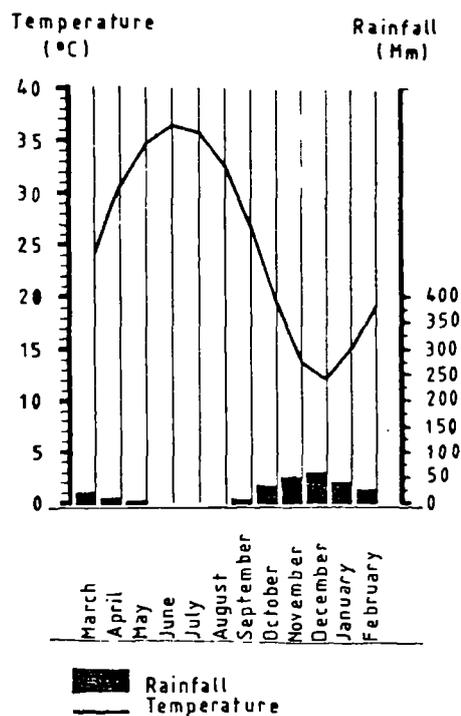
Fig I-2: Average rain fall and temperature of Ahwaz between 1961-1983

[Source: Annual Statistical Report, (Iran) 1985]

According to 1979 statistics, Khuzestan had a population of over 2,187,000 of these, 912,009 (i.e. 42%) were living in 4,172 villages and the others lived in 24 towns and cities. The capital Ahwaz in the same year had a population of 334,000.

In terms of natural resources the area is very rich. The soil here is called 'golden' and the rivers have plenty of water. The river Karoun passes from the capital Ahwaz. It is the largest and longest river (890 Km) of the country and the only one which carries shipping. Other main rivers in the Province are Karkhe, Karkhe Nour, Jarahi, Bahmanshir and Arvandroud. The villages are settled on the banks of the rivers or near irrigation canals. In this Province many kinds of crops can be grown. Palm groves in the south, citrus fruits in the

east, rice in the west, wheat and barley and vegetables can be grown everywhere and sugar cane is planted in the north of the province.

Animal husbandry is common. Even in the city of Susangerd some houses keep one or two cows. In the villages almost every family has a few cows. There are also families with herds of a few hundred sheep, who are semi-nomads, but generally, the villagers keep buffaloes in the west of the province. Villagers also fish in the rivers and particularly in the marsh, called Hour Al-Hoveizeh to the west of the province.

Before the war the area was well off as the main oil fields of the country are all in Khuzestan; the Abadan refinery is the oldest and the biggest in the country. Khoramshar port is one of the major ports and the nearest to the centre of the country. The manufacture of petrochemicals is also located in this province. Many of this plant has suffered due to the war and thus employment has been affected. However, many people from the area work temporarily in the Gulf countries, which brings them a good income. Amirahmadi and Atash (1987), in a study of 'Dynamics of provincial development and disparity in Iran 1956-1984', classified the provinces into three groups of 'Relatively developed, Intermediate and Least developed'. Their study however, reveals that Khuzestan Province for the period concerned has always been in the first group. Shahid Chamran university with over 4500 students in different subjects such as medicine, agriculture and literature is the main university of the Province based in Ahwaz. An independent faculty of oil engineering was based at Abadan which during the war they transferred its equipment to Ahwaz and courses resumed there.

As has already been mentioned, the majority of the people, particularly in rural areas are Arabs. They speak Arabic and often wear their traditional clothes. Men wear a long and usually white dress, locally called 'deshdashe' and they protect their heads against the hot sun with a large scarf called 'chafieh'. Women on the other hand, wear black dresses with trousers, a black scarf called 'Sheile' covers their heads and when they go out, for shopping for instance, they wear a special veil called 'Abaia'.

Plate 1-1 : Mens' traditional cloth

The tribal affiliation is still very strong and every family knows which clan and tribe they belong to. The inhabitants of each village are usually members of one or two large families. The elders are respected and people live in extended families. Even in urban areas a single house will sometimes contain more than 15 people, as the

father and mother, sons and daughters, sons and daughters in law all live together. The power of the family is in the hands of the chief of the house who is the oldest member. In the village also until recently the head of the village was an old person called, 'Sheikh'. The same hierarchy of power existed in the region and the affairs between different villages were sorted out by the council of 'Shoyoukh'. However, with the introduction of new 'Islamic Committees' in the villages and new organisations such as 'Jahade Sazandegi'[11] the traditional structure of power in rural areas is undergoing dramatic changes.

Traditional rural settlements- Apparently the environment has a major role in characterising the architecture. Generally in the northern and Eastern parts of the Province, some traditional architecture influences from central Iran can be seen. Arches, vaults and domes, made of sun-dried or burnt bricks are used. Occasionally even stone finds its way into the buildings. Houses have a central courtyard and the site of the village is compact with units attached to one another.

In the plain area of the province, particularly in our study area 'Dashte Azadegan District', villages are usually a cluster of separated units scattered over the land. No clear street or alley, with the exception of some of the large villages, can be found. Houses are a complex of single rooms standing around a large open area, which is occasionally bounded by low mud walls or piles of hay and fire wood and so on. The dominant building method was rammed earth. Roofs were

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11.Jahade Sazandegi, (Construction Crusade) is a new organisation establishe since the Revolution to deal with rural development programmes.

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built with wooden trunks, then a bamboo matt and layers of mud on top. The final layer is a mixture of mud and straw. The same mortar is also used for finishing the walls. The climate is such that seldom can any trees be grown, with the exception of palm groves in the south. The roof wood is imported from other regions as palm wood here is not suitable for supporting roofs.
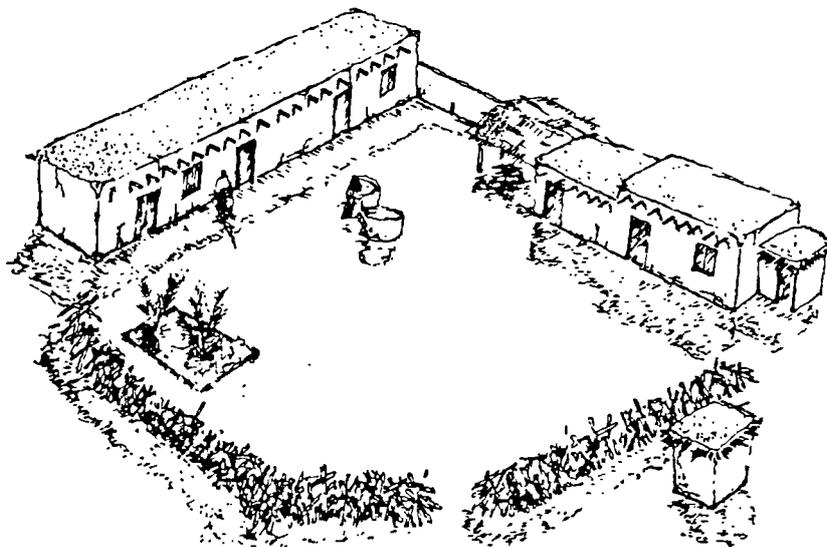
Fig *1-3* : An example of traditional house

[Source: Miri and Shakeri 1987]

In the west of the Province there is a large marsh called 'Hour Alazim' or 'Hour Alhoveize'. The rivers Karkhe and Karkhe Nour end in this marsh. Plenty of bamboo grows in the Hour and since the land is very low it very often floods. The villages here again are in clusters of scattered units, with the houses built of bamboo and reeds. Bamboo is also used in other villages far from the Hour, for building cheap

shelters especially for animals.
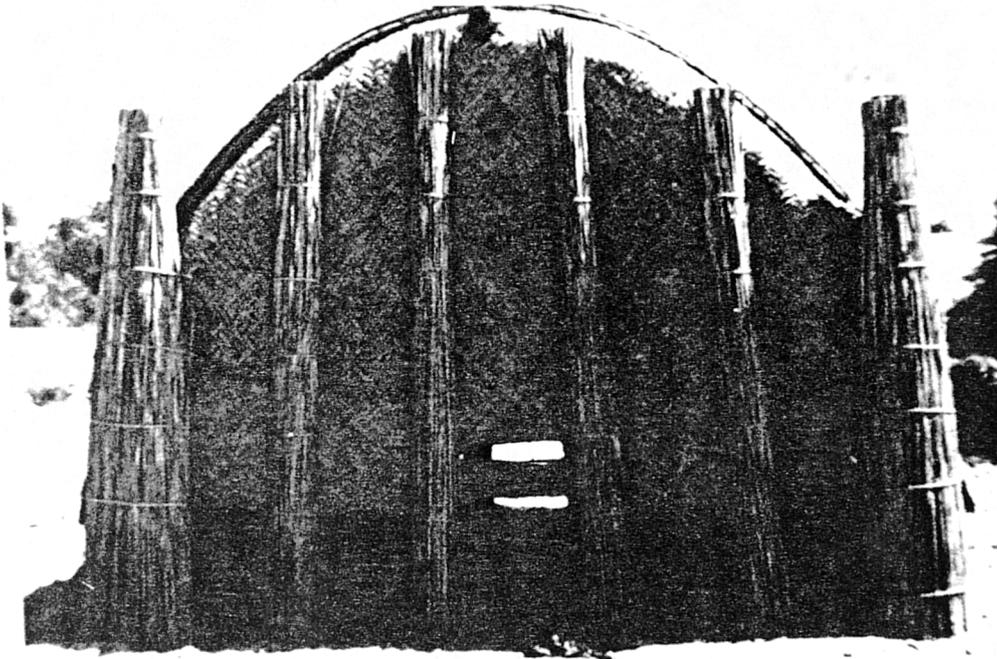
Plate 1-2 : A bamboo house

[Source: Miri and Shakeri 1987]

The layout of the houses is an illustration of their life style. The houses are formed of single rooms and the way they are clustered is a reminder of the earlier nomadic life of these people. Earthen rooms are substituted the tents clustered in the middle of the desert. These nomadic people have mainly since the turn of the century, due to oil industry, gradually started to settle and to farm near rivers. Dispersion of the settlement is one of the factors which not enough attention was paid in the newly designed houses after the war.

In the house each family has one or two rooms used for sleeping,

storing and sitting at mid-day when it is hottest outside. The other facilities such as the courtyard, oven, stable and so on were shared by all members of the household. In the late afternoon particularly, the outdoor areas come to life. The family sit, eat and sleep outside as the air temperature drops more quickly than inside the house. Only in winter when it rains or the weather gets cold for a few weeks they may eat and sleep inside. These different uses for indoor and outdoor life are important to remember, as most family life is spent in the open. Most houses had no toilets or bath room and families use the desert for their relief.

According to 1976 official statistics as you would expect, in rural areas of the Khuzestan Province, 93,5% of houses were built of 'poor' materials such as mud, bamboo and cloth. The reasons why mud has been the dominant building material in this area are several. Firstly because it is available everywhere and unlike some areas of central Iran, where the villagers have to bring earth from a suitable site around the village, in this area almost all the soil is suitable for construction. Secondly, it contains minerals and is not suitable for burnt brick making. So in only very few villages were burnt bricks produced and used[12], they had to be brought from Ahwaz or other far away areas. The thick earthen walls built by the rammed earth method performed well in hot weather. Finally, the most important advantage of using mud, was that the house could be built cheaply and quickly by the family itself. In only two or three weeks a family was able to build the walls of a new room. Only roof beams had to be purchased

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12.Near the village Sarie two small hand operated burnt brick factories were working before the war.

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apart from the bamboo matts[13] which were not really expensive.

The size of the rooms might be different. But limited by the roof timbers available a typical room is 3 metres wide and five to six metres long. Often each house has a guest-room, 'Mozif', which is located separately from the other rooms, nearer the entrance. The size of 'Mozifs' could vary depending on the wealth of the family, I found examples three by twelve metres long. The same space in the villages near the Hour were built in bamboo. For us it was exciting when for the first time we visited a huge bamboo Mozif 4.5 by 12 metres long. (see also Madani Pour 1988)

It seems that unlike many of the villages in other parts of Iran, privacy was not a major concern since the courtyards were usually open to outsiders eyes. The room, in fact the core of the house, provided the most private region for each family. The house, a complex of several families and rooms, provided a semi-private area for the inhabitants. The Mozif, however, limits the strangers ability to interfere with the privacy of the house, since it is located as close to the entrance as possible. The whole village, then becomes the 'next area of territory', which isolates it from other settlements.[14]

13.These matts in some villages were produced locally, other remote villages have to purchace them from markets.

14.Not only in Khuzestan but in many other villages in Iran, I observed that the villagers as a whole have a sense of family relationships. For instance, usually women think less seriously about their veil in front of men of their own village, than in front of men from outside the village.
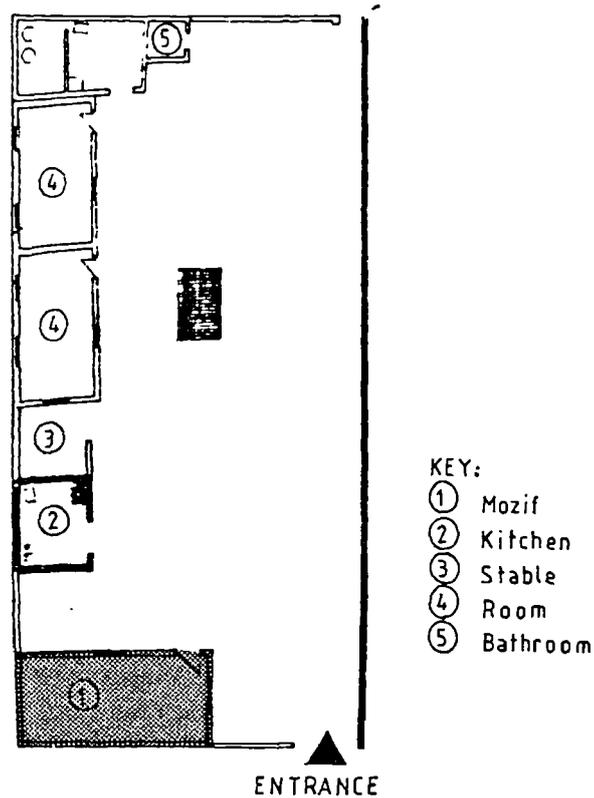
Fig 1-4 : Location of Mozif (Guest room) in the house

[Source: Miri and Shakeri 1987]

In this hot semi-humid region providing relatively comfortable living conditions is a major task. In urban areas electrical appliances are often used. In rural areas however, since most villages had no electricity, natural ventilation had to be employed. Since the rooms are detached and in any case free on two sides a natural current of air was provided by installing small holes near the floor in the wall. In the middle of the day they sometimes pour water near the holes on the ground outside to increase the moisture in the air and make it more pleasant.

Each room had a wooden two part door without any glass. The

windows were small and often without glass but made of wood panels. The major disadvantage of these mud structures was their poor resistance to rising damp, since the ground water level is quite high. The hot weather increases the evaporation process which deteriorates the situation by spoiling the mud and creating salt on the surface of the wall. On the other hand their repair was very easy and could be done by adding some layers of new mud. Very often women were responsible for this job. Another problem with traditional houses is the risk from floods. However, the easy availability of materials and skills made the recreation of settlements a task that the families themselves could undertake.

1-4- The war- With the invasion of Iraqi troops into Iranian territory on 22 September 1980, the war officially started. It continued for eight years until 20 August 1988, when Iran accepted the Security Council Resolution 598 and eventually the ceasefire was observed. In addition to the numerous journals and newspapers articles, several books and academic papers are available on the Iraq-Iran war, or as it is often called 'The Gulf war'. (see for example, Tahir-Kheli and Ayubi, 1983 (ed); Khamsin, 1984; Karsh, 1987; Amirahmadi, 1988; Chubin, 1988; O'Ballance, 1988) In other books written on Iran after the Islamic Revolution, also some authors have included sections on the war and its impact on Iranian life. (see for example, Limbert, 1987 and Bakhash, 1986)

The roots of conflict- Usually different authors have attempted to look for the roots of this war in the past and generally they agree there is no single reason for it. They often consider the following reasons; a very old established cultural division of Arab and Fars or Iranian, separation of Shi'ite and Sunni, the quarrel over the Shatt al Arab waterway, the 'antiquity of ethnic problems, including the Kurds, the danger of the Shi'ites uprising in Iraq and so forth. (See, Staudenmaier, 1983, pp. 28-29, Limbert, 1987, p. 139, O'Ballance, 1988, pp. 1-12) However, these reasons do not seem enough to start a war since almost all of them existed for years before the outbreak of the conflict.

It is known that some 55 to 60 percent of Iraq's population are Shi'ite Muslims. In addition many of the Shi'ite Imams' shrines are in Iraq. The cities Najaf, Karbala and Kazemain in Iraq are places where for centuries Iranians have made pilgrimages. In Najaf one of the main

Shi'ite religious teaching centres is established. But still none of these were new. Authors usually argue that the disarrayed army and weakened situation of the new government in Iran was one major encouraging factor for Saddam, the Iraqi President. The other one was the strength of his own army, well trained and equipped with Russian weapons. His personal ambition to become the successor of the defeated Shah as the major power of the region is also counted an important factor. Of course the risk of a Shi'ite uprising and a claim for an Islamic government instead of the secular Bathi one was also serious. In those days Saddam anticipated a quick victory in a fortnight or three weeks, which was a miscalculation.

Whatever the roots of the invasion, though knowing these would be useful to assess the reliability of the ceasefire and as a major factor influencing reconstruction policies, we have to abandon the argument about them. O'Ballance, (1988), summarises all these factors as follows;

> "President Saddam Hussein's grand bid for supremacy of the Persian Gulf area began on 22 September 1980, when about 45,000 Iraqi troops, the best part of four divisions, invaded Iran. The Iraqi President expected a swift victory within a fortnight or three weeks. His war aims included regaining full control over Shat al-Arab; favourably re-adjusting his land border with Iran; obtaining possession of the three Islands [Abu-Musa, small and big Tonbs] in the Straits of Hormuz; and probably obtaining autonomy for the Arab inhabitants of Khuzistan Province. Fearing the Iranian Shia Revolution might over-spill into Iraq, President Saddam Hussein intended to cut Ayatollah Khomeini down to size, weaken his personal influence in the region, and perhaps even topple him from absolute power in his own country" (p. 30).

Chronology of the attacks- Edgar O'Ballance (1988), starts his book with a chronology of the Iraq-Iran war. The main events however, can be summarised as follows; On 17 September 1980, Saddam unilaterally abrogated the Algiers Treaty of 1975 which he himself signed. A few days later on 22 September, Iraqi aircraft attacked Iranian airfields and moved into Iranian territories along 1300 Km of borders. A week later the blessing of America reached the Iraqis, in the form of four AWACS E3C surveillance aircraft positioned in Saudi Arabia to look over the military movements of both sides and perhaps to supply information on Iranian army facilities and movements towards Iraq. The Iraqis succeeded in capturing the main areas of Khuzestan, coming within 10 km of its capital Ahwaz. On 24 October 1980, the city Khoramshahr fell to the Iraqis after unprecedented resistance by the city. In brief, the army was in such disarray that in the first two months, the Iraqis successfully and easily moved up to 80Km into Iranian territory and captured some 4,126 square miles (14,000 km^2) of Iranian territory.

Meanwhile the interior counterparts of Iraqis were also acting simultaneously. On 28 June 1981, in a terrorist explosion in Tehran by 'Monafeghin'[15], 74 of the top Islamic leadership were martyred. A month later on 30 August in another conspiracy the same group, put a bomb in the President's office that killed both the President and Prime Minister. During the year 1981 and early 1982 the course of events was reversed and the Iranian troops pushed the invaders back almost to the original border line. During 1982 in two separate major

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15.The Muslim Iranians call them 'Monafeghin' (hypocrites), they still use their original name 'Mojahedin Khalgh' (people's fighters). For years they settled in Iraq and with support and supply from Iraq they fought the Iranian army and were defeated.
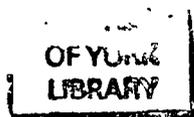
operations, Fath Al Mobin in March and Fath Al Moghadas in April, some

7,780 Km^2 were recaptured whereby the city Khoramshar was also freed.
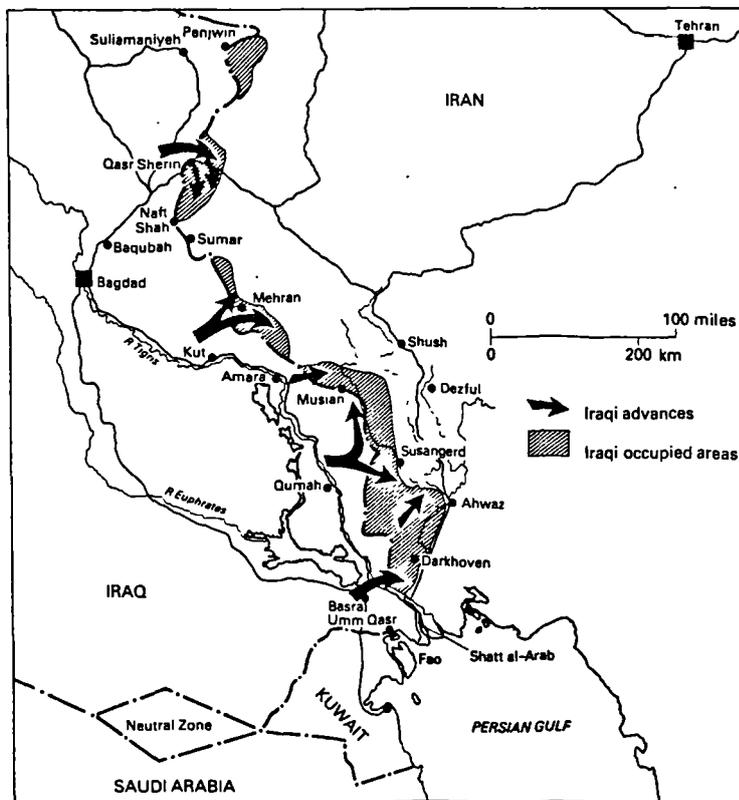
Fig 1–5: Iraqi advances September to December 1980

. [Source: O'Bllance 1988 p.34]

On 10th June 1982, the situation had become so bad for the Iraqis that Saddam announced that his troops would leave Iranian territory. During 1984 Iraq began to attack the ships in the Gulf by shooting a Greek ship on 16 March. Also from 1984 the civilian population of the cities were bombed and in several operations the Iraqis used chemical artillery, first against the Iranians and later against their own population. For example in 1988, 5,000 civilians

died in the a Kurdish Iraqi city of 'Halabche'. By 1986 Saddam was

seeking for peace and stepped up his indiscriminate missile attacks on

several Iranian cities, including Tehran. In any case our main concern

in this study is the destruction caused during the war and more

importantly the evolution of reconstruction carried out over eight

years, in Khuzestan Province.
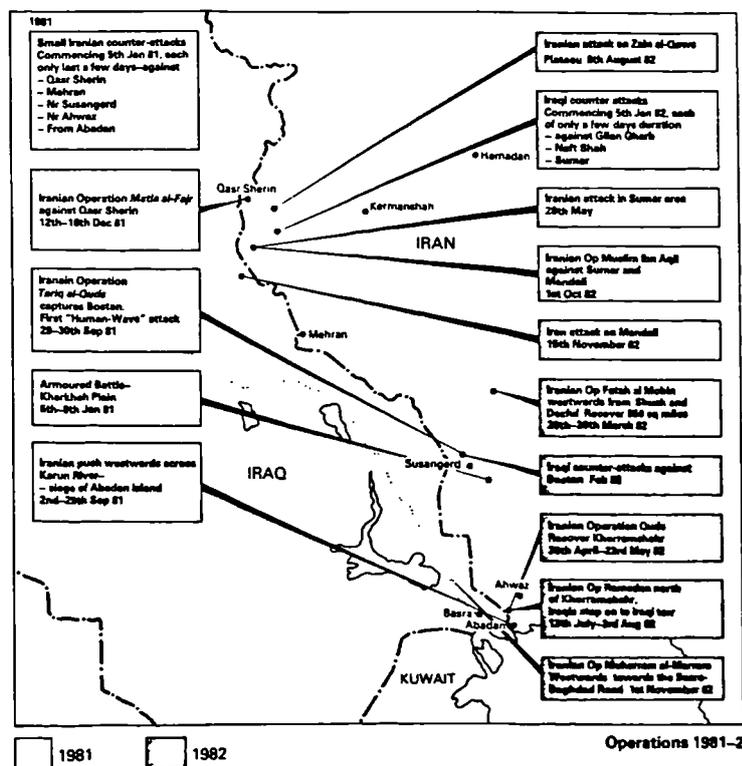
Fig 1-6: Operations 1981-82

[Source: O'Bllance 1988, p. 61]

War damage- O'Ballance (1988), writes; ' It has often been said

that truth is the first casualty of war. The Gulf War is no exception"

(p. xviii). This might be one of the differences between natural

disasters and war, the numbers of losses of life can have positive and negative psychological impact on both sides of the conflict. However, there are other problems that make the collection of reliable data difficult. First, the damage might be scattered over large areas, in our instance several cities and villages all over the country. Secondly, in terms of human loss, the number of those killed becomes difficult to judge because the number of captured soldiers or civilians may not be announced by the enemy. Finally, the calculation of damage and loss is overshadowed by the need for reconstruction.

Human loss and refugees- The estimation of loss of life during the eight year war substantially varies according to different documents. Ja'far (1984), claims; 'a conservative estimate, some 300,000 people have been killed on the battlefield so far; other estimates put the casualties as high as 6-700,000' (p. 8). Amirahmadi (1988), writes; ' At least one million may have been killed on both sides with an addition 3 million wounded and disabled' (p. 1). Pudnek (1987), claims '500,000' to be killed from both sides (p. 61). Husain (1986), also claims that 'one million' were killed of which '750,000' were Iranian (p. 64). Concerning the number of refugees Amirahmadi (1987b), estimates 2,5 million Iranians were moved to war-free zones (p. 135). Meanwhile another two million Afghan refugees added to the government's difficulties.

As a few examples of official statistics published in 1984 by the Iranian government shows; in the city Abadan, with 400,000 population located in the south of the province (first attacked in 18 March 1980), some 1,200 civilians were killed, 7,000 injured, of which 80 people became permanently disabled. Also 2,228 civilians were

captured in the early days of Iraqis attacks.[16] The same source also reveals that in the city Dezful, a city with 300,000 population, located 146Km north of Ahwaz, up to 1984, 600 civilians had been killed and 2500 injured due to bombs and missile attacks. In any case now it makes little difference whether the real figures are a few hundred thousand smaller or greater than has been quoted.

Economic loss- Amirahmadi (1988), claims;

> " Only direct damage to the economy (i.e., damage to machinery, buildings, materials, and goods) is estimated at around $200 billion, with an additional $400 billion for indirect economic costs (including opportunity costs). These figures do not include damage to the population and the military. At the present rate of oil earning, the direct economic damage accounts for almost 18 years of oil revenue" (p. 9).

Amirahmadi (1987b), concerning the losses of different sectors writes;

> " The Oil Sector (12,851,716) [$150 billion] has suffered the most, followed by Agriculture (3,494,451) [$45 billion] , Revolutionary Foundations (3,160,378) [$40 billion], Industries (2,947,050) [$38 billion], and the rest (2,276,828) [28 billion] grouped under 'others' (all figures in million rials, current prices; one U.S. dollar equals about 80 rials at official exchange rate; 900 rials at black market rate)" (p. 135).

The same author also reports that from 1982 to 1985 respectively the following amounts were spent on reconstruction of damaged areas; 70.1, 91.1, 60.6, 50.0 billion rials. [8.5, 11.5, 7.5, 6, billion $US] (p. 139) The important point to notice is that from 1983 to 1985 this figure declines sharply because the total income of the country

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16.Source: 'Shahrhaye Mazloume Ma', (Our Inocent Cities), 1362, (1983)

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decreases.

Mofid (1989), claims that;

> "...the Grand Total Economic Cost of the war to
> both countries is the total of $1,156 billion.
> ...To put the total economic cost of the war of
> $1,156 billion in better perspective, it suffices
> to say that the cost of the war exceeds the total
> oil revenue which Iran and Iraq have recieved
> throughout this century" (p. 2).

Pudnek (1987) concerning the costs and damages of war claims; "

Now the war is currently costing $25 million per day and the cumulative

total damage to property has been calculated by the government's

Ministry of Plans and Budget as $260 billion. If military costs are

added then the grand total is likely to be between $400-600 billion"

(p. 60).

Damage to the settlements- Amirahmadi (1988), writes; " A total

of 52 cities have been damaged. Of these, 6 cities have been

completely levelled and another 14 have sustained between 30 and 80

percent destruction" (p. 9). The same author quotes from an official

document that up to 1986, 3,891 villages had been damaged because of

the war. The damage is estimated at 560,215.1 million Rials [$7000

million] (p. 137). From this figure in Khuzestan Province, out of 4,316

villages 497 were damaged or destroyed. Amirahmadi (1987b) also

writes;

> " The cities of Hoveizeh, Qasr-e Shirin, Musian,
> Sumar, Ozgoleh and Khosrawi have been 'totally
> levelled' and the cities of Khoramshahr, Nosud,
> Dehloran, Gilan-e Gharb, Abadan, Bostan, Mehran,
> Susangerd, Shush, Dezful, Andimeshk, Naft-Shahr,
> Baneh, and Sar Pol-e Zohab, among others, have
> received ' wide-ranging damage.'" (p. 135)

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An official report of 1983[17] reveals that in Khuzestan Province alone, in the city of Abadan, 40,000 houses were seriously damaged or entirely destroyed. In Khoramshahr, when it was recaptured by the home forces, 8000 houses were found razed to the ground and 9,000 others seriously damaged. The small town of Hoveize, with 1900 houses, after recapture was found as a 'hill of rubble'. It was entirely razed to the ground. Pudnek (1987) also refers to official statistics reported in Etelaat newspaper in 1981 and counts the damage;

> "51 cities, 3,091 villages, 118,834 residential and
> commercial units, and 14,734 governmental dwellings
> and office buildings....710 schools, 126 hospitals,
> 419 mosques, churches and temples and a significant
> number of bridges, highways, irrigation canals and
> networks, farm lands, oil pipes,..." (p. 60).

The main figure to remember for us is the 497 villages damaged or destroyed in Khuzestan Province.

Mechanism of destruction of rural settlements- Apparently the damage received by rural areas has more than destroyed buildings. Not just to mention those killed or captured, the swift evacuation of population, wherever possible, did not allow for the evacuation of their live-stock. Thus herds were abandoned free[18], the grain collected in the stores remained there and house utilities such as beds, clothes and cooking equipments were left behind as well as machinery. The

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17.Shahrhaye Mazloume Ma, (our Inocent Cities), 1362 War Information Head Quarters 1983.

18.After recapture the cows and buffaloes that survived, were collected and monitored by a special team. Two problems; first cows and buffaloes had become violent, and secondly, it was difficult to identify which calf belonged to which parents and finally to which farmer. Belive it or not the rural people sorted these matters peacefully.

water pumps were the most expensive machines in the villages, upon which their agriculture was and still is dependent and they were looted by Iraqis. The destruction of agricultural land was a major obstacle to resettlement, since both sides of the conflict constructed hundreds of kilometres of earthen embankments and barriers thus disturbing the farm land. Later one major step towards resettlement was to move all these embankments and barriers. Farms were also damaged for another reason. The planned flooding of large areas, particularly by Iranians as a defensive military measure, had converted the farms to marshland.

The destruction of rural settlements can be caused by one or more of the following agents;

a- natural forces;
b- artificial flooding;
c- looting of useful building materials, such as sawn timber stocks;
d- razing the buildings by mechanical means.
e- bombing and shelling, etc;

a- Natural forces- Most buildings damaged in the villages were built in mud. We have already mentioned that rising damp is a constant problem in this area which gradually decays the base of the walls. To this must be added the rain which gradually washes the surface of the roof and outside walls to accelerate the erosion at the base of the wall. In fact many of the buildings have gradually collapsed after not being taken care of for four or five years. It is likely that those villages that have not been inhabited for eight years are in a worse situation. There is no problem of freezing in this area, but rising damp, surface water, and rain-fall have all been effective factors to damage rural mud-built units.

Those villages in the west of the District, built in bamboo,

were in a similar condition. The life-span of bamboo buildings is short and therefore each four or five years they must be rebuilt. The decay again starts by rotting the footings of the bamboo arches buried in the ground. In this case cost is unimportant, since replacement is readily available. The abandoned houses provide an opportunity for different insects to invade the units as they wished. The wooden roof beams, the bamboo mats on top and the straw in the finishings all provided suitable ingredients for termites and other insects. However, no detailed report is currently available on the degree and extent of insect damage. To our surprise, we visited some damaged mud buildings which were still standing intact despite the extensive decay in their bases. However, these were dangerous structures and the risk of collapse was high.

b- Flooding- In October 1980, while the Iraqi forces were still pushing ahead, as a defensive measure, the home forces opened the water of Karkhe to the alluvial plain between 'Hamidie' and 'Susangerd' and eventually a large area between the two rivers Karkhe and Karkhe Nour became a lake and marshland. (see O'Ballance, 1988, p. 41) This was a successful measure and more than 150 Iraqi tanks sunk in the mud. Nevertheless all the villages in this area were also flooded and this in turn caused the collapse of nearly all the mud structures in the villages.[19]

c- Looting- Some of the building components can be used during the war for roofing shelters, making small bridges and so on. In this

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19.When the area was drained plenty of fish were available. When I visited t area I found people collecting fish from the remaining swamps as if they were picking vegatables from the ground.

respect both the enemy and home forces may have exploited the buildings. Usually the wooden trunks of the roofs and doors and windows were taken away. Walls remaining intact could indicate that the roof materials were salvaged.

d- Buildings razed to the ground- Generally any structure can provide some kind of protection against shelling and bombing during a battle. Furthermore the combatants also need somewhere to stay while the battle is in progress. The buildings also provide good cover for the combatants. Food, artillery and other equipment can also be stored in existing buildings. Thus one of the main intentions of armies when they occupy a settlement, is to level it if they are not going to remain there. For this reason villages were often razed to the ground by bulldozers. Armies usually do it when they are retreating from their battle-line to diminish the advantage their opposite forces would glean from these buildings.

There is another reason to destroy as many structures as possible. It has a psychological effect on the home army. In the city of Hoveize for instance, the whole city was levelled and destroyed by explosion. This could also add to the amount of reconstruction work in future, causing more economic pressure and delaying quick resettlement. This latter might be the reason why a large area of Khoramshar was levelled by Iraqis during occupation and it seems that they intended to raze the whole city if they had had enough time before being forced out. In any case levelling the buildings, once a city or a village is occupied by the enemy, is a cheap method of destruction. The case of Warsaw is an example of this kind of destruction by the Germans. (see Ross Gilhome, 1988)

Another kind of damage might also be created by deliberate destruction of parts of the building. For instance, in Khoramshahr during the long battle, the home army had to install a safe passage to connect the front line to the back. So they had to cut openings through houses because they could not use the alleys or streets. Or in some instances they piled hundreds of sand bags inside a house or built extra shelters inside the houses, all of which could damage the building.

Plate I-3: The effect of rising damp on mud built walls

[Source: The author]

e- **Weapons and ammunition-** Most weapons are designed to kill people. However, many of them also damage buildings, the collapse of these structures then can become a new means of killing and injuring

the inhabitants. It is an irony of war, that while some thought is put into producing secure shelters against artillery, more thought is put into penetrating any defence and shelter. If reinforced concrete can resist machine-guns bullets, more powerful weapons will then be made to destroy the reinforced concrete shelters.

The mechanism of destruction during the war tends to be more complex than that of natural disasters such as earthquakes. It requires an understanding of different weapons and their impact on different structures. We will explore this subject in more detail in our chapter on 'War as a disaster'. However, for the sake of convenience, a short review of the same subject will be made in this section.

The destruction by weapons and artillery depends on the four following factors;

1-the kind of weapon used;
2-the frequency of use or shots;
3-the part of the building the shells or mortars impact on, (e.g. inside the building or outside at some distance);
4-the situation and quality of the building attacked.

For instance damage to a building depends on the kind of mortar or shell used and its specific power of destruction, the number which struck the building, where and at what distance the mortars struck from and finally what kind of material and quality the building was. For example, to assess the damage to a single building we must know that 81 mm mortars were dropped, five of them, inside the room which was made of mud. The damage would be different if instead of 81 mm mortar a heavy missile struck the same buildings or instead of mud, the building was steel frame and so forth.

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Generally weapons can be classified under the following categories;

1-Conventional (i.e. explosives);
2-Chemical and microbiological;
3-Nuclear.

The distinction of using Nuclear weapons in war is still uniquely possessed by the Americans at Hiroshima and Nagasaki in 1945. As far as we know microbiological weapons were not used in the war between Iraq and Iran.[20] Chemical weapons were extensively used during the war (nerve gas, mustard..etc) but these weapons have no direct effect on structures, they directly affect the people. However, the substance remains on the ground for sometime and might remain hazardous. So the main weapons with impact on buildings were the so called conventional ones.

Conventional weapons range from small machine guns to heavy artillery, missiles and bombs, each of them with a different impact on buildings. The weapon that did the most extensive damage in rural areas were mortar and artillery shells. What is worth mentioning here is that in some respects, mud structures are more resistant than stronger materials, such as bricks or cement blocks. Remembering that the settlements are scattered, that the walls are heavy and thick, and that the surface of the walls is relatively soft compared with bricks or cement blocks. More importantly traditional roofs are not well tied into the walls all these factors could help to reduce the damage to mud

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20.In early 1989 reports in the British papers said that Iraq had succeeded developing microbilogical weapons. Also Panorama on BBC 1, on 10 th April 1989 reported about the production of a rocket called Condor by Iraq and Egypt, with the help of Argentina. The Rocket could have both chemical and explosives.

structures.

The conventional weapons can damage a building three ways;

1-direct strike;
2-the flying fragments;
3-the turmoil of explosion.

By the first we mean that a shell or a bomb acts as a heavy stone, which by its weight and speed (it is also very hot) when it strikes a roof for instance, can break the beams and make a hole. This is the first damage and if the mortar does not explode there would be little additional damage. After explosion two other mechanisms will be evident; first a series of fragments would fly in all directions and because of the explosion, strong air pressure and consequently a vacuum will be created. The flying fragments can strike the walls and roof and might cause damage. In this case if the surface of the wall is soft, it can probably absorb the flying metal and at maximum a small area of the surface may fall down. If the surface is solid and the wall is more homogeneous, either it will resist the pressure or there is the risk of extensive damage. Sections of brick or block work may separate and fall down.

The most damaging is the simultaneous impact of an explosion and the consequent air pressure caused by it. Many factors appear to influence the extent of the damage; the size of the shell or bomb, the distance to the building, the direction of explosion against the wall and so on. If a heavy bomb or missile strikes a site, apparently the buildings close to the strike point will totally disintegrate, other buildings at some distance may partially collapse and those further away may only sustain cracks. The diameters of these circles depend on

the power of the bombs dropped.

The worst situation for a building is when a mortar, for instance, strikes the roof and enters inside before it explodes. The amazing observation in rural areas was that the traditional earthen buildings still usually performed better than brick-made rooms. What may explain this phenomenon is partly that the pressure of explosion was absorbed by thick heavy earthen walls. Also the roofs acted like a saucepan lid and immediately after the explosion the pressured air could be released by pushing the roof up. The flexible roofs, wooden beams and bamboo matts, can settle down again without substantial damage.

A similar explosion inside a brick room with steel roof beams could create much more damage. With the heavy roof, the pressure can not be released so pushes the walls out and the roof will be first lifted up and then falls immediately inward. The walls will often crack in the corners or at weak points such as window opening.

Another way of destroying buildings was used at Hoveize, Khoramshahr and Ghasr-e shirine, where they were blown up with explosives. Although this method is less used and less effective in rural areas it is very effective for destroying multi-storey or very strong buildings. After detonating the bulldozers levelled the remains to ensure maximum destruction. In any case the Iraqis used this method frequently in the cities to cause the maximum impact on the civilian population.

Understanding this process of destruction makes little change to the reconstruction of villages since the general policy has been to abandon earthen structures and to replace them by stronger materials

such as bricks. However, in urban areas this understanding could have a substantial impact, since many damaged buildings can be repaired rather than rebuilt, which could save both time and money. Repair and restoration requires the analysis of damages sustained by the building and understanding the mechanisms of destruction is the first step towards it.

Plate 1-4 : A view of a damaged village

[Source: Miri and Shakeri 1987]

1-5- Reconstruction starts- The reconstruction of damaged areas started shortly after the successful operations 'Fath Al Mobin' in March and 'Tariegh Al Ghods' in May 1982. In fact by the second half of the year most parts of Khuzestan were recaptured. However, it should be remembered that always in war-time an area of security must be kept between the front-line and the civilians. Thus, even now, to the best of our knowledge, many areas close to the border with Iraq are still in security zones and are forbidden to the civilian population.

Like the war, the reconstruction started unexpectedly. Success in military operations can only be counted when it is actually achieved and sustained. The security of civilians is one of the major factors which constrain reconstruction policies. In any case, in Tehran, work was started to establish an organisation for reconstruction. A Supreme Council was appointed by the leader headed by the Prime Minister and other members, including Ministers of the Interior, Plan and Budget and also a representative appointed by the leader, Imam Khomeynie. A Central Committee was also established in Tehran to supervise reconstruction and to co-ordinate different official and voluntary organisations prepared to take part in reconstruction. The Central Committee was composed of fifteen Ministers, with the Minister of the Interior as the President. It also included Ministers of Plan and Budget, Industries, Jahade Sazandegi, Agriculture, and also the Director of the Central Bank. Finally under the Central Committee five provisional committees were formed; 'Committee Supervising Projects', 'Committee for Determination of Damage', 'Ordinance Committee", 'Central Committee for Return of the War Immigrants', and 'Setad-e Mouin'. (see also, Amirahmadi, 1987b, pp. 143-144) The main idea for

work distribution was to designate each district or an area to the voluntary organisations of a certain District from the other regions of Iran.

In the area, however, ad hoc reconstruction efforts were in progress before any official institution could form or produce any guidelines. Organisations of people from all over the country started preparing themselves and some in fact came to Khuzestan to participate in reconstruction. There is evidence that officials are always much slower than the people. The effectiveness of popular organisations was first established through the uprising and the Islamic Revolution of 1979. In the culture of Iranian Muslims, popular religious organisations have been acting for centuries to organise ceremonies and religious demonstrations. For example in Iran during the period before 1979, one important factor was that the enemies could not trace the centre or headquarters who were organising demonstrations. In fact such a centre did not exist. They were surprised that any announcement by Imam Khomeynie from Paris, in the evening of the same day or the day after, was copied and distributed almost all over the country in the mosques.

With the beginning of the war and rapid invasion of Iraqis, again the popular organisations became involved. It could take some time for an army to organise and mobilise its troops but the people only needed to be transported to the front-line, often they even dealt with transportation themselves. The continuous support of voluntary soldiers "Bassiji' was in fact one of the key points to the victory in the war. Reconstruction of damaged areas was just another example of action by the people who quickly mobilised and started their voluntary

work.   We will discuss in our next chapter on 'Disaster and people's

participation' the traditional dilemma in such a situation. It is that

on the one hand there is a need to harmonise the action of popular

volunteer organisations. On the other hand, too much control from the

centre can reduce the motivation of grass-root action groups. The case

of Khuzestan was no exception.

Three phases of reconstruction- Generally three phases for

reconstruction of rural areas in Khuzestan can be recognised;

Phase I, was the short period of ad hoc local reconstruction; phase II,

was reconstruction of 'utopian villages', this being diametrically

opposite to the first one and lasting for two years or so; and finally

phase III, modifying the second policy towards the first one.

During the short period of Phase I, starting in late 1982 and

continuing   until early 1983, there was   no clear criteria for

reconstructing villages. The local organisations, particularly Jahade

Sazandegi, (Construction Crusade), whose job was to organise

engineering supplies for the war, shifted part of their efforts to

village reconstruction. With no experience, their approach was to go

to the villagers to talk to them and do something to help village life

recover.   For instance in the village Bardie, (see Our Sample Portrait

in the field study report), they decided to build one or two rooms in

brick for each family. They did not attempt anything else. The

decisions about the location of the rooms was made by the family who

they also had to supply the labour. The same principles were more or

less followed in the village Golbahar. Here as the plots were all the

same size the voluntary organisation made a simple design of two rooms

and a porch in front. They only building one room and left the rest to

be added in future by the family. In Jelizi, (which is another of our samples surveyed), the story was quite different. The Gold Shoppers of Tehran started rebuilding a village in the form of an urban neighbourhood.

Plate 1-5: A view of the village 'Bardie' (phase I)

[Source: The author]

While ad hoc reconstruction was continuing the so were debates around the appropriate criteria for village reconstruction. The main issue was to define the reconstruction, whether it should re-establish the 'status quo' or incorporate some kind of 'development'. Some authorities debated that re-establishing the previous situation was not acceptable, since these villages were only a series of earthen houses without any public services. They thought that if one day we have to

reconstruct and develop all the 55,000 villages in Iran, why not start in Khuzestan now. Another group were concerned about the feasibility of this approach. However, the second idea, to develop through reconstruction, seemed more attractive. Phase II started because of criticism from visitors to Bardie, where the reconstructed village had little to recommend it.

An ideal village was what the designers had in mind; houses must have typical plans, animals must be separated from people, both inside the compounds and along their routes in and out of the village. In addition, every house must have a toilet, a bathroom, a kitchen and two or three rooms. A small courtyard for the family must be separate from the larger courtyard for animals. The privacy of the house must be considered, since we are living in an Islamic society. Each village must have a school, a drinking water system, a mosque, a public square and even parking space. Concerning the materials, buildings must be strong enough to resist any earthquake and other forces. All in all the utopian village was to provide the villagers with 'the ideal community'.

For this purpose several architects started designing the villages. Even some private consultants became involved in preparing the designs. Construction started on the sites while most villagers were absent. Those nearby were occasionally asked to participate by digging the foundations. We argued, with one of the utopian architects, that the boxes he was making would not match these people's life style. The answer was that '...they have to adapt themselves to these designs'. Perhaps this approach was encouraged by the unlimited money designated for reconstruction at that time. It might be true

that too much money brings corruption. In 1983, more than 90 billion rials were designated for reconstruction. Every kind of material was brought to the area. From light concrete roofing slabs, to cement blocks, steel beams, timber beams etc. In this period also several 'fantastic' schools and mosques were built. To my sorrow four years later many schools were deteriorating, having neither teacher nor pupils.

Plate 1-6: A view of village Farsie (phase II)

[Source: The author]

From the very beginning of the reconstruction, Jahade Sazandegi was doing a good job. Once the area was reopened to the people and cleared of mines, the people immediately returned to live in the ruins of their houses or in tents or bamboo tents. Then Jahad started

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restoring farms, preparing canals, schools and mosques. So their work was not halted for design for reconstruction of settlements.

The brake in 1984 on the reconstruction budget, suddenly brought everything to a halt. Instead of the 90 billion rials of the previous year, the designated budget was only 60 billion. The construction of so called utopian villages then had to be reconsidered. Meanwhile in a few places where the villages were completed and the inhabitants had returned, the observations we were able to make were astonishing. To the surprise of some authorities the villagers ignored the intentions of the new designs and started using the buildings in a traditional manner; a traditional life in a modern village. For example, the animals were found kept inside the family courtyards and people living and working in animal courtyards. Moreover, villagers wanted to know why the size of families were not considered when building began. In fact standard houses were allocated whether the family was two persons or ten. Moreover the work progress was very slow. A study carried out in 1984, showed that at that pace, it would take 25 years to complete the reconstruction of Khuzestan villages[21]. All these facts contributed to the necessity of revising the criteria to be more realistic. By the end of 1983 a new phase was about to start.

Phase III abolished the 'utopian village' design and gave more choice to the local people. It started with the reconstruction of the village Sarie to the south of 'Susangerd'. Several projects of the type we discussed earlier, were produced for this village, but all failed for different reasons. (see Sample Portrait, the case of Sarie)

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21. The study was carried out be the School of Architecture, University of Shahid Beheshti, Tehran.

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Finally the knot was untied by proposing and eventually implementing, a participatory approach. The distant consultant designer was rejected and as with Bardie, the families themselves were asked to decide about their needs. They also had to supply the labour and even to manage the construction work. The main committee of the village became involved from the beginning and to some people's surprise, six months later 300 houses were completed[22].

From mid 1984 onward the villages were reconstructed more or less with these principles. Usually the intervening organisation insisted on some kind of layout for the houses, with the separation of families from animals for hygienic purposes being insisted upon. With the decrease of the budget each of the succeeding years, (50 billion rials in 1985), and the fact that most villages in the non-restricted zone had been reconstructed, the work went at a slow pace until 1989.

When in August 1986, I came to Britain, I had the experience of more than three years observation in Khuzestan villages. By then almost a hundred villages had been reconstructed. The results of different policies were apparent. The people of Bardie complained that the no toilet were provided for them, their alleys were muddy and so on. The people of Farsie, (one of the 'utopian' villages) complained about the lack of covered space for their family. In Sarie, the most promising example, reconstruction was quick, cheap and satisfactory but when the time came to mobilise the villagers for public services in their village several constraints prevented any useful action. I came to study in the UK intending to see what had happened with village

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22.The construction of Jelizi village for a hundred families by contractors took more than three years to complete.

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reconstruction in other countries after disasters, what had been achieved which policies had proved to bring the best results. This dissertation is the report of what I have learned over the last three years.

CHAPTER TWO.

CHAPTER II

LITERATURE SURVEY

SOURCES, FRAMEWORK AND PRE-DISASTER PLANNING

Introduction: This chapter and the following eight chapters contain a review of the literature on natural disasters and post-war reconstruction. For this purpose the following four steps must be taken;

a- to identify the sources of relevant literature,
b- to find a study framework and/or to recognise the major issues concerned,
c- to select the relevant subjects according to the scope of our study,
d- to review the State of the Art and to elaborate on some of the most important subjects identified.

From the many different facets of 'shelter and disaster' our main emphasis is on reconstruction.

2-1- Identifying the sources of information- Disaster research and studies is a new area of knowledge. Quarantelli (1972^a), claims that;

" The 1950s brought the birth of disaster studies
in this country. [U.S.A.] The 1960s gave the field
a base line. The 1970s will be a period of jumping
off from what we have learned into a much more
systematic, broad-range, full scale, imaginative
attack on disaster problems" (P. 23).

In Japan, famous as an earthquake prone country, the history of disaster research studies goes back to the second half of the 19th Century. However for almost a hundred years the researchers were

focusing on engineering aspects of disasters, mainly earthquake proof buildings. As is claimed by Machida (1972), research on social aspects of disasters in Japan are mainly developed during the 1970s (pp. 13-14).

In the same context D'Souza (1984ᵃ), claims that; "The last years of the 1960s and the first half of the 1970s were......the beginning of disaster research" (P. 496). It appears that disaster studies usually started with the engineering spectrum and the social and psychological aspects were conducted later. The place of housing reconstruction after the disaster is perhaps more recent. Davis (1981a), says; 'Our Knowledge of post-disaster housing is still in its infancy. It appears to date from 1970 following the Gediz earthquake in Turkey and various Bangladesh disasters of the same period' (P. 12). In the same relation, Quarantelli (1982ᵃ), claims;

> " We found two immediate difficulties in examining
> sheltering and housing in disasters. First, there
> is very little systematic literature on the
> subject,.... The quality and quantity of the
> research permits the drawing of very few general
> observations, certainly nothing in the way of
> systematic and empirically-sound generalisations"
> (P. 1).

Thus it seems that documents available for studying disaster and housing, regardless of the agent of the disaster either natural or man-made, is scarce. This in turn will make the search for a framework more difficult.

Our research topic is reconstruction after war, but the search for literature directly concerned with war and more specifically with post-war reconstruction revealed a limited number of documents. It

appears that unlike natural disasters, war among other man-made disasters, has been neglected. Therefore one of our tasks will be to develop the subject of 'War as a Disaster'.

Leivesley (198?) compiled a valuable bibliography on 'Disasters, disaster agents, and response'. It contains 700 subject references, from which almost a dozen are about war, more specifically about nuclear war and its consequences and actually none of them are concerned with reconstruction after war. (pp. 288-308) Our own attempt at looking for references dealing with war and planning and reconstruction afterwards found some success, including searching in literature of the second World War period[1]. The scarcity of the documents and the fact that most of them are dated suggested another approach: to look through literature concerned with natural disasters.

This is not a new idea and can be justified for two reasons; First as has been mentioned the shortage or even lack of direct research on some aspects of man-made disasters; and secondly the assumption of the existence of similarities between the effects of and response to these two kinds of disasters. (see for example; Warheit 1976, P. 131 and Davis 1986b, p.2) However, it should be admitted that each type of disaster has its own special effects and consequently requires the proper response. Warheit, (1972 and 1976) and Davis (1987 and 1988), both attempted to make a comparison between natural and man-made disasters. More specifically James Lewis (1988), talks about the similarity between damage caused by earthquake and

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1.More details will be given when 'War as a Disaster' is developed and also the introduction of the Bibliography on 'Settlement Reconstruction After War', in Appendices.

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war[2].

  2-2- <u>Looking for a framework</u>- The next task is to identify a

conceptual framework.   One of the earliest *works on* shelter after

disaster is 'Emergency Shelter Study, Phase 1'. It concerns research

conducted by Frederick C. Cuny, Ian Davis and Frederick Krimgold for

UNDRO and was submitted in 1977.[3] [4] In this document the authors talked

about '59 issues' and grouped them under the 9 following 'Key Issues'.

> "1- Accountability (Issues 1-5)
> 2- Performance (Issues 6-11)
> 3- Performance- Limiting Factors (Issues 12-19)
> 4- Cross- Cultural Problems (Issues 20-28)
> 5- Aid (Issues 29-35)
> 6- Development (Issues 36-44)
> 7- Resources (Issues 45-53)
> 8- Gaps (Issues 54-58)
> 9- Alternatives (Issues 59) " (P. i)

A year later, (i.e. 1978) 'Shelter After Disaster' was published by Ian

Davis. The introduction of this book illustrates the framework

pursued. It reads;

> " Having established immediate shelter as my
> central concern, I have deliberately brought into
> the picture the pre-disaster context. Within Part
> I, I have attempted to show that the situation
> prior to the catastrophe is a crucial factor and
> may be the actual cause of the disaster. In Part
> II, I have set out in diagrammatic form the
> widespread myths which exist about disaster
> shelter,... in Part III, I have commented on the
> diverse strategies that are likely to be pursued in
> the immediate aftermath.....

2.In calling for papers for the first Workshop on Settlement Reconstruction
Post-war, IOAAS, University of York, May 1988.

3.Ian Davis in 'Disasters and the Small Dwellings", P.12 refers to this
document. From now on we refer to this document as UNDRO 1977?

4.I translated parts of this document into 'Farsi' and circulated them in Ir
in 1987.

Finally (and perhaps perversely) I have left the historical section to Part IV at the end of the book." (p. XV)

A closer review of the first part of this book indicates that three major points were elaborated; First, the fact that man kind learns from loss, in other words disasters can be the starting point for mitigation and preventive measures for future occurrences. Relating to this Davis talks about construction of the 'London barrage' on the Thames among other things. This notion was later developed again in 1983 by Davis when he wrote 'Disasters as Agents of Change? or: Form Follows Failure'.

The second point he elaborated is the notion of 'Disaster, Poverty and Urbanisation' where he claims that poverty is the root of vulnerability or vulnerability to disaster is one of the many facets of poverty. Again the same notion has been developed by Davis and others frequently. (see Davis 1987a, Cuny 1987) The third point of part one is entitled 'Cultural values' which does not accurately describe the content. He in fact talks about the importance of understanding the 'normal housing' process. For that he also raises examples of mismatches between shelter provided after disasters and the real need of the survivors.

A relatively narrow part of his book, Part II consists of explanations of 'Myths' which exist on the scene of a disaster. He classifies the myths under five main headings; "(A) Vulnerability, (B) Social Attitudes, (C) Shelter Needs, (D) Reconstruction and (E) The Provision of Aid". (pp. 26-30) And finally he talks about 'Three Strategies' for 'filling the gap'. It can also be found that many of

the issues Davis raises in this book are in one way or another a repetition of the document mentioned earlier, UNDRO 1977?.

In 1977 (Hass. et al), attempted the 'Reconstruction Following Disaster'. They explain that ;" Our perspectives, in the main, would be those of geographers and sociologists." (p. XX) They based their study on eight 'generalisations';

> "1- A disaster produces a sudden change in the physical components of a community.
> 2- Combined with the physical destruction are death and injuries. The community can no longer function as before.
> 3-During the emergency period, underlying values and the community norms usually produce a high level of frenetic activity, most of which is altruistic.
> 4- Restoration is the next step. ...
> 5- Reconstruction, which follows, refer to activities aimed at permanence. ...
> 6- The disaster-produced changes in the community raise new issues and alter the form of old ones.
> ...
> 7- Some issues get much attention, extensive consideration and early action. ...
> 8- These community policy issues have a wide range of impacts" (pp. XX-XXI).

They continue the description of their approach by identifying the 'consequences' of disaster on 'these community issues'. Because their book is based on study of the reconstruction of three cities, they continue to look for;

> " ...the physical characteristics of the city prior to the disaster; the economic and social linkages that existed within that physical setting; the housing, employment and life style characteristics of families; and the types of distinct neighbourhoods which existed in various sections of the city" (P. XXI).

They also tried to identify the consequences on 'macro' and 'micro'

levels.

In 1981 the first edition of 'Disasters and the Small Dwelling' was published. This book is the proceedings of a conference held at Oxford Polytechnic in 1978. This document contains two important articles for our present concern; First, the Keynote Address by Frederick Cuny under, ' Disasters and the Small Dwelling: The State of the Art' and the second by Ian Davis entitled, 'Disasters and Settlements- Towards an Understanding of the Key Issues'.

Cuny constructed his argument in the form of 'Recurring Problems, Gaps in Our Knowledge, Priorities For Research and Priorities For Action'. (pp. 3-9) As he confesses the problems are faced from 'the point of view of intervenors'. The 'Recurring Problems' are seven in number;

> "1- The first problem is the failure to comprehend the magnitude or the complexities involved in providing housing in a developing society. ..
> 2- The second problem is ... to examine one disaster and try to draw conclusions which can be used in responding to another disaster in another location.
> 3- The third problem is the lack of adequate understanding of the differences in disaster types and the responses required. ...
> 4- Problem four is the failure to understand disaster in the greater context of development. ...
> 5- The fifth major problem is the continuing lack of co-operation between organisations involved in relief at all levels. ...
> 6- A lack of sophistication in dealing with housing in a post-disaster environment is the sixth problem. Because housing tends to be regarded as a product rather than a process. ...
> 7- The final problem is the inadequacy of the current criteria used for programme evaluation. ..." (pp. 3-5)

Under 'Gaps In Our Knowledge', Cuny (1981a), raises three main concepts and explains them at length; '1- Understanding the system: Intervenors know where the problem occur, but they do not know why... 2- Real opportunities: It is often casually accepted that a disaster provides an opportunity to create change,... 3- Understanding the impact of programmes' (pp.5-6). Perhaps one of the most important points to note is the fact that Cuny has the 'view of intervenor'.

In the same reference Davis (1981a), takes another framework. He summarises the 'Key Issues' under "three broad headings, which are in order of relative importance: 'A. The survivors' viewpoint. B. The vulnerability of settlements. C. The role of intervenors' (p. 13).

Under the first heading he counts three issues; 1- 'Coping abilities', 2- 'Rising expectations'., 3- 'Survivors' priorities'. Concerning group B., 'The vulnerability of settlements', he considers 9 different observations;

"B.1. Relevance to low income housing. ...
B.2. Trade- off. ...
B.3. New settlements. ...
B.4. Planning policies. ...
B.5. Bye-laws. ...
B.6. Vulnerability mapping. ...
B.7. The relocation of vulnerable communities.
B.8. Land tenure. ...
B.9. Modification of siting and construction after disaster. ..." (pp. 14-16).

As it can be seen Davis' conceptual framework is different from Cuny.

In 1982 'Shelter after Disaster, Guidelines for Assistance' was published by UNDRO. The framework incorporated with this document consists of three sections; 'Emergency Shelter, Post-disaster Housing and Conclusions'. The first heading, actually Chapter III of the book, discusses the following items;

"The needs and resources of survivors
Allocation of roles to assisting groups
The assessment of survivors' needs
Evacuation of survivors
The role of emergency shelter
Contingency planning (preparedness)" (p. V).

Under Post-disaster Housing the following issues are discussed;

'Reconstruction: The opportunity for risk reduction and reform;

Relocation of settlements; Land tenure and land use and Housing

finance' (P. V). The 'Conclusions' part in fact includes more than the

observations of earlier discussion. It contains four items: 'General

conclusions; Rising expectations; The accountability of assisting

groups to recipients of aid and Advice for the local level' (P. V).

In 1982 Quarantelli studied 'Sheltering And Housing After Major

Community Disasters' which included three case studies. The

'conceptual format' he pursued for each case is outlined as ;

"...the community context, evacuation, shelter,
temporary housing, and return to their evacuated
community. All three cases deal with individual
aspects of sheltering and housing, but
organisational aspects of sheltering in the
Wilkes-Barre study" (p. 4).

What emerges from this lengthy investigation can be summarised

in the form of some tentative observations;

First, reliable documents and studies of post-disaster shelter

are scarce.

Second, most available literature is produced by 'outsiders'.

By that we mean that the authors are mostly from 'International

agencies' or else scholars studying disasters and reconstruction in

other countries. There are very few document available from native

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people engaged in disaster operations, especially from developing countries.

Third, there seems to be a common confusion in the use of terminology associated with shelter after disaster. Phrases such as 'emergency shelter' 'temporary accommodation or shelter','shelter', 'housing' are found to be used by different people with different interpretations. Quarantelli (1982)^{a}, refers to this fact as one of the 'two immediate difficulties in examining sheltering and housing in disasters.' (p. 1) He proposes the use of four terms each implying a mode of shelter; 'Emergency sheltering', 'Temporary sheltering', 'Temporary housing' and 'Permanent housing' (pp. 75-78). However these definitions are not perceived and spread by others.

Fourth, the available means also suggest that the community context and the hazard are both influential factors in determining the study framework. When the study concerns reconstruction of cities the 'issues' confronted are different in some respects from those after a disaster in a rural area. This is so with the source of the hazard as well, whether it is a civil war or flood or famine. Though, there still might be some general concepts reoccurring in every disaster situation regardless of its context and the agent.

Fifth, the literature does not offer any concrete conceptual framework. Although most 'issues' raised and discussed by different authors are repeated by others, in terms of structuring the issues it seems there is a lack of a **connecting rope** between the main sections, headings, or as they are called 'Key Issues'. This lack of a clear framework may have many causes, among them are; First, the fact that this area of research is new, and secondly, we know that a disaster can

affect different aspects of a community, (i.e. economy, houses, human loss and injuries, etc). (see for example, Cuny 1983. pp. 44-51) Consequently each discipline attempts to view and study the disaster from its own stand point. Even politicians claim that disasters and disaster response have political implications (see for example UNDRO 1977?, and Glantz Michael H., 1976) But more important are interrelationships between different facets of a community's life.

We focus on housing, studying the damage and the reconstruction, but housing is not only an architectural or engineering task. The initial status of housing prior to the disaster is a mirror of the economic state of its inhabitants. Housing reconstruction is also an economic activity in terms of costs, work-force and so on. It can even affect the long term development of the community by creating expectations beyond people's means, 'raising expectations' or in a positive sense by introducing new technology or building materials and so on. Thus, there must be no surprise if in a 'Sociological' study Drabek (1986), touches on issues such as 'Shelter behaviour' and ' Housing and Reconstruction Planning Problems'.

This situation persuaded some people of a need for an 'interdisciplinary' framework. Gelman and Macias (1984), in a brief article, attempted to focus on the necessity of this study 'Toward a conceptual framework for interdisciplinary disaster research'. The development of this 'framework' they claim; '...is based on certain paradigms, i.e cognitive tools,...' (P. 507). Their conclusion is illustrated in a schematic diagram consisting of five areas; 'Disaster Engineering, Management Studies, Disaster Studies, Calamity Studies and Methodological Studies' all linked to each other (P. 509). However

this challenge succeeds more in highlighting the urgency of the concept rather than proposing a practical framework. Non the less it is a valuable challenge.

We are living in the era of professionalism. Engineers are familiar with stone and concrete and psychologists familiar with mental disorders. While members of a community having experienced a disaster are presumably shaken not only physically but also mentally. The trouble is that engineers who reconstruct bridges and roads or architects who plan for the replacement of houses are usually not familiar with the psychological effects of the disaster and the psychologists who are aware of it have nothing to do with the engineering work. What emerges from this argument is a need for more interdisciplinary studies. As a step towards this task we will try to develop the relationships between 'Physical reconstruction and psychological recovery' in the form of a separate chapter[5].

At the scene of a disaster the following elements exist; First there is a community, be it as small as a village or large as a country. Secondly there is a source of danger, an agent jeopardising the community, a hazard. If this hazard acts on the community and affects it, the community sustaining some degree of loss transfers to new circumstances. From then on a new element usually appears on the scene; the intervenor, no matter whether it is the government or an international agency etc. The intervention will continue for some time and the community undergoes a process of recovery until achieving again its 'normalcy'. Of course this is not a general rule, in some cases

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5.This opportunity became available through the desire and collaboration of Iranian colleague Bahman Najarian at the Psychology Department.

the stricken community may never recover or the process may be prolonged for years, as it is for example with the Palestinian refugees who have been for forty years homeless. So one approach to classifying the issues related to disaster study might be to take these basic and general elements and their interrelationships; The Community, The Hazard and The Intervention.

Another approach to studying housing and disasters focuses on a few emerging concepts. The practice of post-disaster housing in the past and the research and studies of the process, performance and obstacles confronted and approaches applied, have resulted in a series of general issues not necessarily related. For example it is possible to focus on issues such as 'land and land tenure', 'development through disaster opportunity', 'technology transfer', and so forth. The problem with this approach is that the 'issues' are scattered and in the context of different disasters their existence or content and importance may change.

In 1988 Frederick Cuny commenting on one of my papers suggested that the economic aspects of reconstruction were almost neglected in that paper and in his view housing reconstruction is initially very much an economic activity. He also referred to one of his recent involvements in Sri Lanka as evidence. In reply I said that the context of Khuzestan is very different from Sri Lanka and in fact even if there were no financial constraints in Khuzestan the problem of housing reconstruction could still not be overcome. One reason I mentioned to him was the fact that suitable resistant building material was absent from the area and therefore, even if the Government could supply enough money, the problem of producing and transferring the

material from sometimes thousands of kilometres, was something that even the most generous government was not likely to be in a position to tackle.

'Time' seems to be another influential factor. By that we mean that the stages of a disaster can be perceived as a useful base for study. Many different studies focus on the two main stages of pre and post-disaster, the latter is divided into three main stages of 'relief', 'rehabilitation' (or as it is sometimes called 'transitional phase'), and 'reconstruction'. In terms of housing these four phases are well established. (see for example UNDRO, 1982. p. 2) The stages of shelter in these four phases are 'permanent' (pre-disaster), 'emergency shelter', 'temporary accommodation' and 'permanent housing' (reconstruction).

Although this classification represents a consensus of opinion, Alcira, Kreimer (1979) has disputed its relevance in the context of developing countries. The heart of his argument refers to the definitions or the quality of 'permanent' and 'temporary' shelter which he borrows from Hass. She argues that in developing countries the housing situation before the disaster which is perceived as the 'permanent', might in fact be too poor. It could be in reality 'temporary' type accommodation, in which the inhabitants may live for their whole lives. Thus the sequential stages of rehabilitating the people in a squatter settlement or in a village, for example can hardly be attributed with these pre-established phases. It is all related to the quality of shelter before the disaster and whether we can call this a 'permanent house'.

Kreimer's argument proves to be consistent with our own

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observations from rural areas of Khuzestan. On some occasions the villagers lived temporarily in shelters they had built, which in fact resembled their pre-disaster norms or their so called 'permanent' housing. (i.e, the village Jelizi) In many others when the people returned to the rubble of their villages they took shelter for a few days inside the remains of their houses. Gradually they repaired more rooms and as time passed more or less the whole previous 'permanent house' was restored as a 'temporary shelter' before the authorities started the construction of 'new permanent houses'.

The search through the literature for a 'study framework' so far leads to the observation that 'innovation' in this subject requires a separate comprehensive study; perhaps that could be the topic of another dissertation. At the moment there is insufficient time and having this general view of the situation it <u>seems more convenient to take one of the existing frameworks</u> and to begin to review some of most common 'Issues' and 'Key Issues' as identified by others.

<u>It is felt that using the 'time' or 'phases' of disasters as a base to categorise the issues of 'shelter' would be suitable</u>. So the two major phases of 'pre' and 'post' event, in which the second comprises <u>three 'arbitrary' subsections or phases of 'emergency shelter', 'temporary accommodation' and 'reconstruction of permanent housing' will be used</u>. (see UNDRO, 1982. p.2) It should be made clear that of these three phases our emphasis will be on the **reconstruction phase**.

2-3- A review of major issues in disaster and housing

(Phase 0, pre-disaster)

Introduction: This section of the present study aims at a review of The State of the Art on disaster planning. It is almost three decades since the 'international community has become increasingly alarmed by disasters'. The result of this awareness is the perceived necessity of developing our knowledge on 'disaster prevention and
and UNEP
planning' (UNDRO 1986, p. iii).

The literature available on this subject is prolific, so selectivity becomes inevitabl. One major contribution in this field is by UN 'family' particularly UNDRO. They have already published 12 volumes on 'Disaster Prevention and Mitigation'. Although UN publications point to the 'economic losses' due to disaster, which acts as a waste of income and resources, as the reason for 'awareness' among the governments of developing countries and that could be true, nevertheless there could be a quite simple non-professional base for focusing on disaster prevention, which is what Davis (1984b), refers to it as the 'axiom' of 'Prevention is better than cure'.

In spite of the tangible efforts in this field, it seems that those who have benefited most from it are those communities who, in reality, are less in need of it. The main obstacle at the end of the day, is not just developing the methodology and principles of planning, rather, when it comes to dealing with the real world 'resources' and 'political will' are required. In practice it has been shown that often neither are available to those communities who are in a desperate situation.

Discussion about disaster planning clearly requires a familiarity with the 'terminology' frequently used. A general review of the procedures and elements of disaster planning should be made and the role of shelter should be highlighted. Risk reduction is also found to be one of the main aims in post-disaster reconstruction. It would be preferable to review the experience of this later on in the Reconstruction phase.

Definition of disaster- Customarily literature on disasters includes a section on definitions. Our aim in reviewing it is to clarify the terms.

One of the earliest definitions comes from Fritz (1961) quoted in Drabek (1986, P. 7) and also by UNDRO (1984a) as;

> "...an event, concentrated in time and space, in which a society (or a community) undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society is prevented" (p. 1).

The latter reference also refers to another definition proposed by 'Humberside County Council, United Kingdom' which is ' more specific' and is 'restricted to more sudden events' as follows;

> "A major incident is a serious disruption to life, arising with little or no warning, causing or threatening death or serious injury to, or rendering homeless, such numbers of persons in excess of those which can be dealt with by the public services operating under normal procedures, and which calls for the special mobilisation and organisations of those services" (p. 1).

Raphael(1986), in the sphere of psychology refers to definitions

suggested by 'Harshbarger (1974) and Kai Erikson (1979).' These two defined disasters 'in terms of their effects on communities as well as individuals.' The 'simplest definition', Raphael suggests, ' is that of Cohen and Ahearn (1980): 'disasters are extraordinary events that cause great destruction of property and may result in death, physical injury, and human suffering' (p. 6).

Cuny (1983), did not attempt to introduce a comprehensive definition of disaster, rather he tried to clarify the idea that what we usually think of as disasters such as earthquake, flood and so on are in fact 'agents' of disaster and not the disaster themselves. So he went on to talk about 'Disaster Hazards' by which he means earthquake, flood etc. (p. 21)

A brief definition is proposed by UNDRO (1977?) which is only concerned with housing. 'In terms of housing, a disaster may be defined as an event which causes a temporary break in the normal housing process' (p. 1).

It seems there are two major ways of seeing the task of defining a disaster; firstly to keep it comprehensive and secondly to use a sectorial approach (i.e. housing, psychology, sociology). It is not the composition of words in the definition which might be scrutinised, but its efficiency at drawing a dividing line between whether an event is to be defined as a disaster or just an incident. Different definitions have similar components such as 'death and injury', and 'loss of property'. It is very difficult to quantify the minimum amount or number of losses which will take an incident into the category of disaster.

The introductory page of 'Disaster News in Brief' published by

UNDRO, 1988 is evidence of how measuring disasters by numbers can be misleading. Part of it reads; '... is confined to disasters with reported losses of at least 10 dead or property damage in excess of US $1 million'. It is obvious that these figures are very arbitrary and the pressure felt by a community in sustaining such damage will depend on its pre-disaster capacity. 10 dead is a very different matter in a population of 200, than in one of 5 million. The same criticism is even more applicable to property loss. Is the _effect_ of loosing US$ 1 million really the same for a town in Bangladesh and the United States? Clearly it is not.

The same criticism has been made more specifically by _and under_ UNDRO (1986, pp. 9-10). There, the question is raised ; 'When is a disaster a disaster?' This question is also explored in a series of sensitive debates which finally concludes that no concrete definition exists.

What can be concluded from this argument is; firstly, that as yet there is no concrete definition of disaster, nor does any evidence suggest that this is necessary, therefore the word has been used with different meanings. Secondly, this problem may partly stem from the context of the community and the relative degree of losses incurred, thus an equal amount of loss in two events may be perceived in one as a disaster and in the other as just a normal event or an 'incident'. Thirdly, 'disaster' can be defined both in a comprehensive and in a disciplinary manner, such as for example a definition which was proposed by UNDRO (1977?) concerned with housing.

Disaster and vulnerability- The distinction between 'disaster' and 'vulnerability' or 'hazard' is not a new idea. However, it is often discussed and even emphasised by authors. In 1977 Lewis wrote;

'disaster occurs where an extreme natural phenomenon meets a vulnerable human settlement' (p. 310). The notion of 'vulnerability' then became the main theme of Lewis' works. (see for example, Lewis 1981 and 1987) The same concept can be found frequently in Davis's works. In 'Shelter After Disaster' (1978), one of his primary intentions is to focus on vulnerability and to acknowledge its routes in communities. In the same book (p. 3), he proposes a diagram, borrowed from O,Keefe 'an economist working with the Disaster Research Unit at Bradford University', illustrating the 'vulnerability to disaster' as an 'interface' between 'hazard' and 'dangerous conditions'.

Like Lewis, Davis also continued working on his diagram since th some modifications. (See Davis 1982, 1984a, 1984b, 1987a) His most recent diagram, (1987), contains the following four components; 'hazards', on one side and 'vulnerable conditions' which are in turn caused by the third element 'pressures'. Use of this latter word has its roots in the last factor; 'root causes'. However, the 'disaster impact' takes place at the 'interface' between hazards and vulnerability. (p. 8)

Many others have also developed the notion of vulnerability. For example Cuny (1983), describes it in this way;

> " The hazards themselves are not disasters but
> rather a factor in causing a disaster. Two other
> factors are essential: the event's effect on people
> and their environment, and human activities that
> increases its impact" (p. 21).

There is no need to bring in more references because in one way or another all they are talking about the same phenomenon. However, the heart of the argument is significant. There is, in our

understanding a major shift from blaming 'nature' as the source of the 'hazard', to 'human guilt' as creating the 'vulnerable community'. The implication of this approach in terms of shelter is to see 'poverty' as the 'root' of vulnerability instead of looking at the poor resistance of shelter against hazards. On the other hand, in terms of prevention or mitigation of damage from disaster, somehow the challenge is understood in more depth, despite being more complex and difficult to approach. It is now well known that vulnerability to hazards is often just one of the many facets of a poor community and thus addressing the risk of damage initially requires fundamental changes in the economic and social conditions of vulnerable communities, which will obviously not be a simple task.

The relationship between 'development' and 'disaster' nowadays has become such an important subject that we will devote a separate section to it. This requires a two way examination; first, how the state of a community's 'development' can create vulnerability to hazards, and second, how disaster relief and reconstruction can tackle developmental issues. Of these the former one is by its very nature an analytical cause and effect study of which is well explored in the literature. The second relationship, however, requires more study and tends to be more complex and worthwhile, so we will focus on it.

Definition of Risk, Vulnerability, Elements at risk and Specific risk- To avoid confusion in terminology an 'expert group meeting' established by UNDRO 1979, proposed the following definitions for these terms. Since then UNDRO in its series on 'Disaster Prevention and Mitigation' has adopted the terms proposed by that expert group. However it seems that others still often use the terms

in their own style rather restricting themselves to the prescribed usage of terms. The UNDRO definitions are as follows;

"NATURAL HAZARD meaning the probability of occurrence, within a specific period of time in a given area, of a potentially damaging natural phenomenon.
VULNERABILITY meaning the degree of loss to a given element at risk or set of such elements resulting from occurrence of a natural phenomenon of a given magnitude and expressed on a scale from 0 (no damage) to 1 (total loss).
ELEMENTS AT RISK meaning the population, building and civil engineering works, economic activities, public services, utilities and infrastructure, etc... at risk in a given area.
SPECIFIC RISK meaning the expected degree of loss due to a particular natural phenomenon and as a function of both natural hazard and vulnerability.
RISK meaning the expected number of lives lost, persons injured, damage to property and disruption of economic activity due to a particular natural phenomenon, and consequently the product of specific risk and elements at risk." (P. 5)(also quoted in UNDRO, 1982, p. 75 and 1984^{a}, p.3)

Shelter and disaster damage- Having established shelter as our central concern, it seems necessary to have run through the role of shelter in different hazards. Cuny (1983), compiled a table of damage due to different kinds of hazards. He illustrates that most disasters, with the exception of 'drought/famine' usually have an 'immediate effect' on housing. (pp. 48-49)

Damage to the houses in the case of some hazards, especially earthquake can cause extra loss of human lives and fatalities. With respects to this, Cuny (1983), claims that; 'Approximately 90 percent of the loss of life in all earthquakes is the result of building collapse" (p. 28). Reza Razani, the Iranian engineer (1981), claims;

" During the past 15 years more than 30,000 people have lost their lives, and in excess of 50,000

> adobe and masonry building units have been
> destroyed in earthquake stricken towns and villages
> in rural Iran. During this century more than one
> million people have died due to earthquakes
> throughout the world. ... More than 80% of these
> earthquake deaths have been caused by the collapse
> of one or two story unreinforced masonry and adobe
> buildings" (p. 123).

Davis (1981a), claims; ' ..perhaps 90% of all deaths in natural disasters (such as floods, hurricanes or earthquakes) occur as a result of unsafe houses being built on unsafe sites" (p. 11). Schppisser and Studer (1984), also claim that ; ' The earthquakes of the last few years have shown that the major part of fatalities is due to the collapse of conventional buildings' (p. 1). In the case of earthquakes it is also identified that the 'heavy roof' has a vital role in causing damage and killing people. Razani, (1981) in the context of Iranian earthquakes claims; ' Total or partial collapse of these structures, especially the collapse of the roofs has been the main cause of the loss of life and property during the past earthquakes' (pp. 126-127). The same notion, in a study of Guatemala Earthquake 1976, is expressed by Davis (1977^a), ' The vast majority of the damage occurred due to the collapse of massive adobe walls with heavy tile roofs' (p. 83).

Our argument so far has shown the significant role that shelter plays in disasters and fatalities caused by the hazards. Enormous number of studies have been carried out to identify the roots of housing vulnerability. (e.g. Spence and Coburn 1987^a) Further more, attempts have been made to find solutions to increase housing resistance against hazards. (e.g. Leslie 1984) In this respect it is unfortunate that while most vulnerable settlements are in the developing countries, built of conventional materials, the research as

Razani (1981) claims, has been mainly been developed for application in the usage of modern materials and techniques. (p. 124) Thus those who benefit from this research are mostly in the developed societies. For example, the latter reference indicates that only 5% of the 'total research funds [are] allocated world wide to the study of seismic behaviour and design of these types of buildings' (ibid) (i.e. conventional buildings)

Davis (1978), tried to take some steps towards understanding the causes of housing vulnerability. He writes;

> " The United Nations have obtained verification for
> this state of affairs. They find that 95% of all
> deaths directly attributed to disasters occur
> within developing countries. The remaining 5% of
> deaths occur within the well-publicised disasters
> of the developed world" (p. 15).

In more detail he explores the role of 'unsafe land' and also the high rate of migration and 'rapid urbanisation' as major attributes of vulnerable settlements in developing countries. He also attempts to introduce global poverty and to show that the inhabitants of the vulnerable squatter dwellings are the most underprivileged group of communities in developing countries. D'Souza (1984), highlights this fact in the form of tables, one of which illustrates that due to disasters occurring between '1959-80' the 'Mean loss of life' in North America has been 32, while the same figure for Africa stands at 751. (p. 496) Spence and Coburn (1987), claim;

> " Earthquake protection planning falls into two
> distinct problems - urban risk and rural risk. In
> urban areas, people are concentrated together,
> infrastructure and financial investments are high
> and change is rapid. .... Rural communities on
> the other hand are spread everywhere and almost any

sizeable   earthquake   on   land   will   affect   some
villages"   (p.   3).

Westgate   (1981),   explored   the   crucial role of   the 'land' and

'land tenure' in creating vulnerable settlements.   " Lima's population

was   600,000 in 1940.   By   1990 Turner estimates that   this figure will

have   risen to 6 million, a rise of 900% in 50 yrs, [years] 4.5 million

of whom   will   be resident   in squatter-type   settlements.." (p.   27).

Spence   (1984) prior to explaining   the problems of disaster   planning,

tries   to explore the existing   situation of vulnerable settlements   in

developing   countries by highlighting the 'Rapid urban expansion'. (pp.

398-399)   The same notion is also emphasised by Davis, (1977 and 1979),

Spence and Coburn (1987^{b}).

"Disaster   Vulnerability and Rapid Urbanisation' is the title of

Davis'   article in 'Open House International', Vol. 12. No.3. 1987.   In

this   article Davis has   brought together some   data about the   present

population   and   predictions   of   the   urban   population   of developing

countries.   He also gives an   account of the large   cities and claims;

'it   is expected that there   will be 57 cities   over 5 million in   [the

year]   2000, 42 within the Third   World' (p. 6).   He also   continues to

say   that; ' There are 20 cities projected   to house populations in the

15-20 million range within forty years.   These include nine cities that

are subject to major hazards' (ibid).

To   sum up   our discussion   in this   section, it   is found   that

shelter   is one of the sectors which can   be damaged by most disasters,

that building collapse is also identified as a major cause of death and

injuries   in   disasters,   that   vulnerable   shelters   are   built   with

indigenous   materials or non-resistant   materials and poor   techniques,

that the vulnerable settlements are mostly among the developing countries, and that squatter settlers on one hand and rural inhabitants on the other are the most vulnerable communities. Among many other factors 'unsafe land' is one of the major components creating vulnerable settlements. Acknowledgement of these issues is necessary for our future argument on prevention and mitigation or pre-disaster planning.

Pre-disaster planning- Having established our discussion about the definitions and context of disaster, vulnerability and the role of shelter in the event of disaster, in this section our aim is to review some aspects of pre-disaster planning or in other words what can be done to prevent, mitigate or prepare for a disaster.

At this point it is necessary to present a clear definition of the terms which from now on will be used frequently. The main terms are defined by UNDRO and UNEP (1986) as follows;

> **"Preparedness**. Disaster preparedness may be described as action designed to minimise loss of life and damage, and to ' organise and facilitate timely and effective rescue, relief and rehabilitation in cases of disaster.
>
> Preparedness is supported by the necessary legislation and means a readiness to cope with disasters or similar emergencies which cannot be avoided. Preparedness is concerned with forecasting and warning, the education and training of the population, organisation for and management of disasters, including preparation of operational plans, training of relief groups, the stockpiling of supplies and the earmarking of the necessary funds.
>
> **Prevention**. Disaster prevention may be described as measures designed to prevent natural phenomena from causing or resulting in disaster or other related emergency situations.
>
> Prevention concerns the formulation and implementation of long-range policies and programmes to prevent or eliminate the occurrence of disasters. On the basis of vulnerability

analyses of all risks, prevention includes
legislation and regulatory measures, principally in
the field of physical and urban planning, public
works and building.
Mitigation. The concept of 'mitigation' spans the
broad spectrum of disaster prevention and
preparedness. Mitigation means reducing the actual
or probable effects of an extreme hazard on man and
his environment. Thus an emergency plan if
properly executed can have a mitigating effect on a
disaster just as the proper observance of building
and land use regulations designed to avert
disaster. Mitigation is, in effect, prevention to
a degree" (p. viii).

Cuny (1983), also describes his definition of the terms which are not

very different to these preceding ones. (pp. 204-206) The term

'Contingency planning' as can be identified through UNDRO, (1982) is

used as synonymous to preparedness. (p. 35) (see also Davis, 1982)

There is an enormous amount of literature available on this

subject. Some is concerned with the principle or methodology of this

kind of planning, some studies report the **issues faced in preparation**

in the context of a certain country, explaining the approaches applied.

It also appears that different disasters and the way of planning for

each of them has attracted the attention of scientists and some

disasters, especially earthquakes, have been focused on and elaborated

more specifically. Perhaps the most comprehensive documents available

on this subject are the 12 volumes of 'Disaster Prevention and

Mitigation' produced and published by the United Nations. (see

bibliography for dates)

In this section we will briefly review the principles and

methods of disaster-planning and we will try to highlight some of

the serious obstacles which stood in the way of such preparations, in

the context of those communities most susceptible to hazards among

developing countries.

Why planning for disasters?- The 'Editorial' of 'Third World Planning Review' (1986), reads;

> "One must accept that life involves a measure of
> risk and risk, we are told, is the sugar or salt of
> life. But just as an excess of sugar or salt can
> be dangerous, even fatal to man, so too can the
> taking of unnecessary hazards that may lead to
> major disasters" (p. 95).

The logic of planning for disaster is very simple. Ian Davis, (1984b), refers to the 'axiom' that 'prevention is better than cure'. Bringing examples from medicine he argues that, if possible, instead of curing the symptom it is better to prevent it in the first instance. To provide a more scientific interpretation, we quote part of the 'Foreword' of UNDRO (1984a), actually, in one way or another, repeated in the introduction of all the other 11 volumes of 'Disaster Prevention and Mitigation'.

> " Over the years the international community has
> become increasingly alarmed by disasters, which
> have tended to be more destructive as they affect
> ever-large concentrations of population.....The
> economic effects of disasters form a formidable
> obstacle to national development, and may even
> cancel out any real economic growth which has been
> achieved. Moreover, the work of rehabilitation and
> reconstruction diverts resources, both national and
> international, from future development into the
> re-establishment of the *status quo ante.*
> Governments are now more aware of the need to pay
> much greater attention to disaster preparedness and
> prevention, recognising that they should form an
> integral part of national development policies" (p.
> iii).

There is no debate on the principle usage and benefits of alleviating damage due to disaster even if only relatively. However, the problem

does not seem to be in identifying the usefulness of such preparation, but rather with the application and implementation of this activity in context. As the 'Editorial' of Third World Planning Review (1985), claimed; 'It is the responsibility of planners to produce plans that closely relate what is needed and what is desirable with what is practicable' (p. 283). Thus the difficulty lies in achieving the balance between the 'desirable' and 'practicable'.

Concept of mitigation- Mitigation plans naturally involve many different aspects of the community at risk. Highlighting the status of 'shelter', Van Essche, (1984), claims;

> "It can be said with some assurance that relief management in the fields of medicine, health, and nutrition has, nevertheless, significantly improved over the last decade. ... However, there remains one particular sector in which too little progress has been made, and in which many conservative and obsolescent attitudes survive, that is: emergency shelter, and shelter after disaster in a more general sense" (p. 165).

Van Essche continues to trace some of the causes for the 'little progress' in the field of 'emergency shelter, and shelter after disaster'. Among many others he mentions that; 'The least understood of all issues is that a house is merely the end-product of a long chain of social, economic, technological, environmental, political and other interactions' (p. 165). The same notion has been also raised by UNDRO. (see UNDRO 1977? and Cuny 1981a).

Cuny (1983), describes the concept of mitigation as follows;

> "Mitigation activities can be classified as passive or active. Passive mitigation is the development or application of measures such as building codes, land use, zoning, and urban or regional planning techniques to reduce vulnerability. Active

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mitigation encompasses those activities that require direct contact with the people... Activities include public education, the introduction of modification techniques, the initiation of housing improvement programs, the promotion of land swaps or relocation of people from vulnerable to suitable and safe sites, and economic diversification of those sectors most vulnerable to disasters" (pp. 207-208).

Davis (1984a), has chosen a symbolic approach to illustrate the concept of mitigation plans. He represents a 'fortress with four protective corner bastions'. The four bastions are 'Raising public awareness', 'Legislation', 'Training and education', and 'Physical measures' (p. 203). This fortress provides 'a balanced strategy for risk reduction.'(ibid). The same model is again repeated by Davis in 'Prevention is better than cure' (1984^a, p. 7).

The earlier 'fortress' with four bastions appears to be expanded in the form of a 'castle' with eight bastions. Davis (1987a, pp. 11-14). It is good to see what these eight bastions are;

"1-Political Will
2-Resources
3-Management
4-Public Awareness
5-Training and Education
6-Research and Development
7-Legal Framework
8-Cash Incentives" (p.11)

Obviously a successful mitigation plan requires the mutual co-operation of all these 'bastions'. However, Davis confesses that; "It is also possible that mitigation is highly 'class-related' and the measures 'may be totally unapplied for poor families living in the most dangerous sectors of a given town or city" (p. 13). This confession is some how in sharp contrast with the earlier parts of the same article

where he explores the situation of rapid urbanisation and the growth of

squatters in the developing countries where the main risk of disaster

exists.

Steps in mitigation- Cuny (1983), under 'Steps in Mitigation'

claims that:

> " Reducing the harmful effects of natural disasters
> requires actions on three fronts: reducing
> vulnerability of the physical settlements and
> houses; reducing vulnerability of the economy; and
> the strengthening of the social structure of a
> community, so that coping mechanisms can help
> absorb the shock of a disaster and promote rapid
> recovery" (p. 208).

He counts the following steps to be taken for mitigation;

> " The first step is to identify the high-risk
> areas. This is done by relating a hazard, such as
> an earthquake, to the terrain and to the
> probability that such an event will occur. This
> activity is known as risk mapping and the result of
> the analyses are usually presented in the form of
> 'risk maps' which show the type and degree of
> hazard represented by a particular natural
> phenomenon on a given geographical location" (pp.
> 208-209).

Cuny continues to say that : "A further refinement of risk mapping is

known as micro zoning, which is simply risk mapping at a very small

scale" (p. 209).

> " Risk mapping requires technical skills and the
> application of various scientific disciplines....
> The disciplines involved could include geology,
> metrology, hydrology, engineering, geophysics,
> geography, agriculture, forestry, physics,
> cartography, and remote sensing" (p. 209).

As Cuny (1983), claims; '...historic pattern of disaster and the

recurrence of disaster hazards can provide a practical guide in determining whether or not a community is at risk from certain phenomena' (p. 209).

The same author continues; 'The second step in vulnerability reduction is to identify those communities that are particularly susceptible to damage or destruction. This is done by relating risk to human settlements and their structures' (p. 209).

> " The third step is the selection of the
> vulnerability reduction strategy. This requires
> two sets of actions. First is the determination of
> the site strategy. Options may include
> construction of protective works, such as
> embankments, to protect from flooding...
> The second set of actions determines the *structural
> strategies* for reducing vulnerability. These
> include the imposition of design criteria or
> building standards to govern construction; the
> modification of existing structures; and the
> replacement of existing structures with newer
> buildings more resistant to disasters" (p. 210).

Reducing economic vulnerability in Cuny's view (1983) 'follows much the same pattern as does reducing physical vulnerability' (p. 212).

As has been mentioned, understanding the anatomy of the hazards and the predictability of their occurrence is of significant importance for any mitigation and preparedness planing. It seems that among hazards earthquake has received the most attention. That could be because of the high rate of fatality due to earthquakes, which has been described earlier.

The available literature reveals that the concept of 'earthquake prediction' was developed during a seminar 12-15 October 1982 in Geneva, of which the proceedings are published by UNDRO, 1983. It is a comprehensive case history discussing the ways in which the earthquake

can be predicted. In Page (202) of that document the 'basis ' on which

'scientific prediction ' can be made is summarised.

> " There is at present no valid theoretical model of
> earthquake generation on which to base
> determinative predictions of earthquakes,...
> The successful predictions that have been made so
> far have all been based on the observation and
> interpretation of 'precursors', that is to say
> geophysical, geodetic, geo chemical or biophysical
> phenomena, which are not necessarily related to the
> earthquake generation process but which have been
> observed to precede earthquakes in the past" (p.
> 202).

Between 11-14 January 1983, another seminar was held in Athens to

discuss 'Earthquake Preparedness'. UNDRO, (1984b) the proceedings have

classified the contents under the four following headings; " I: The

Earthquake Threat: Protection of Human Settlements, II: Earthquake

Engineering and Seismology, III: Earthquake Preparedness and finally

IV: Conclusions and Recommendations" (p. iii).

From a more recent event UNDRO (1987), has published the

proceeding of a 'Training Seminar' named: 'Earthquake Prediction and

Mitigation of Earthquake losses' which was organised by;

'UNDRO/USSR/UNESCO/UNDP' in 'Dushanbe, USSR, 8-14 October 1986'.

Van Essche (198 .), one contributor to this latter event, counts

the main steps of mitigation planning as; 'Risk assessment' which

include ' Hazard assessment' and 'Vulnerability analysis'. Then he

moves on to the stage of 'Risk reduction' and after explaining the

stages and considerations finally concludes that ;

> " Indeed, experience shows us that it is most
> important and urgent that 'hard' scientific data on
> earthquake risk be adapted to the needs and
> language of planners, architects and those
> responsible for the protection of the population in

times of earthquake emergencies. In effect, the
problem is that of the transfer of technology" (p.
108).

In 1987 UNDRO, has published Vol 2 of the proceedings of that latter

'Training Seminar' which contains an edited version of papers

delivered.

Another example can be introduced from the work of Spence and

Coburn (1987), at the Martin Centre, Cambridge University. They have

done some research on 'approaches to limiting earthquake damage.' Their

research is partly based on laboratory experience recording the

performance of models built of indigenous materials and examining the

modification they are looking for.

Using the phrase ' disaster management' as synonymous to

mitigation planning Davis and Lohman (1986), say;

> "The disaster management process is one of
> balancing known risks against known resources...
> To start with 'hazard mapping', which will involve
> both the identification of areas subject to
> hazards, by assessing their past incidence both in
> terms of frequency and magnitude. .... With the
> information gained from hazard mapping and
> vulnerability analysis it is possible to assess the
> risks to persons and property, but this is a task
> which is both subjective and pragmatic. No hard
> and fast rules can be offered on how to undertake
> this. The question to be asked concerns what *level*
> of protection is to be offered to *which* group or
> community" (p. 84).

Perhaps one important point to be learnt is the 'relativity' of

risk reduction in different contexts.

The methodology of 'vulnerability analysis' is well developed by

UNDRO. (see UNDRO, 19^{80} pp. 25-30) Because it is known that very often

a single community might be susceptible to different hazards the method

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is improved to study 'composite vulnerability analysis'. (see UNDRO, 1977b) This basically involves a graphic approach. Collecting and analysing the data of the vulnerable communities, those at risk of different hazards are spotted and illustrated. The latter reference contains a case study from, 'Metro Manila Area' of the Philippines.

One of the most current and perhaps most adventurous projects in the field of vulnerability analysis might be the one Yasemin Aysan in a meeting of the 'International Panel of Risk Reduction in Disaster Prone Areas' on 26 October 1988, held at Oxford Polytechnic introduced. She explained that in the context of some regions of Mexico City, they are carrying out a vulnerability assessment and trying to incorporate 'human vulnerability' or in other words the assessed ability of families and different communities to absorb and cope with disaster. They use a computerised approach for this purpose. This challenge is important because of the new element of families' economic and social situation to be incorporated in the assessment and also in terms of using a computer to process and analyse the data.

Vol 12 of 'Disaster Prevention and Mitigation' is concerned with 'Social and Sociological Aspects'. (UNDRO 1986) However, being the latest issue in the series is one evidence of the fact that, ' The sociology of disaster is a relatively young discipline compared with those of seismology, earthquake engineering, hydrology, metrology, etc.' (UNDRO, 1986 P. iii) However, sociological aspects of disasters are inclusively studied by Drabek (1986). He also reviews the social aspects of planning for disaster. (see Drabek, 1986 Chapter 2, pp. 21-67)

Eric Dudley (1988), in a report of the March 1987 earthquake in

Ecuador, ' Disaster Mitigation: Strong Houses or Strong Institutions?' focuses on the role of the local institutions in the process of mitigation and recovery. Under 'Lessons and Questions' as a conclusion he said;

> "Disaster mitigation is just as much a product of socio-economic factors as technical ones. The best hope for a community's recovery in a disaster is to have a history of strong organisations; it is towards this end that local institutions must direct their efforts" (p. 121).

Preparedness- It has already been discussed that preparedness for disaster basically considers the actions to be taken in vulnerable areas when the disaster strikes. By its very nature it is about saving the lives and reducing damage. Davis (1982), in relation to the 'Aim of Contingency planning' claims that they are;

> "(1) To alleviate distress.
> (2) To efficiently manage relief provision.
> (3) To reduce future risks in any reconstruction plan.
> (4) To restore normality.
> (5) To assist overall development" (p. 5).

In Davis' view (1984^a), 'necessary measures to reduce the risks' are 'in the following sequence':

> "Raising public awareness
> Assessing the risks
> Addressing the hazards
> Devising and implementing appropriate safe planning and building measures
> Developing training and education for various levels
> Statutory provision" (p. 289).

'Public awareness' in Davis' view has first priority as a measure of

preparedness. The concept of this awareness is developed by

(1984 .);

> " In relation to disaster preparedness, then,
> public information policy must be directed
> towards:
> a) awareness of the hazards to which a
> population, local or national, is exposed;
> b) awareness of the risks stemming from the
> existence of the hazards;
> c) awareness of what can be done to prepare for
> the impact of an un-avoidable disaster-causing
> phenomenon, and reduce its effects;
> d) awareness of what should be done after the
> impact, to assist the authorities and initiate
> the recovery process" (p. 119).

The concept of 'preparedness' is conclusively described in Vol. 11 of 'Disaster Prevention and Mitigation, by UNDRO (1984a). An important point can be identified from the introduction. It reads; '...because of the limitation of resources in many countries of the developing world, stockpiling as commonly understood may not be a practicable possibility" (p. 2). It is just this 'practicability' that plays a major role in the implementation of preparedness plans where otherwise the techniques and methodologies are available.

For instance let us take an example from a developed country and see how the plans work in reality. Handmer, (1988) reviews 'The Performance of the Sydney Flood Warning System, August 1986' and claims that there were difficulties. He says:

> "Problems were experienced with the data collection
> and transmission network. Warning dissemination
> was inadequate, and the majority of those surveyed
> claimed that they did not receive warnings. The
> action of householders reduced the flood damage
> substantially, but this does not appear to be the
> result of official warnings" (p. 37).

Frequently it could be found that the incorporation of mitigation plans in development plans are advised. For example, Bender (1985), claims that; 'Disaster mitigation programs which are part of an integrated development planning process stand the best chance of implementation' (p. 1). Those who emphasise the integration of risk reduction in development plans usually overlook two facts;

First, vulnerability to disaster is not a priority and is not one of the indicators of development measurement. The communities have many other needs which if they are addressed could reduce the vulnerability.

Secondly, they assume that development planning is a simple, well-known, straightforward activity. This is not the case on the contrary, development plans, especially in the context of developing countries, are found to be not only sophisticated and complex in design but also very difficult to implement and to evaluate their long-term results. Two examples of this are of Russia and China who have recently diversified their economic and social policies. It is very difficult to judge whether a country has achieved development and with what values. The case of Cuba is a good example, as despite attempts to free itself from the outside market after the revolution, they have been unable to dispense with the production of sugar. (see for example, Burndenius 1981)

Those who claim 'rapid urbanisation' or 'population growth' as two of the reasons for an increase in vulnerability, usually avoid acknowledging the basic root cause; that rapid urbanisation is one of the facets of an ill economy. If the social and economic development that was planned could be successfully implemented there might not be

any more unreasonable migration from rural to urban areas in developing countries. Therefore vulnerable settlements would disappear or be substantially reduced.

Discussion- Davis' axiom (1984b), is a neat phrase; that, " 'prevention is **better** than cure' is popular in certain circles but the question has to asked: **better for whom?**" (p. 3). (emphasis added) It is true that nowadays treating diarrhoea is a very ordinary task in medicine, but how many children each year are still dying of the same symptom in remote areas of the world? If one day total prevention of this disease were to be achieved on a world-wide scale, it is likely that by that time many communities would be less vulnerable to disasters as well.

Cuny (1983), argues the same issue in another form;

> "As we have seen, disasters can be a primary cause
> of under-development, as well as intertwined with a
> country's progress toward development. Similarly,
> many mitigation activities either require a certain
> level of development or are themselves development
> activities. Third World countries are so affected
> by disaster in part because of their inability or
> failure to address the root causes of poverty and
> under-development. Thus it is difficult to carry
> out mitigation activities successfully" (p. 206).

Drabek (1986), after reviewing literature quoted from others concludes; 'Disaster plans too often remain paper plans and are not rehearsed in whole or in part' (p. 54).

Davis and Lohman (1987), introduce a manual which they prepared and expect to be published in January 1989. The book is entitled; ' A manual for the implementation of disaster risk reduction measures'. ' The sequence of the manual can be represented in Fig.2.'

The Figure illustrates three boxes the first is 'Risk Assessment', the second, 'Planning and Decision Making', and finally ' Implementation'. (p. 41)

The authors when discussing 'The context of mitigation within development planning', raise the important issue of development planning and they say; 'Risk reduction measures should be regarded as an integral part of development plans and be included in all environmental, land use and site selection plans at the national, regional and local level' (p. 42). Davis (1987a), also says; ' What is needed is a long time perspective, recognising that it may take at least 50 years to implement measures step by step to build up a strong 'castle' of integrated risk reduction' (p. 14).

The United Nations General Assembly 42 Session (November 1987) approved resolution No 42/169 which embraced the concept that the decade '1990-2000' should be designated as 'UN International Decade for Natural Disaster Reduction'. But as a result of designating 1987 as the year of the homeless, Lord Scarman who had been President of the International Year for the Homeless said;

> 'In 1987 we have succeed in **concentrating attention** on many aspects of homelessness. Yet, despite the efforts of many, the stark facts show that by the end of the year the numbers living in squalid shanty towns and crammed into Bed and Breakfast hotels, will have increased." (back cover, IYSH) (my emphasis)

One would be very optimistic to expect any better result from the designation of a decade for disaster. But it is a start for one of the castles' towers, that of 'political will'.

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Remark- In this chapter we started with identifying the range of literature available. The shortage of items dealing directly with 'reconstruction after war' prompted us to review those about 'natural disasters'. This step was also supported by the assumption that 'natural disasters have similarities with war in terms of destruction and reconstruction of damage'.

The next step was to identify a framework for the study. The review of the literature on natural disasters found that it is hard to find a universally accepted framework and that the literature conventionally presents the discussion in the form of 'key issues' or 'issues'. We decided to select the 'stages of disaster' which are relevant to the study of 'shelter in relation with disaster'. These phases were: Phase 0; Pre-disaster, Phase I;Emergency shelter, Phase II; Temporary accommodation, and Phase III; Reconstruction of permanent house.

In exploring Phase 0, it became necessary to review the definitions of disaster, vulnerability, risk and so on. The significant role of shelter in relation with disaster was highlighted. It was found that not only do most disasters affect and damage the housing sector, but also that a high percentage of human fatalities are due to the collapse of buildings.

The three consensus activities of pre-disaster planning, namely; Preparedness, Prevention and Mitigation were described and their major components were explained. It became apparent that the methodology and technology of 'risk assessment' and 'implementation of mitigation measures' are well elaborated. However, the application of these methods in the context of those communities most vulnerable to hazards

is facing serious obstacles.

Despite frequent recommendations on the inclusion of 'mitigation plans to be incorporated in overall development plans' it seems there is some negligence, on the part of many authors, in not admitting that development plans themselves are not easy to prepare and implement. Furthermore that in reality it becomes difficult to give a high priority to the mitigation of hazards, while other more obvious obstacles, such as employment and basic needs such as clean water and sanitation, exist on the agenda.

It is also found that mitigation plans are very often one of the primary goals of reconstruction projects after disasters. We should examine this subject in the next chapter when the 'reconstruction phase' is studied.

CHAPTER THREE.

CHAPTER III

SHELTER AFTER DISASTER (PHASE 1 AND 2)

EMERGENCY SHELTER AND TEMPORARY ACCOMMODATION

Introduction: Before the news of the 6th November 1988 earthquake in south-west China which left 400,000 houses devastated[1], faded from public interest, the world was shocked by the news of the Armenian earthquake of 7th December 1988 which caused an estimated loss of 55,000[2] lives and left half a million people homeless. Incidentally this chapter proceeds while the news of the recent disaster is still fresh. Obviously the Armenian survivors, as well as their Chinese counterparts, have taken refuge from the first night in some sort of shelter which was most likely arranged by themselves.

Two weeks after the event in Armenia, the first steps towards reconstruction were taken. Prefabricated cylinder form houses were unloaded at Spitak, one of the damaged areas (See The Times, Monday December 19, 1988). However, we must wait to see how long it will be before permanent houses are built for the survivors of this earthquake. From now until then these survivors will live under shelters of a 'temporary' quality. This is more or less a typical scenario after catastrophes such as the Armenian earthquake. The subject of this chapter is to review the approaches implemented and issues identified in relation to **emergency shelter** and **temporary accommodation**.

1.The Times Monday 19, December 1988

2.This was the initial deathtoll reported. However, by the end of the year 1988 it was amended by Russian Authorites to 25,000 or so. UNDRO NEWS (November/December 1988) also reports the figure 25,000.

In the previous chapter it was discussed that not only earthquakes but most disasters damage or destroy houses. People's need for shelter is so apparent that it does not require any scientific reasoning. However, it suffices to refer to Rivers and Brown (1981), who look at the need for shelter from a 'physiological' point of view and claim; 'Like all other mammals, Man is a warm-blooded creature, ...Man's physiological need for shelter arises from these factors: his metabolic rate and the thermal characteristics of the environment which surround him' (p. 63).

It is possible to study the issues concerned with emergency shelter separately from those of temporary accommodation. However, we consciously decided to examine both phases simultaneously because, not only is it the convention of the literature, but also because in practice emergency shelter emerges into temporary accommodation and it is usually difficult to make a clear-cut distinction between these two kinds of shelter. In addition there are occasions when even reconstruction starts with survivors immediately after the event. Thus, UNDRO (1982), proposing the conventional phases of disaster also confesses that this classification is to some extent 'arbitrary' (p.2).

This chapter will be divided into three sections; first some of the most common approaches practised for emergency and temporary shelter will be reviewed and the advantages and disadvantages will be discussed. Then the second section will focus on some of the most common observations reported in relation to emergency shelter and temporary accommodation. Finally a brief guidelines will be provided as a summary of the discussions.

3-1- A review of different approaches- In 'Shelter After

Disaster', by UNDRO (1982), almost half of the main text is occupied by

discussion of emergency shelter. Most issues discussed in UNDRO 1977?

are repeated here, even some of the illustrations are the same and many

of them copied from Davis' (1978) 'Shelter After Disaster'. These

three documents appear to be the most identifiable references currently

available for the subject.

In the first instance let us see what functions emergency

shelter is expected to fulfil. In relation to this UNDRO (1982) reads;

> " Emergency shelter serves several vital functions
> (*not* listed in order of priorities): Protection
> against cold, heat, wind and rain. Storage of
> belongings and protection of property. The
> establishment of territorial claims (ownership and
> occupancy). The establishment of a staging point
> for future action (including salvage and
> reconstruction, as well as social recognization)
> (p. 8).

In addition to the shelter for survivors of disasters, there is

also a need for other spaces such as temporary schools and offices.

The Swiss Disaster Relief Unit (1984), introduced 'ISO-Shelter' which

they used in Poland, North Yemen, and Turkey. They claim it suits

different climates and is suitable for different uses such as health

posts, schools and offices (p. 11). 'ISO-Shelter' is built of an arch

form skeleton with plastic sheets to cover this. They claim that each

unit weights '950 Kg and costs (including canopy) US$ 5500' (p. 11).

Emergency shelter after disaster can take many forms. Drabek

(1986), in relation to this writes; ' When they leave, where do

families go? To some extent this depends on event qualities, especially

length of forewarning and anticipated evacuation time' (p. 117).

He also adds that in most cases families go to stay with a friend or with relatives. The distance has a role of course. More importantly he reports from surveys which show that a large proportion of families received invitations from their relatives before moving to stay with them (p. 117-118). He also indicated that those who seek shelter in public places are found to be of a lower class and minority and ethnic groups (p. 118). Thus it can be seen that selection of a certain form of emergency shelter largely depends upon the context of the community and not all social groups will perform identically.

The literature makes it evident that among other items shelter has been one of the components of the relief period supplied by relief agencies. It is also known that in the emergency phase shelter does not usually have high priority. UNDRO (1984), reads:

" Immediate emergency assistance is, usually, required in up to six main categories. A league of the Red Cross Societies' study and analysis of 106 disaster appeals .... indicated the frequency of requests for specific items as:

1-Food	68%
2-Cash for local purchases	65%
3-Blankets	60%
4-Clothing	59%
5-Emergency shelter	**54%**
6-Medicaments	45%
7-Vitamins	15%
8-Cooking utensils	13%
9-Antibiotics	9%" (p. 46). [my emphasis]

What are the main characteristics of emergency shelter? The situation is usually that a huge number of families need it in a short time, almost immediately. Thus whatever type of shelter is concerned it must be of a quality that could be easily transported; therefore light-weight and collapsible, easily erected by the survivors who are

ordinary people, not expensive and ideally reusable either in other disaster situations or by the first users in a permanent form. However, other characteristics such as ease of storage and those of performance in different climates could be added to this list. In reality it is found hard to answer all these requirements with a single product. Inevitably some have to be overlooked for the sake of the others.

It is interesting to know that, as Latina (1987), claims;

" Sometimes, also many great names of Architecture (such as Le Corbusier, Aalto, Rudolph, Kurokawa, etc) have ventured themselves upon the theme of designing an ideal emergency or temporary unit for industrial production (8). But most often these efforts have been frustrated by reality: many of their ideas have been developed only at sketch or prototype levels, and even when these industrial design products have been tested, undergoing mass production, their use by the homeless has frequently led to unexpected fiascos" (p. 33).

In the same relation Davis (1975b), writes;

" The philosophy of designing an exportable solution for disaster housing recently found expression in the UNESCO UIA sponsored architectural competition (AD 7/75, page 448). However, it is interesting that within the prizewining entries for this competition, an American consortium (Fred Cuny of 'INTERTECT' in Dallas, The Emergency Shelter group of Carnegie-Mellon University in Pittsburg, and the Emergency Housing group at the University of Texas at Austin) proposed an indigenous shelter using known *local* skills and *local* materials. The critics of the Western exportable shelter have insisted that the overriding need is for a local indigenous solution using local expertise, local materials in the local vernacular (where this is appropriate or safe)- the emphasis being on a culturally acceptable labour-intensive, as opposed to capital-intensive, solution' (p. 660).

Perhaps what Davis concluded in 1975 is more or less the final word even today. In any case one of the prizewinning projects in the competition which Davis talked about was proposed by two Indians, Alka and Vidyadhar Chavda (see Architectural Design No.7, 1975, P.448). In (1977) in an interview with Ekistics they described their 'emergency habitat system'. Their design consists of a 'collapsible tent-like structure of aluminium frames covered by woven laminated polyethylene that encloses an area of 8 by 12 feet for a family of six' (p. 56). Their claim is that this structure can be used as roofing for a more permanent house developed by the survivors themselves. It is also a flexible structure and it is possible to join some of the units to provide a larger space. They were also concerned to make it in such a way that it could be used during all three stages of emergency, temporary and later permanent houses (p. 57). The Indian Red Cross had expressed interest in using this kind of shelter, so they claim (p. 56).

Davis (1978), in 'Shelter After Disaster' provides a series of photographs of emergency shelters experimented with after different disasters. His approach to emergency shelter in this book mainly emphasises cultural aspects and he talks about 'myths' existing in relation to the survivors' behaviour and so on. One of his final conclusions in relation to emergency shelter and temporary accommodation is that; 'most families appear to go to official shelters only when all other alternatives have failed' (p. 28), and he continues;

" People have clear preferences, which normally
follow this order:
1) the homes of relatives or friends

2) improvised shelters
3) converted buildings- schools etc.
4) official provisions" (p. 28).

UNDRO (1982), includes an appendix on 'case study summaries' which also contains the approaches implemented for emergency sheltering of survivors of the 11 disasters reviewed, 10 of which were in fact earthquakes (pp. 65-73). This document alone can reveal the variety of approaches practised after disasters. It goes from tents to wooden huts and polyurethane igloos. Having a review of the ways survivors of a disaster usually prefer to choose their emergency or temporary accommodation, it is time to focus in more detail on the performance of some of them.

Tents- Perhaps the only form of emergency shelter which has been universally provided after disasters, during the last two and a half decades and before, is tents. The available literature usually dates back to the 1963 earthquake in Skopje, Yugoslavia where 5000 tents were provided after the event (see UNDRO 1982, P. 65).

Tents have their origins in nomadic life and in fact are the design of non-educated and non-professional people. They can be seen in a variety of forms and sizes among nomads. In principal they are combined pieces of cloth, which are assembled on the site with few supports, mostly wooden poles[3]. Although over the years new artificial materials have been provided for tent cloth and light metals such as aluminium have substituted for wooden supports, the principal of the tent structure seems to have stood constant over the years.

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3. In 1985 I produced a book entitled 'Light Weight Structures in Rural Areas which is in Farsi and reviews different forms of tents in rural areas of Iran.

There seem to be three main issues to examine in relation to tents; The spread of their use after disasters, the advantages and disadvantages and finally the issue of establishing them in the form of camps, otherwise known as 'tent cities'. This latter issue tends to be more or less similar to those of any other kind of emergency shelter.

Lewis Emery (1981), reports from the experience of the U.S. Agency for International Development (AID) and Office of U.S. Foreign Disaster Assistance (OFDA). He says that 'more than 56,000 tents [have been distributed] to homeless victims of more than 68 disasters at a cost of $4.6 million'. Then he moves on to count the advantages and disadvantages of this kind of emergency shelter (pp. 153-158).

Howard and Mister (1981), review the 'Lessons Learnt by Oxfam from their experience of Shelter Provision 1970/1978'. Oxfam has used three major types of emergency shelter including; ' tents, flexible sheeting material and polyurethane housing' (p.   159). In their view 'tents have [been] and continue to be a dilemma to an agency like Oxfam'. Although they admit the usefulness of tents, they mention problems which discouraged Oxfam from stockpiling them, including cost, difficulty of storage because they have an estimated shelf life of only two years, the cost of transportation to the area and even then they are not usable in the reconstruction phase (pp. 164-165).

Bayulke (1984), claims;

> " The Turkish practice of providing temporary shelter is through tents....
> Tents are not successful in the colder regions of Turkey. ...
> The practice of providing organised tent cities for the disaster-stricken people is not possible since people want to stay close to their houses, even if they are damaged. Tents are a kind of moral support: providing a covered sleeping place for

people...
Tents are not made of reusable materials. If later
collected, they are mostly damaged and unfit for
further use" (pp. 111-112).

The UNDRO (1977a), report from the cyclone and torrential rains

disaster in Oman in June 1977, states that tents have been supplied as

emergency shelter. (p. 11) In another 'Case Report' by UNDRO (1977c),

from the earthquake of November 1976 in the Van Province of Turkey, it

appears that evacuation and emergency shelter policies are closely

interrelated and it is likely that some of the survivors refuse to

abandon their damaged settlement. It reads;

" People who wished to move to the larger towns in
the area, rather than to isolated tent camps, would
be cared for there, and if they wished to spent the
winter in other parts of Turkey this would be
arranged. Some 1,600 families accepted the offer
of accommodation away from Van Province.
Some 5,000 winterised tents, fitted with stoves,
were erected at 19 sites within the disaster area
and at Van (Plates 11 and 12). As these became
fully equipped, people were moved into them from
temporary tents and, in the case of Van town, from
schoolhouses where they had been sheltered
initially" (p. 8).

This was just one example illustrating the psychology of

survivors of a disaster. The issue of the survivors' intention not to

leave the area or to stay as close to it as possible is developed in

one of the following chapters of the present study under 'Physical

reconstruction and psychological recovery'.

Coburn and Leslie (1985), from the Dhamar earthquake in Yemen

Arab Republic report their observation of people's emergency shelter as

follows;

" Short term relief for the estimated 300,000
homeless was provided in the form of tents,
blankets and food. A sizeable number of people
left the affected area to seek accommodation
elsewhere.... Soon after the earthquake, many of
those living in tents began building more
substantial temporary shelters, from corrugated
iron on timber framing. This shelter was built
largely by the villagers themselves, .. Those who
erected temporary shelter demonstrated their
ability to provide for themselves in the short
term..... Some fifteen months after the earthquake
it was estimated that four out of ten villages in
the affected area were still living in some form of
temporary shelter" (p. 2).

This observation from Yemen, in terms of survivors' modification

of their shelter is in keeping with our own observations in Khuzestan

Iran, which have been developed in previous chapters. Parsa (1985), in

the context of the Tabas earthquake (1978), in the Khorasan Province of

Iran has written;

"The government spent more than 1 bn Rials[4] on
provision of temporary shelter, but unfortunately
this had little impact. In some places expensive
camps were set up; in other places tents and old
buses were used for emergency shelter; and in some
places people did not receive even tents. During
the field study of Tabas in September 1984, exactly
6 years after the earthquake, one could still see a
few people living in some of the mobile homes,
either on the site of their original home or in the
specially prepared sites. In some villages around
Tabas which were visited, camps were standing
adjacent to new houses which were built after the
1978 earthquake. The camps are being used either
as additional living spaces or storage rooms and in
some cases, for animals and chickens" (p. 43).

Two major points can be observed from Parsa (1985); first that the

distribution of tents or any other kind of shelter is not always an

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4.Roughly equal to £10 million. (my footnote)

easy task and secondly that the emergency shelter tends to be used for

longer than is initially intended.

Mitchell (1976ᵃ), visiting the area damaged by the 1970

earthquake in the Gediz area of Turkey reports that;

> "Turkish Red Crescent (Red Cross) sent in 6,000
> tents ...one week after the earthquake 15,000 tents
> had been distributed. Three months later, white
> canvas Turkish tents and brightly coloured tents
> donated by West Germany, France, and Sweden dotted
> the landscape, serving as temporary shelters. When
> I returned to the area three years after the
> earthquake, I saw fewer than ten tents in the
> regions, and not one of them was serving as a
> shelter" (p. 303).

This was a good example to show that tents by their very nature

cannot resist the climate and last for long periods either in use or on

the shelf. Davis (1975b) in 'Skopje Rebuilt' which is a study of

reconstruction of the city following the 1963 earthquake claims;

> "During the first 8 months of building the initial
> 14000 houses, displaced families were living
> in tents, caravans and temporary housing. I have
> not been able to determine how fully the 14000
> tents were used, but it seems likely that many
> were never lived in" (p. 661).

Davis (1975a), [AD/1/75] reports from Managua, Nicaragua, after

the earthquake of 1972;

> "The government decided to build 'tent cities', in
> various locations, two in Managua and three or four
> in outlying towns where the refugees had moved.
> The tents.... were not fully used. Why not?
> Firstly, due to the extraordinary response of the
> extended family system they were not needed, and
> secondly, with one notable exception, they were
> laid out by the military on military lines with
> regimented control of cooking, sanitation and
> little recognition of family needs" (p. 43).

One major disadvantage of tents is that they are not suitable for every climate. In rainy seasons they must be covered by an extra sheet such sometimes plastic and in any case in cold weather, as was reported from Turkey, as well as in hot weather they can not provide a comfortable shelter. Kreimer (1984), in the context of the Dominican Republic affected by 'hurricane David' in August 1979 claims; 'The emergency shelter provided by various agencies to the hurricane victims consisted of tents, plastic sheeting and plastic cardboard panels, all of which were environmentally and climatically unsuitable' (p. 471).

Tents could be erected after disaster, inside or close to the damaged houses. This was the dominant way in the city Susangerd, when the people returned there. In another form they might be established as camps. In this case the layout and organisation of the units becomes crucial. Cuny (1983), pointing to the involvement of military organisations in disaster operations, counts some of the advantages and disadvantages this has. In terms of emergency shelter he points out that most armies have stockpiles of tents which can be used, but more important their engineers will be familiar with military-type camps layouts, which simply do not suit civilians (pp. 227-228).

This has created constant problems over the years and it seems to exist still. For example, Gavron (1988), a journalist reporting from the Sudan flood in September 1988, used some photographs from camps that are set up in parallel lines, military fashion. (p. 47) This issue has been raised by Davis (1978) and he provides a successful example designed by Cuny in Nicaragua (p. 56). Cuny (1977), has published a document on the principals of camp design and in his book

(1983), he has again raised the same issue. However, it seems while

the army is in charge of post-disaster relief operations, we should

hardly expect this seemingly simple problem to be overcome.

Plastic sheets- Plastic sheets can be used both as the main

cover substituting the cloth of tents or as an extra cover in

combination with tents or local materials such as bamboo etc. Howard

and Mister (1981), have found Plastic sheeting is quite good because of

the waterproofing it provides and it's use with local materials such as

bamboo. (p. 165)

Kreimer (1984), in the context of the Dominican Republic, where

after the 1979 hurricane plastic sheets were provided as emergency

shelter material, claims;

> " The plastic sheets were light coloured and
> absorbed heat, obliging the occupants to paint
> their surface in order to reduce the heat
> absorption. Furthermore, the idea underlying the
> provision of the sheets was that plastic is a more
> adaptable material than tents and, in any case,
> less permanent. However, in December 1980, that
> is, one year and four months after the disaster,
> shelters built of plastic sheets were still in use
> in several settlements" (p. 471).

Howard and Spice (1981), have produced a 'technical guide' for using

plastic shelters for 'emergency housing and other purposes'. This has

been published by Oxfam continuously since 1973 when it was originally

written. The 'Guide' includes appropriate instructions for assembling

plastic sheets on site.

Another plastic material occasionally used after disasters is

plastic cardboard. Kreimer (1984), in the context of Dominican

Republic 1979 has written;

" Another material, plastic cardboard sheets, used
by large families in a mountainous area, were too
hot during the day but condensed humidity and froze
at night when the temperature dropped. As of
December 1980, despite the fact that they were not
intended to last, these structures were still being
used in San Jose de Ocoa, some by a second
generation of occupants..." (pp. 471-472).

Lamina and corrugated iron sheets- This material is basically

useful for temporary shelters and has been used in many disaster

situations.   Norton (1980), when discussing Guatemala, 1976, reports

that 'Lamina sheets.. [were supplied not only].. for temporary

shelters but also used when more permanent houses were built (p. 343).

Howard and Mister (1981), of Oxfam, claim that; corrugated sheeting has

been a successful approach and they still recommend it. (p. 165) Cuny

(1983), also reports from the earthquake of 1976 in Guatemala, that

corrugated iron sheets were supplied to be used as roofing material

both in emergency and permanent housing reconstruction. (P. 170)

Corrugated sheets have some advantages, namely; they are

light-weight and can easily be handled by one person. They are also

relatively cheap in proportion to the cover they provide. They are

durable if thick enough and properly galvanised, so unlike tents and

plastic sheets, may be used later on in more permanent forms of

shelter. They are waterproof and resist the rain and easy to fix with

nails, without having special skills (see for example, Howard and

Mister 1981, p. 165).

The main disadvantage, however, is that they are not good

insulators against hot or cold weather. In Khuzestan it was observed

that the refugees used an extra layer of mud and straw to reduce the

heat absorption. Having a smooth surface, however, a mortar like mud

does not easily stick to the sheets except in the near horizontal position.

Polyurethane for shelter- This has been one of the challenges to introduce more advanced technology into post-disaster temporary shelter. It has been used on a few occasions after disasters and it has been abandoned for the reasons which will be shortly reviewed.

The principal of this method is instead of transporting the ready-made shelter, to take the 'raw' material and machinery onto the site and to produce units there. The main substance is Polyurethane or some other similar material. A balloon is used as the cast to shape the space and then the processed substance is applied on to it.

It seems that the idea of such shelters in a disaster situation has been one of the applications of the designs which were developed during the 1970s called 'Pneumatic or Vaccumatic structures'. For example, Colonolly and Fisher (1971), [Architectural Design (AD). Vol. 41. No. 4. 1971] introduce their pneumatic design which they claim when it is folded is '100 times smaller than the completed enclosure', and 'costs £13.50/m^2 including all labour.' This convenience may encourage some designers to consider the use of this kind of system for the disaster situation. In brief they appear to simplify the home need to a space enclosure.

Vaccumatic structures were also another attempt along the same line. They work by creating a light-weight shelter using a big balloon which is then covered with an 'envelope'. When the outside cover is hard enough the inside balloon is removed and the form stands by itself. However the application of these approaches in disaster areas remains a matter of fantasy (see AD, Vol.41, No 4. 1971, pp. 197-199).

Mitchell (1976), visiting Turkey reports;

" West Germany ... [provided]...a new form of
temporary shelter that resembles an igloo.... The
shelter is a dome-shaped Styrofoam shell about four
and a half inches thick, with a sixteen-foot
diameter on the ground. It is cast at the site by
spraying Styrofoam substance on an inflated
balloon. The shell is then treated with a
water-proofing compound and can be set into place
by two men. After the shelter is cast, a doorway
and circular ports for windows are cut out for [of
the?] plastic covers. In 1973 the 'igloos'
appeared badly weathered but were still being used
in Akcaalan" (p. 304).

Davis (1975a), reports from the earthquake in Managua;

"The West German Red Cross donated spun
polyurethane foam Igloos which were built on site
by Bayer,. These were slow in arriving and were
not occupied until 5 months after the earthquake.
The cost of the igloos was 2,000 DM for 500 units,
which averages about \$930 per igloos[5]. 310 igloos
were built on a site at Masaya and the remainder
were built at Diviamba. Of the 310 igloos built at
Masaya, only a total of 75 were occupied, the
remainder lay totally derelict with long grass
gradually engulfing them. These formed a useful
'quarry' for the families in occupation to remove
chunks of polyurethane in order to modify their own
homes (p. 43).

On the other hand some positive impressions are also recorded about the

performance of the Igloos. For example, Bayulke (1984), claims; 'In

Gediz 1970, igloos made of polyurethane were provided by the Federal

Republic of Germany (about 400) and they were relatively successful'

(pp. 111-112). He also adds that the polyurethane igloos of Gediz were

still in use after more than 10 years (p. 113)

5.The 2,000 DM must be the cost of each unit not the cost of 500. [my
footnote]

Howard and Mister (1981), report that polyurethane was used experimentally 'in Pakistan for flood victims and a bigger operation in Turkey in 1975, where 450 units were built following an earthquake' (p. 165). However, they also claim that this approach has been abandoned because of the high technology it required and unfamiliarity for recipients and so on. (p. 165)

Salvaged materials- The need for emergency shelter after disaster is so real that it is unlikely that the survivors will remain apathetic about it. Obviously their actions depend upon the preparation of design, advice issued and the evacuation plan. However, as most disasters are not easily predictable and in developing countries even if precautions are announced evacuation might be less feasible, the provision of emergency shelter will remain mainly the responsibility of the survivors.

In this respect there is also a big difference between survivors in urban areas and those of rural areas. Rural people are usually familiar with vernacular building skills, so it is likely that after a disaster they can start sheltering their families more promptly, using salvaged and local materials. Despite the emergency phase in temporary accommodation the use of local materials becomes more possible. Cuny (1983), claims;

> "In a developed society people rarely build their own houses, and housing reconstruction may take many months or even as long as one year, justifying a large outlay for emergency shelter. In developing countries, most emergency shelter needs are met by the victims themselves. The survivors quickly assemble materials from the rubble and build an interim shelter" (p. 17).

Howard and Mister (1981), agree that ; ' Disaster victims will quickly rebuild some form of shelter for themselves using local material, or materials re-covered from their previous homes' (p. 167). Gere and Shah (1980), from the Tangshan earthquake of 1976 in China report that; 'Soldiers erected temporary shelters for medical works and injured people' (p. 48). They also add;

> " To house survivors of a city that lay in such
> ruin was no small challenge. Soldiers built
> temporary houses for hundreds of thousands of
> people; they are one-story brick dwellings (or
> huts) made of rubble from the quake itself" (p.
> 49).

The survivors' skills in the use of local and salvaged materials and their effectiveness in the provision of emergency shelter and temporary accommodation can not be overemphasised. Nevertheless donors and governments can contribute to the survivors initiatives' by providing them with more easy access to the local materials or some additional materials such as plastic or corrugated iron sheets, which the survivors can use in combination with their own materials and techniques. One of the main advantages of this approach is that because the survivors themselves decide about the location, size and design of the shelter, the so called 'cultural problems', which usually arise in term of adaptation to imported and unfamiliar shelter units of camps, could be eliminated to a large extent. UNDRO 1977? and 1982, have discussed these issues in depth.

Wooden Huts- This approach has only occasionally been practised by donor agencies. Bayulke (1984), reports that after the 1966 Varto earthquake in Turkey, timber huts were provided, some of which were in

use as secondary spaces after 15 years. However, the cost of these huts was estimated at '25 per cent of the cost of 50 square-meter houses of brick masonry' (p. 113).

Davis (1975a) also reports from Managua that;

> "The American government made a donation of $3 million to build temporary wooden shelters for the refugees, with this money 11,135 were built, at an average cost of $269 each.... Assuming an average family size of 4 persons, provision was made for approximately 44,540 persons. Final occupancy was 15,784. The first of these huts were built within 14 weeks of the disaster" (p.43).

Cuny (1983), also provided a photograph of the wooden huts from Nicaragua with a caption which reads; ' A monument to waste: temporary housing unused and abandoned' (p. 156).

Perhaps the main problem with this approach is that wood in many developing countries is a scarce and relatively expensive material, both intrinsically and because of transport costs. Besides it is usually used in more permanent and essential forms of buildings. Added to that, if untreated wood is open to the weather it could quickly deteriorate.

Mobile homes, Caravans- This expensive approach is only feasible in developed countries. As UNDRO (1982), reveals they were used in Yugoslavia after the Skopje 1963 earthquake and in Italy after the Fruili 1976 earthquake (pp. 65-71). However Parsa (1985), reports using old buses as temporary shelter after the Tabas earthquake of 1978 (p. 43). In the United States mobile homes seem to be the dominant approach to temporary shelter. Cuny (1983), in Disasters and Development claims that in the United States 'mobile homes' are

stockpiled in strategic sites. He claims that each of them costs approximately $5,500 (p. 17). This question of cost is of major interest, especially when it is compared with common types of shelter such as tents provided after disasters in developing countries, with Cuny (1983), estimating that it would cost 'approximately sixty-five dollars' per family. (p. 17)

Corner (1984), in the context of the United States reviews the common approach of using mobile units as temporary shelter after disasters. He claims; 'The units have been hauled over hundreds of miles from Strategic Storage Centres to be set up in camps near the damaged home-sites' (p. 12). He also describes the context of American disasters, saying that; 'First, the disaster loss rates are really quite low.... Second, Americans have shown a great willingness to relocate even under normal circumstances,...Finally, there is surplus accommodation in much of the United States...' (p. 12). He counts some of the problems which exist with these mobile units.

> " The same unit may be sent to hot or cold climate
> extremes with high energy costs and endless
> maintenance problems being the inevitable outcome.
> The mobile homes are uniformly unattractive,...
> The units do have a very low initial purchase price
> and they are relatively easy to transport over the
> highway on their own wheels. However,
> transportation becomes expensive when long hauls
> are required" (p. 13).

Corner (1984), observes more operational obstacles on the site for the preparation of the land. He continues that; 'The real failure of mobile homes results from the fact that they are not truly self contained, they rely [or rather demand] on adequate water, power, and sewage connections.... Mobile homes are at best a short term remedy' (p. 14).

Prefabricated houses- Prefabricated houses, are more often used after disaster as permanent houses. For example, after the 1963 Skopje earthquake, Yugoslavia, in Peru after the 1970 earthquake, in Honduras after the hurricane of 1974 and in Lice, Turkey after the 1975 earthquake some kind of prefabricated units were used in reconstruction programmes. However, there are occasional cases in which prefabricated houses were used as temporary accommodation. The cases of Skopje and Fruili are among them (see UNDRO, 1982 pp. 65-73).

Prefabricated units can be used when the period of temporary accommodation is expected to last long, but in essence can be used in industrialised countries. UNDRO (1982), concerning the efficiency of this approach reads;

> " The policy of 'two stage' reconstruction- pursued in the Italian earthquakes of 1976 and 1979- where prefabricated temporary housing is subsequently replaced by the full reconstruction of damaged home, is not viable in developing countries because of the extremely high cost of what amounts to reconstruction twice over" (p. 32).

Reviewing the earthquake of 1976 in Fruili, Italy in terms of using prefabricated homes as temporary accommodation under 'Lessons Learned' UNDRO (1982), reads;

> " The 'temporary' housing policy, pending permanent reconstruction, proved to double the costs of reconstruction, in view of the price of prefabricated units and the investments needed to provide sites and services. This policy in effect retarded reconstruction" (p. 71).

There is evidence that when prefabricated units were used as a permanent housing reconstruction approach, they faced some degree of

unwillingness by the users. It is likely that the same critics or perhaps others besides exist in the case of prefabricated units used as temporary accommodation. UNDRO (1982), in this relation concluded;

> " Prefabricated housing built by the Turkish Government at Lice following the earthquake of September 1975. Many families objected to the form and siting of the house. These objections related to their lack of participation in what was provided, and the cultural and climatic unsuitability of the housing" (p. 32).

Latina (1987), reviews 'The Long-term Performance of Prefabricated Housing After Italian Earthquakes'. He claims that; 'the Italian experience is very peculiar' in its use of prefabricated low-cost housing. He refers to the recommendation of UNDRO that, the creation of temporary accommodation is among policies to avoid because the overall findings relating to this kind of shelter, have not been promising. He also adds that the creation of temporary accommodation after disasters in Italy has been the rule. He follows this with;

> "The most recent historical researches in the field of post-disaster reconstruction in Italy, on the other hand, show that the creation of temporary settlements, made-up of any sort of durable shelters, has a **long tradition** in our country [Italy] (p. 29). [my emphasis]

He adds that ;

> "As a matter of fact, nowadays Italy can be quoted among the most relevant world producers of pre-fabricated housing, and belongs to the main donor nations, in offering shelter assistance to foreign disastered[6] countries.... Today, an estimated number of more than **250,000 Italian**

6.Such a word seems not to exist in English, it is the only time I 've seen used.

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homeless   live   permanently   in   'temporary'
settlements" (p. 30). [my emphasis]

In the next section the author reviews 'The government's role and

public opinion'. Latina (1987), refers to the primary assumptions

governments make, that given the industrial capacity of the country,

prefabricated units have the advantages of being cheap, easily

available and possible to erect and distribute quickly. This will

provide enough time for the authorities to allocate resources and to

plan for permanent reconstruction (p. 32). He explains that because

the demand for these temporary shelters is not predictable,

manufactures are reluctant to invest fully in this type of product (p.

33).

Latina then refers to a field investigation they carried out;

" In 1982, when the temporary re-settlement of the
Irpinia homeless was completed (120,000 people,
altogether, dwelling in 25,000 prefabricated houses
plus 14,000 improved containers), .. The most
evident and diffused phenomenon is the difficult
self-adaption of the 'homeless' to the housing
situation, shown by a large number of alterations
and extensions worked out on the original dwelling
units. Since the 'temporarity' has still
concerned only a small number of families (not more
than 10% of the total re-settled population), the
consciousness that this living condition is going
to last for an unpredictable time-length or
forever, is growing among these people....Despite
the low performance of many of these buildings, the
opinion poll survey among the 'homeless' has put
into evidence a level of satisfaction which is much
higher than in our expectations" (p. 35).

Among other ways of explaining this satisfaction he refers to the fact

that the condition of many of these people's previous shelter was worse

than it is now (p. 35).

The same author also reports some of the deficiencies he observed during his study. In almost all types of prefabricated units used there were some problems; 'water penetration, poor acoustic insulation, mechanical and impact noises, vapour condensation, ducts leaking, air penetration through rough joints, etc' (p. 36). In conclusion he emphasises that although he does not want to recommend and generalise the establishment of temporary accommodation, he recommends that it should not be totally discarded. He also says that in some cases where instead of temporary accommodation rapid reconstruction has been pursued, the results are subject to comments and not necessarily satisfactory (pp. 38-39).

3-2- **A review of major issues-** Having reviewed some of the most common approaches of emergency shelter and temporary accommodation in this section we attempt to identify some of the common issues concerned.

The first point relates to the progress of our knowledge about emergency shelter. In relation to this Van Essche (1984), from the UNDRO office in Geneva claims that; ' emergency shelter, and shelter after disaster in a more general sense' are areas of disaster not still properly developed (p. 165).

The second point is the importance of the context of disaster. There is not a unanimous approach or a blue print for emergency shelter. Van Essche (1984), claims that; 'The emergency shelter problem in developing countries is fundamentally different from that in industrialised societies' (p. 166). It was quite obvious from the previous section, that in the USA mobile homes are used but in most developing countries tents or salvaged materials are assembled by victims as their emergency shelter. Another relevant fact is that the emergency shelter approach is also related to the type of disaster and the preparedness of the community. If for example, a cyclone is predicted to strike a settlement, evacuation plans might be implemented and there is more time available for people to seek shelter in other cities and towns or in public shelters provided by the government. It is also important to remember that evacuation and mitigation measures can not always be implemented.

Let us take the case of the 1988 flood in Bangladesh, in which it was claimed that three quarter of the country was flooded so there was nowhere people could be evacuated to, even if the government had

issued earlier warning. Even if safe areas were identified, then providing enough transportation to move the people could make evacuation impossible. Thus it becomes apparent that emergency shelter policy is closely liked with evacuation and in general terms the preparation of the community.

The third point is that after a disaster a variety of approaches may be chosen by the survivors, not necessarily including construction. Bayulke (1984), in the context of earthquakes in cities, claims that the situation could be quite different from villages. He believes that the use of tents as temporary shelter is not feasible in urban areas (p. 115). Quarantelli (1982), has written an article about the 'General and particular observations on sheltering and housing in American disasters'. As has been discussed earlier he classifies the modes of shelter after disaster into four stages of; 'Emergency sheltering, Temporary sheltering, Temporary housing and Permanent housing'. His observation on Emergency sheltering is;

> " **Emergency sheltering** probably permits the least planning, but it is possibly the sheltering problem which least requires preparedness planning... such shelter seeking is of a very temporary nature, disaster victims will accept conditions unacceptable under other circumstances. ... As a result, schools, churches, armoires, or any building which can temporarily house large numbers of people can be used for emergency sheltering" (p. 278).

He defines 'temporary sheltering' as;

> " ...living in quarters other than one's own long after the peak of the emergency period ... However, most preparations are usually for public or mass shelter arrangements; unfortunately, as disaster researchers have consistently found, this

> is the least preferred of all sheltering
> arrangements. Disaster victims overwhelmingly
> prefer to stay with friends and relatives, although
> they will, if absolutely necessary, use mass
> shelters to obtain food. Even those that go to
> mass shelters stay as briefly as possible" (p.
> 278).

In brief, among many approaches, survivors have a preference for staying with friends and relatives rather than of living in public shelters.

The fourth issue is that despite the efficiency of units provided as shelter, the environment quality becomes more significant. The experience of camps and tent-cities are constantly found troublesome. The most common negligence on the side of donors and governments is to simplify the need of shelter to a need for an enclosure. Kreimer (1984), discussing the Dominican Republic affected by 'hurricane David' in August 1979 claims; for 'temporary shelter' in the area:'(the National Housing Institute) introduced a program of (barracks)- each housing eight to ten families- conceived of as temporary solutions, in order to evacuate the displaced persons that had taken refuge in schools and other public buildings' (p. 472).

He then reports that this approach has been highly criticised by the public because no adequate service was provided in them and they were far from the working place of the refugees. Moreover he reports that; 'Thousands of refugees were still living in almost subhuman conditions for over a year after the hurricane in many affected areas' (p. 472).

The fifth issue is that emergency and temporary shelters are found to stay in use longer than they were initially intended to and their title implies. Van Essche (1984), says; 'So-called 'temporary'

or 'emergency' shelters are often inappropriate, but at the same time

become permanent, only to create fresh sets of problems' (p. 166).

Oliver (1981), states;

> " One of the advantages of the temporary structure
> is that it matches the temporary nature of the
> post-disaster period. At least in theory; just as
> the post-disaster periods are sometimes long-term
> in their effect, so too are temporary shelters
> likely to become long-term in their use. As
> temporary has a way of becoming semi-permanent, so
> semi-permanent shelter is likely to last
> indefinitely" (p. 41).

The dilemma is that as Bayulke (1984), argues if the temporary shelters

are comfortable it may discourage the reconstruction of permanent

houses. Moreover this increase in quality will add to the costs of

units, which in turn will affect the reconstruction programme as a

whole. (p. 112)

The sixth issue refers to shelter units donated after disasters

by different agencies especially from developed nations. There seem to

be two different points of view towards emergency shelter units: the

one of the donors and the other of the survivors and users. For the

first party the cost and transport have priority so they look at the

shelter units in a design perspective. For the users, however, the

appropriate shelter is one which suits them both physically and

culturally. Cuny (1981a), in this relation claims that; 'Let me

emphasise this fact: new housing types are not needed. Every relief

agency has a file cabinet full of bright ideas submitted by graduate

students, industrial designers and architects,...' (p. 7).

Van Essche (1984), claims experience has shown that imported

shelters provided by donors, 'often arrive in insufficient numbers, or

too late to be of value during the emergency phase' (p. 167). Added to that they are also 'uneconomical', he thinks that the current practices must be re-examined. In his view ; ' The spontaneous reconstruction of housing begins extremely rapidly after a disaster, and often during the emergency phase itself' (p. 167). UNDRO (1982), again emphasises the cultural aspects of shelter and that the survivors are the main resource for sheltering themselves and that they must be involved in all stages of work. (pp. 5-37)

UNDRO (1977?), reviews emergency shelter strategies and concludes that the use of local materials was found both helpful and necessary in refugee camps. In relation to emergency units provided by donors it claims that ; 'The problem, however, does not lie in moving the units to the disaster area, nor in speed of erection. The main problem is distribution of the units within the disaster-affected area' (p. 6). The document also reveals that the donated shelters were found to be used by victims as a '...secondary type such as the storage of goods'. The same document also concluded that 'The vast majority of shelter following disasters have been provided by the refugees themselves' (p. 7).

The seventh issue concerns the cost of the units provided and the restriction of financial resources after disasters. UNDRO (1977?) in relation to this states;

> "The main problem of the temporary housing strategy
> is that the cost of the 'temporary' units which are
> provided, is often more than a permanent structure,
> especially when the disaster victims normally build
> their own houses from indigenous materials" (p. 7).

These findings are then extensively discussed in later sections of the

same reference.

UNHCR (1982), 'Handbook for Emergencies', must be one of the best and most valuable documents for practical use in the field after disasters. Chapter 6 of this book is concerned with emergency shelter and the planning of camps mainly based on documents referenced earlier in this chapter such as Davis (1978) and UNDRO (1977?). The principles they pursue, without going into the detail of the book are as follows:

> " Avoid high-density refugee camps.
> Involve the refugees, whose home it will be.
> Only select a site where the basic needs, especially for water, can be met.
> Site planning is essential, and should reflect a decentralised, small community approach, preserving past social arrangements as far as possible.
> Shelter must provide protection from the elements, space to live and a sense of home. Local materials and designs are best; take account of local standards.
> So-called temporary arrangements often come to last much longer than expected; thus a well planned response is necessary from the start.
> Site selection, planning and the provision of shelter require expertise and must be closely integrated with the planning of other services especially water and sanitation" (p. 56).

Perhaps in terms of cultural aspects of shelter after disaster it can be said that 'temporary accommodation' by its very nature implies not having a 'home' because permanence is one of the necessities of home.

Remark- Although a conclusion may not be necessary, a few sentences may be said about the major observations;

1-Emergency shelter approaches are dependent on the context of the community and are fundamentally different between developed and developing countries.

2-The concept of emergency shelter is not of design; that is rather a

donor's view, this is different from that of the users view which is *more about provision.*

3-Temporary accommodation has been found to stay in use longer than it was 'designed' to.

4-In the majority of cases emergency shelter and temporary accommodation is provided by the survivors themselves, using salvage and local materials.

5-The experience of establishing camps or 'tent-cities' was on balance, found not to be a suitable solution and where possible is to be avoided.

6-If there is no high risk, it is better to avoid evacuation following disasters. *The shelter needs of survivors can be more easily handled* on the disaster site itself if possible. This also gives an important psychological support to the victims. (see Chapter VIII of this dissertation.

7-Involvement of survivors in all stages of shelter planning is crucial.

3-3- Technical guidelines for selection of temporary shelter-
Selection of a certain emergency shelter and temporary accommodation policy depends on many factors, such as, the spread of destruction and or the number of homeless, the availability of financial and technical resources, the climate and environmental circumstances. Thus it seems impossible to provide a blue print to serve as a guide. Nevertheless, our study indicates some of the factors that can influence appropriate decision-making for emergency shelter policy. In this section technical guidance is provided to assist in the selection of one or more approaches. There are at least four recommended documents to consult for this purpose; first, Emergency Shelter Study unpublished document (1977?) Second, Shelter after disaster, Davis 1978. Third, Handbook for Emergencies, by UNHCR 1982, Shelter after disaster, UNDRO, 1982.

1-Assessment of shelter needs- To estimate, as accurately as possible, the number of families in need of shelter, is the first step. At this stage the ability of those families to cope with their shelter needs themselves should be considered. Location and distribution of the survivors is another factor to consider, as is their accessibility.

2-Weather consideration- The climatic situation of the affected areas, the season when the disaster occurred and the season ahead, will help to determine two major factors: what quality of environmental enclosures are necessary and for how long they will be in use. It also helps to determine the time available for setting up temporary accommodation before the climate becomes hostile. In the same way the prospect of reconstruction of permanent houses is also an influential factor.

3-Assessment of the resources available- This includes the cash, stockpiles ready for delivery by government, national and international agencies and the locally available resources such as building skills, indigenous materials and re-use of salvaged materials. In brief, cash, materials and skills must be assessed.

4-Cost of units- If new materials or units are going to be purchased the unit cost should be considered in relation to the total number required as well as the available cash. Obviously the cost-in-place of each unit must be evaluated against the area and quality of shelter it provides, etc.

5-Availability of units- It must be asked if it is possible to purchase or otherwise obtain sufficient units in the nearest market or from any other source. A specific quality might be required.

6-Transport and distribution- It must be asked what transport the purchased units require and how they can be taken to the survivors. This requires assessment of the type of vehicles necessary and available, the size and fitness of roads, bridges, tunnels, etc. In practice it is sometimes found that transporting units from thousands of kilometres away, in a foreign country, is often easier and quicker than, transporting and distributing them from the harbour or airport to the affected area. Organisational considerations for distribution must not overlook the value of the units provided and whether they are expected to be returned or collected up after some time.

7-Using a mixture of methods- Selection of each method depend on the overall circumstances, and a variety of approaches might be used in a single disaster situation. It might be possible to use for example, some units provided in conjunction with the locally available

materials. (e.g. Tents and reeds or bamboo)

8-Climatic performance of units- It is necessary to make sure, as far as possible, that the units can perform reasonably well and provide environmental protection in the given situation over the period concerned. Temperature control, water proofing and support against wind and perhaps sandy winds must be considered. In some areas there are other factors such as dangerous pests. The colour and quality of the units may become important to absorb or reflect heat and cold.

9-Setting up the units- It must be assessed who can and is going to set up the units and other necessary services such as sanitation and water. The skills required to build the units and the availability of those at the local level, including using the survivors themselves, are important. The cost and the speed of establishing the units must also be assessed. At the early stage the army may be prepared to take part. The necessary tools and machinery must be identified and their access be considered. In this respect the most crucial aspect is the organisation and management of the work. It is recommended that as much involvement possible be given to the locally existing community organisations. Survivors seem to be the readiest available source of manpower on the scene of the disaster.

10-Location and site selection- This depends upon the evacuation policy. Are the people still at the site or have they been evacuated to other areas? The general recommendation is not to evacuate the survivor unless there is a serious risk of repeated hazards. There are two approaches to site selection for the erection of temporary shelter, either, let each family take it's unit inside or close to its original plot or alternatively to group them all in a 'camp site'. The first is

usually more convenient for families, since it prevents looting and crowds problems associated with high densities of people. It also can provide more privacy and a feeling of normality. In the case of setting up camps it is better to avoid too many populated centres and to avoid barrack-type camps. Within reason families and group leaders should be permitted to decide on the layout of their settlements.

11-Performance of units- It must be considered that survivors are not chicken and the space they need is 'home' not just 'enclosure'. Privacy and other cultural requirements must be taken seriously in all stages of selection and setting up of temporary shelters. The families' need for space also goes further than a place to sleep. They need space to store their possessions, to keep their animals, to cook, wash etc. One crucial factor is to provide opportunities for extensions or improvisations to the provided units by the families themselves.

12-Period of temporary shelter- If the provided units are too strong and of 'permanent' quality, they may in practice become permanent. The survivors themselves may settle down and feel permanency in these temporary units. The evidence suggests that emergency units usually have to last for few years. Frequently some percentage of the affected population are found to live longer in these units. However, governments may be reluctant to replace the destroyed shelters with units performing more or less similarly.

CHAPTER FOUR.

CHAPTER IV

SHELTER AFTER DISASTER (PHASE 3, RECONSTRUCTION)

Introduction: In the two previous chapters the issues concerned with 'pre-disaster planning' (phase 0), 'emergency shelter and temporary accommodation' (phases 1 & 2) were examined. The present chapter focuses on the third phase which is the 'reconstruction of permanent housing' after disaster.

Perhaps successful post-disaster housing reconstruction, for the moment not speaking about the economic, social and psychological regeneration and rehabilitation aspects, must fulfil the following needs; buildings and services of suitable quality, must be built in a convenient period, using a correct procedure, with a reasonable or affordable cost. The complexities of the process, however, lie in identifying the appropriate answers in a given context. In other words, put simply there are these and many other questions of where to build, with what quality and design, using which materials, also who should build and finance them. To try to measure the success of a housing programme, it must also be made clear as to who needs to be satisfied with the reconstructed settlement, judged by what criteria and what long-term consequences are intended for the community, if any.

The available literature covers the records of post-disaster

housing reconstruction mainly over a period of two and a half decades[1].
(starting with the Skopje 1963 earthquake) It contains two types of
materials: first, there are some theoretical arguments such as
discussion about 'the opportunity for change after disaster', or as it
is sometimes called, 'disaster induced change'. These issues also
emerge from the second group of studies. The second type, and in
fact the main body of the literature available, contain field reports
or case studies. There are also occasionally empirical findings or new
challenges introduced, such as training local people in building
skills, or recording inhabitants' satisfaction with their new
dwellings. Detailed surveys of reconstructed settlements, however,
seem to be very scarce. (See for example Snarr and Brown 1980)

When Cuny (1981a), claimed that; 'The total number of thorough
studies which have been conducted on the impact of housing programmes
can be counted on two hands' (p. 6), he was well aware of the
situation. In fact, since then no tangible items seem to have been
added to that number. It would be unfortunate if our present findings
went no further than his conclusion from those studies in which he
stated;

> "They indicate that housing aid often inhibits the
> recovery process and creates dependency
> relationships, and that the internal coping
> mechanisms of a society can be seriously affected
> by an ill-conceived relief programme" (p. 6).

Looking through literature concerned with post-disaster

1.There are occasional records of older reconstruction programmes such as on
by Ciborowski which explains about reconstruction of Warsaw following the
Second World War.

settlement reconstruction, one faces familiar names; Skopje, Managua, Gediz, Guatemala and Fruili. Only occasionally are documents found of any disaster other than those 11 listed in UNDRO (1982), (p. 65). The literature also indicates another fact; that our knowledge of post-disaster reconstruction remains, to a large extent, limited to the observations and occasionally empirical findings of those 'western' enthusiasts, who as staff of the intervenor agencies, visited or worked in a disaster affected area. The number of available reports from native authors is limited too.

In this chapter our attempt is to identify some of the issues concerned with settlement reconstruction by reviewing some case studies and reports from different disasters. The structure of the present chapter is as follows; after the introduction, a summary review of case reports on post-disaster housing will be compiled. It will be followed by a section reviewing the major issues emerging from case reports. Then, some of the subjects identified as of outstanding importance will be explored in more detail and finally we will end the chapter with a conclusion.

4-1- **Case reports review-** UNDRO (1982), reviewing 11 case
studies provides a summary of the main observations and findings
concerned with the shelter-reconstruction programmes (pp. 65-73). We
have accumulated some extra reports from a few other disasters, which
will be reviewed in this section. The full details of each case is
obviously not necessary since the original documents are available.
Thus, our main concern is to introduce each case briefly and to extract
those 'lessons learned', looking wherever possible at the different
views of those involved. A summary of most documents which will be
reviewed is constructed in the following Table.

NO	Name	Country	Year	Disaster	Author	Pub/da
1	Skopje	Yugoslavia	1963	earthquake	Ciborowski	1967
*	Skopje	Yugoslavia	1963	earthquake	Davis	1975
*	Skopje	Yugoslavia	1963	earthquake	UNDRO	1982
*	Skopje	Yugoslavia	1963	earthquake	Arsovski	1983
2	Managua	Nicaragua	1972	earthquake	Davis	1975
*	Managua	Nicaragua	1972	earthquake	Kreimer	1978
*	Managua	Nicaragua	1972	earthquake	UNDRO	1982
3	Guatemala	Guatemala	1976	earthquake	Kreimer	1978
*	Guatemala	Guatemala	1976	earthquake	UNDRO	1982
*	Guatemala	Guatemala	1976	earthquake	Bates & Killian	1982
4	Fruili	Italy	1976	earthquake	Norsa	1981
*	Fruili	Italy	1976	earthquake	UNDRO	1982
*	Fruili	Italy	1976	earthquake	Geiple	1982
5	Darwin	Australia	1974	Cyclone	Walters	1978
6	Tangshan	China	1976	earthquake	Gere & Shah	1980

7	El-Asnam	Algeria	1980	earthquake	UNDRO	1982
*	El-Asnam	Algeria	1980	earthquake	Lewis	198?
8	Honduras	Honduras	1974	Hurricane	Snarr&Brown	1980
*	Honduras	Honduras	1974	Hurricane	Snarr&Brown	1982
*	Honduras	Honduras	1974	Hurricane	UNDRO	1982
9	Chimbote	Peru	1970	earthquake	Sagov	1981
*	Chimbote	Peru	1970	earthquake	UNDRO	1982
10	Tabas	Iran	1978	earthquake	Abedini Rad	1983
*	Tabas	Iran	1978	earthquake	Parsa	1985
11	Gediz	Turkey	1970	earthquake	Mitchell	1976
*	Gediz	Turkey	1970	earthquake	Germen	1978
*	Gediz	Turkey	1970	earthquake	UNDRO	1982
*	Gediz	Turkey	1970	earthquake	Aysan	1987
*	Gediz	Turkey	1970	earthquake	Aysan & Oliver	1987
12	Qir-Karzin	Iran	1972	earthquake	Razani	1984
13	Bingol	Turkey	1971	earthquake	Coburn, Leslie & Tabban	1984
14	Lice	Turkey	1975	earthquake	UNDRO	1982
15	Van	Turkey	1976	earthquake	UNDRO	1982
16	Andhra Pradesh	India	1977	Cyclone/ storm surge	UNDRO	1982
17	Ecuador	Ecuador	1987	earthquake	Dudley	1987
*	Ecuador	Ecuador	1987	earthquake	Dudley	1988
18	Dhamar	Yemen Arab Republic	1982	earthquake	Swiss Red Cross	1984
*	Dhamar	Yemen Arab Republic	1982	earthquake	Leslie	1984 1986 1987

*	Dhamar	Yemen Arab Republic	1982	earthquake	Coburn & Leslie	1985
19	Albania	Albania	1979	earthquake	Xhediku	1986

Notes of the Table:

1- The first 30 documents listed are from urban disasters. However, for several reasons this is not very accurate. For instance, the debate around the criterion for distinguishing an urban settlement from a rural one might be extended here. Moreover, since many disasters have extended their damage to both urban and rural areas, the report available covers both of them.

2- There are other cases reviewed but not appearing in this table because of their specific subject, such as training programmes. However, a more comprehensive list of references can be found in the Bibliography.

3- In some cases the authors had a comparative method and therefore have referred to more than one disaster in the same article. There are also, cases of more than one report from the same disaster by a single author. These will be noted as we go through the text.

Case 1- Skopje, Yugoslavia (earthquake-1963)

Reconstruction of the city Skopje, Yugoslavia after the devastating earthquake of 1963 is one of the oldest disasters studied by different authors. It was a city of 200,000 population of which 160,000 became homeless. For emergency shelter and temporary accommodation, tents, caravans and prefabricated units were used. The provision of permanent houses was based on construction of prefabricated units and apartment buildings (UNDRO, 1982. p. 65).

UNDRO (1982), concerning the reconstruction policy of Skopje reads;

> "A decision was made to requisition land to build 14,000 houses for a total of 70,000 people. Repairs to existing houses were undertaken to provide housing for 80,000. A new town plan was designed and implemented. This included an international competition for the design of the city centre" (p. 66).

Repair of the damaged houses before the reconstruction of those totally destroyed units seems a useful action. The same reference referred to the following observations as major findings of the case;

> " 4. The ability to requisition land contributed to the rapid reconstruction of houses. Another contributory factor was the massive aid received from Eastern and Western sources (82 countries).
> 5. Overall there was a balanced, diversified approach to shelter provision which satisfied the needs in spite of the exposure threat of cold weather, which came 3 months after the disaster.
> 6. The estimated damage total was US$ 2.4 billion, while the overall cost of reconstruction was in the order of US$ 40 billion.
> ....
> 8. Needs of ethnic minority groups (40 per cent of the population) were insufficiently considered by authorities" (p. 66).

Davis (1975b), discussing the Skopje earthquake reconstruction, expresses his impressions as below;

" A decision to provide 14000 permanent housing units within a year required new methods, and the fact that most were provided within 8 months reflects their efficiency. By comparison with other urban disasters, Skopje seems to have been uniquely successful in achieving its initial housing target. There appear to be three major reasons for this success: firstly the political situation of Yugoslavia which produced international aid on a totally unprecedented scale, ..Secondly, the use of prefabricated systems; and thirdly, the land tenure system. In Yugoslavia the free-hold of all land is in state ownership, and in this instance, farm land surrounding Skopje was made available for housing" (p. 661).

Three points from Skopje are noteworthy so far; Land requisition, the political situation and the use of the technique of prefabrication. As has been discussed in previous chapters, land tenure tends to be one of the major obstacles of post-disaster housing in urban areas. Safe land with easy access to the city centre or working places, is usually costly and if the government is unable to provide a safe site, it is likely that the poor communities would re-settle on the same or another vulnerable site.

The second point concerns the political situation of Yugoslavia, which persuaded 82 countries to contribute to its rehabilitation. It requires an in depth study, to see how the political position of a government can influence the help other nations may provide in a disaster situation. The recent case of the Armenian earthquake (December 1988) was interesting, as according to the media, the British Government provided much more aid than was supplied to Bangladesh after its 1988 flood. This is important because in every way, the

Bengali victims were more desperate for that aid and in incomparably larger numbers. It appears that sometimes even humanitarian goals are defined by political values.

The third point was the use of prefabricated systems. This approach is characterised by mass production and rapid delivery of units. However, there are two points to note; first the quality of the units and their degree of success in providing 'homes', as opposed to 'buildings', requires a study of users' satisfaction. The second point is that this approach requires manufacturing plant and skills that may limit its feasibility to the more industrialised countries.

Davis (1975b), from his study of the reconstruction of Skopje continues;

> "Seven days after the earthquake, the central government appealed to the whole nation to rebuild the city within five years. (It will actually have taken over 15 years). Three weeks after the earthquake, Yugoslav experts began work on planning; and by October (fourteen weeks after the earthquake), provisional costs for the new city were published quoting a figure of £200-300 million" (p. 662).

The prompt action by planners to produce a new plan is noteworthy. It appears that after disasters, conventional planning procedures are ineffective and major decisions must be taken in a short time. In the case of 'Susangerd' in Khuzestan, the reconstruction of the city was nearly completed when the consultant, appointed by the 'Ministry of Housing' brought his first planning proposal for the assessment of the Local Authorities.

Another interesting fact of Skopje, is that the period of reconstruction became in practice much longer and the costs much higher

than estimated. Usually politicians, with a short period of four years or so in office, do not have the patience for a long-term plan. However, this is also in line with the public interest. In conclusion Davis (1975b) claims;

> "Seen from any standpoint, the reconstruction
> achievement is a remarkable example of efficiency
> and co-operation following a disaster....But, more
> important, the rebuilding of Skopje raises again
> the fundamental question of the appropriateness of
> a 'revolutionary modern architecture' as opposed to
> an architecture evolving within a local tradition
> to satisfy local needs" (p. 663).

Ciborowski's (1967) article on Skopje must be one of the oldest documents available on this topic. In 'Some aspects of town reconstruction (Warsaw and Skopje)' Ciborowski, the polish architect, who became famous for his contribution to the reconstruction of Warsaw after the second World War and later worked on the reconstruction of Skopje, has attempted a comparison between the two projects (Warsaw and Skopje) in respect of their contexts and situations. First he raises a question; 'Which is more difficult: to plan and build a new city or to rebuild a city that has been destroyed?' (p. 31).

Generally, he believes that planning for reconstruction of a new city is easier and involves fewer problems than planning for reconstruction of a destroyed one. First, he discusses the differences of social contexts and related problems. He claims that in the case of planning for a new city, the planner has more choice and the inhabitants are likely to adapt themselves to the new settlement. The planner also has more time, while in rebuilding a city, many decisions must be taken and services provided as quickly as possible.

He also adds that;

> "In a reconstructed city, even if all the old industries have been destroyed and must be replaced by new ones, the future economic model will be largely dependent on the occupational structure of the surviving population, which may change only in the course of a gradual evolution" (p. 33).

He also writes; 'In a reconstructed city the planner comes up against inveterate traditions, habits and preferences' (p. 33).

The second major issue he raises is the 'Legacy of the past'. By that he means the psychological needs of survivors to re-establish their previous settlement. He claims; 'But it was a social impossibility to leave several hundred thousand people among ruins, [Warsaw] making no investments to help them, and to start building a new city on a virgin site' (p. 35).

Ciborowski (1967), also discusses the differences that a natural disaster may have from a man-made disaster such as war. He says that in Warsaw there was planned destruction of all valuable and important buildings, while a natural disaster usually 'chooses' the weak parts of the city. He states; 'In the instance of Warsaw and Skopje, nature has proved yet more 'humanitarian' as compared with man's activity' (p. 37). He continues with; 'In Skopje the buildings which survived were mainly the best ones, those of highest technical standard and highest use value... Briefly, what was left in Warsaw was the worst and weakest,..' (p. 38).

Another important point he raises is the 'Psychology of survivors' after the two disasters and talks about the notion of 'the will to rebuild'. He discusses that in times of war the people are

aware of possible damage and are perhaps more prepared for reconstruction, while the damage from a sudden disaster is unexpected. The psychological aspect of survivors is discussed in our chapter on 'Physical Reconstruction and Psychological Recovery'. (See also Warheit 1976) Ciborowski continues;

> "The earthquake paralysed the life of the city [Skopje] and put a great question mark on its future and that of its people. In the face of this unexpected disaster, a natural reaction of fear - the flight of the surviving population from the ruined city - would have been psychologically quite understandable. But no such thing took place in Skopje... Only women and children were for a time evacuated from the city. The men set themselves to work immediately." (pp. 39-40)

Ciborowski also believes that after a disaster some opportunities are provided for improving the communities' life. He writes; 'More and more of the inhabitants [of Skopje?] came to realise that the tragic disaster was at the same time a great opportunity for the city, an opportunity of which full advantage ought to be taken' (p. 40).

Ciborowski (1967), also adds;

> "The linking of economic planning with the programming of the city provided a basis for working out models of the population structure, and of occupational structure in particular - and of its gradual evolution in the successive stages of the city's development" (p. 42).

The same author later refers to the problems for any future master planning, that were created by erecting the prefabricated emergency units in Skopje after the earthquake for any future master planning. In conclusion he writes; 'I would like to point out that the modern town planner is no longer concerned only with technical and artistic

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matters but must involve himself more and more deeply in the social aspects of town planning' (p. 47).

Arsovski (1983), describes the details of reconstruction of the centre of Skopje. He talks about the competition that was organised for the design of the city centre, some of the projects submitted and the team of Kenzo Tange who won the first prize.

Case 2- Managua, Nicaragua (earthquake 1972)

The city of Managua, Nicaragua was devastated in 1972 by an earthquake of 5.6 Richter. From 80,000 dwellings as many as 50,000 were destroyed and apparently many additional thousands damaged. From city of half a million population, 200,000 became homeless. For emergency shelter, tents and wooden huts were used as well as polyurethane igloos. For reconstruction a variety of approaches were implemented (UNDRO, 1982, pp. 67-68). Davis (1975a), in this relation says that the provision of permanent houses took many forms, including 'Stack sack', prefabricated asbestos-cement housing and also a site and services project supported by the World bank. (pp. 44-45)

Davis (1975a), on Managua, also observes that after the earthquake one of the issues was relocation of the city for vulnerability reasons. However, because most of the land was owned by the dictator Samoza, it was unlikely that he would agree. In addition as most industries were located in Managua it would make relocation very unrealistic. (p. 45)

Concerning the estimated period of reconstruction Davis (1975a), claims; 'It is anticipated that it will take at least 12 years to repair the damage and this figure may be highly optimistic' (p. 45). He also points to the problem of compensation to land owners for the construction of new roads. Here the idea was to reconstruct the city in its previous place but to develop the city centre by making large open spaces, parks and so on. It was thought that the suburbs and periphery of the city would inevitably expand. (p. 46)

In conclusion Davis (1975a), adds that cultural acceptance of reconstructed houses must be observed. He suggests that it is better

to use local materials rather than delaying reconstruction to import materials from abroad. (p. 47)

Another author, Kreimer (1978), reviews two cases of reconstruction of earthquake - Nicaragua 1972 and Guatemala 1976. Initially she suggests that disasters 'bring to light a vast number of problems already existent in each country, but which were not normally visible' (p. 23). Describing the two disaster situations she claims;

> "The quake in Managua almost completely destroyed Managua, the capital of the country. Its effects were centralised in one area, and it did not have primary effects over the rest of the country. In Guatemala, the quake affected primarily rural areas, it had extensive impacts in different regions of the country, and only some sections of Guatemala City were affected" (p. 23).

Kreimer (1978), then continues to say that;

> "The subsequent responses were as dissimilar as the effects of the two earthquakes. In Nicaragua the processes of relief and reconstruction were shaped by a vertical decision-making structure which led to a highly centralised operation. Maybe the evident failures of the Nicaraguan approach, plus structural conditions internal to the particular context, led the Guatemalan government to respond to the earthquake in the opposite way" (p. 23).

Kreimer (1978), also adds;

> "Early decisions also set a pattern of urban segregation based on socio-economic differentiation. This residential segregation entails a division according to social class as well as differential access to scarce resources such as transportation, education and infrastructure" (p. 26).

That is just more evidence that post-disaster reconstruction involves

social and political components. Kreimer (1978), then, refers to nine different plans or reports produced following the Managua earthquake.

> "With the exception of the first Mexican Plan, which proposed concentration of population in high-rise buildings with high-speed road ways following the lines of the faults, all the other plans listed supported the strategy of deconcentration/decentralisation. This was also the official policy adopted by the Government" (p. 28).

Using the opportunity of a destroyed city, to create a modern settlement, as was the case with Warsaw and Skopje, seems to be another preoccupation of governments and planners. Kreimer (1978), also continues; '...this vision of a 'modern' city, another Los Angeles, relying on freeways to provide access and dependent not only upon individual automobile ownership but also upon a good and efficient public transportation system is, in the case of Managua, almost a utopia' (p. 28).

Providing a taste of the income distribution as one indicator of existing social system prior to the earthquake she claims;

> "The bottom 50 percent of the population has a median income of $90 a year (15 percent of the GNP); the top 5 percent of the population has a median income of $1800 a year (30 percent of the GNP); 47 percent of the urban homes and 81 percent of those in the countryside have no sanitary facilities; 80 percent have no running water in Managua; 99 percent have no drinking water in the countryside. It seems doubtful that the bulk of the population living under such conditions would be able to afford higher travel costs out of wages. ... Even though some of the notions underlying the theory of deconcentration have proven inconsistent with the social and economic reality of Managua, it has been implemented to a certain extent" (pp. 28-29).

The policy to deal with economically and socially deprived communities tends to become a major issue in reconstruction programme. Real change in their life style requires more than just a new shelter, though that might not have been achieved either. Incorporation of development plans at the time of reconstruction planning, seems to be one of the concerns. It must be seen what change, in reality, can take place in the life of these groups. Kreimer (1978), writes;

> "Given the housing conditions of the low income population in Managua and the importance attached to it by the planning proposals, it is ironic that a large number of low and middle income housing sits vacant because of the prohibitive prices of housing units which the population cannot afford" (p. 31).

Kreimer (1978), then refers to the case of Guatemalan earthquake of 1976 where 1.6 million people became homeless in both Guatemala City and its surrounding rural areas and writes;

> "In contrast to what happened in Nicaragua, in the operation of reconstruction, in Guatemala the government adopted a policy of hands-off the problem. The task was left either to individual decisions by the relief agencies or to the communities themselves, with no global guidelines or controls, and with subsequent conflicts and problems arising as a result of this lack of co-ordination" (p. 33).

The example Kreimer (1978) reports from Guatemala is astonishingly interesting. 'Three weeks after the earthquake, and after the emergency situation, an 'auction' took place which allocated the affected areas to the different relief agencies' (p. 33). [emphasis added] Then she lists the more than 30 agencies that were involved in the situation (p. 30) and points the variety of approaches implemented

in Guatemala, including the training programme of Oxfam and imported wood panels, roofed with corrugated zinc sheets used by the Canadian Government. (pp. 34-35) In one word it seems that Guatemala became a laboratory for examining different ideas. Perhaps, one of the big advantages in reconstruction of the war damaged areas of Iran, is that no foreign agencies were or are involved. That is especially true in terms of settlement reconstruction. The issue of accountability again is significantly visible in Guatemala. How can one expect 30 agencies all to have explicitly humanitarian objectives and, while unable even to talk to local people, to be responsible or even questioned about their products.

Identifying some of the positive aspects of · Guatemalan reconstruction Kreimer (1978), writes;

> " *1. Emphasis on the utilisation of recycled and recovered materials.*
> *2. Attempts by several agencies to implement self-help and training programmes, and to promote the organisation of cooperatives"* (pp. 35-36).

In the same context Kreimer (1978) adds;

> " Two problems associated with the decentralised approach undertaken in the reconstruction were:
> *1. Emphasis on the reconstruction of rural areas rather than urban areas.* ..
> *2. Lack of provision of comprehensive plans for development of infrastructure and social facilities for the communities*" (p. 36).

Kreimer (1978), then moves on to comment on her study of the two cases. Altogether she raises five points.

The **first** point she notes is that it is important to see how widespread are the effects of the disaster. Is it partial or total 'paralysis in

the functioning of the system'?

The **second** issue is the communities 'coping abilities' and to what extent the survivors are able to cope with the aftermath themselves without external help.

His **third** observation refers to 'reinforcement of social differences'. By that he meant that disasters tend to affect the poor more than other social classes and that reconstruction may enforce these social differences.

The **fourth** point she raised was migration; that evacuation and migration have created serious problems in both cases.

The **fifth** and final point she observes is the transfer of technology and that in local and traditional technology, change becomes a major issue, where the mitigation of the next possible disaster is concerned. There were two policies in the two cases he reviewed; either introducing and importing new techniques or modifying the existing ones by training and education programmes. (pp. 37-39)

UNDRO (1982), from the 1972 earthquake in Managua, Nicaragua, reports that evacuation has caused many problems and that anti-seismic planning caused considerable social disruption . The reconstruction policy was 'freezing' the central area of the city, which has in turn caused a 'vast suburban sprawl'. Also the evacuation policy resulted in much city land remaining undeveloped until the revolution of 1979. (p. 68)

In terms of the political and social implications of the reconstruction programme UNDRO (1982), adds; 'Reconstruction policy was dictated by the interests of a small but wealthy land-owning class under the former regime' (p. 68). One positive observation of the

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Managua reconstruction in the view of UNDRO (1982), is that; ' The private sector played a key role in reconstruction, [by building new houses] particularly on the periphery of the city' (p. 68). We will elaborate on the role of private sector in discussion section.

Case 3- Guatemala, (earthquake 1976)

In addition to Kreimer' (1978), observations of the reconstruction of Guatemala, two other reports are also consulted. UNDRO (1982), reports that a ' wide variety of traditional construction and light prefabrication..'. were used. In terms of reconstruction policy as could be understood from the latter reference;

> "1. There was no clear reconstruction policy. This was left to individual municipalities to determine, in consultation with assisting groups.
> 2. Reconstruction in Guatemala City was made more complicated by land tenure problems, which delayed all urban reconstruction" (p. 70)

UNDRO (1982), also quotes the major observations of a committee of 'voluntary agencies' who wrote to the 'President of Guatemala two years after the earthquake' which is summarised as follows;

> "...too much aid was given away; too many houses constructed were merely of an emergency type; some organisations used large number of foreign volunteers; too much was done under pressure and without proper consultation, so that the victims became mere spectators of the work carried out rather than participants; a lot of reconstruction work was undertaken without first consulting the Government's Reconstruction Committee" (p. 70).

In the view of UNDRO (1982);

> "Other vital lessons included the following:
> 1. The widespread improvisation of shelter in Guatemala City underlined the resourcefulness of survivors.
> 2. The Oxfam/World Neighbours Housing Education Programme was a major innovation in post-disaster housing programmes, with its emphasis on accountability and training in low-cost, anti-seismic construction.
> 3. Problems of land use were a fundamental issue in Guatemala City, since the majority of earthquake deaths related to unsafe siting as much as to precarious building" (p. 70).

One of the most significant experiences of Guatemala is the training programme conducted for the first time, as is claimed by UNDRO (1982). As we will see later, this approach became a source of inspiration to other agencies and in other places after disasters (see for example Dudley 1988).

The results of the reconstruction of Guatemala city can be seen in the reports of the survey carried out by Bates and Killian, published in 1982. Without going into the details of their methodology and other relevant issues, in terms of changing people's attitudes towards traditional housing systems, they write;

> "Where respondents were asked to name the three best wall materials in a separate question, 82% mentioned brick, 78% mentioned concrete blocks and 15% mentioned stone. Only 8% mentioned adobe, and 13% mentioned bajareque" [a traditional building technique] (p. 100).

One of the primary objectives of reconstruction programmes is usually the mitigation of the risk of future disasters. That requires change and improvement in existing housing techniques. This will be developed later in this chapter, however, there seem to be two major approaches; one to introduce modern techniques and materials and the second to improve the strength of the traditional building methods by intermediate changes. In case of Guatemala Bates and Killian (1982), claim;

> "This research shows that the primary adaptation of people in Guatemala to earthquake vulnerability has been to abandon the use of traditional earthen buildings and to shift to the use of concrete blocks and wood as the primary building materials. Wood is a scarce and expensive commodity...The

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> concrete block is expensive and if [used]
> improperly, as dangerous as adobe" (p. 100).

If the new materials are cheap enough and locally available there would be little hesitation to recommend using them. However, the local people need to become acquainted with the techniques introduced, otherwise the maintenance and expansion of houses, as well as provision of housing in the long-term might be affected. Thus, Bates and Killian suggest; 'A more desirable solution to the problem of aseismic housing would be to find a cheap and effective means of improving the aseismic qualities of adobe' (p. 100). Their recommendation is manifested in other disaster situations. (see for example, Dudley 1987, 1988)

Case 4- Fruili, Italy (earthquake 1976)

Fruili was a small city with a historical background from the medieval ages. A population of 89,000 lived there, of which 45,000 became homeless due to destruction and damage of 30,527 houses, as UNDRO (1982), reports[2]. Tents, mobile homes and prefabricated units were among the approaches to temporary accommodation, as well as taking refuge in hotels on the Adriatic coast.

Concerning housing policy UNDRO (1982), claims; 'All damaged and destroyed houses to be rebuilt to original form, incorporating earthquake-resistant design/codes...' (p. 71). The same reference explains that;

> "Reconstruction Policy: Pending the rebuilding of houses to their historical form, 'temporary' prefabricated houses were provided on specially prepared and serviced sites. All construction was to be to earthquake-resistant standards. This policy of building twice over was designed to prevent migration away towards the large industrial centres of work" (p. 71).

UNDRO (1982), also makes the following observation of Fruili reconstruction;

> "Lessons learned: the 'temporary' housing policy, pending permanent reconstruction, proved to double the costs of reconstruction, in view of the price of prefabricated units and the investments needed to provide sites and services. This policy in effect retarded reconstruction" (p. 71).

Not everybody agrees with the deficiencies of the two stage reconstruction of Fruili. Norsa (1981), for instance, argues that the

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2.The figures seem to some extent odd because they imply an occupation rate between 2 and 3 persons in each house.

provision of prefabricated houses after the earthquake, had provided

the authorities with an opportunity to set-up a comprehensive and well

designed development plan. (pp. 177-178)

Geiple (1982), talks about post-disaster reconstruction in

Italy. His first statement is that;

> "Relevant decisions to be taken during
> post-disaster reconstruction of an area with the
> historical depth of Fruili are more complicated
> than when it is a matter of rebuilding a city with
> a past of only a century or two. ...
> The question of timing and form of reconstruction
> play a major role. Two points of view are
> conceivable in these regards, which were also
> subject to much disagreement after the rebuilding
> of cities destroyed by war.
> (a) Should the 'identity' of a city that has
> developed over centuries be preserved by
> painstaking reconstruction,..
> Or shall
> (b) the rebuilt city amount in fact to a new
> structure, accommodating traffic patterns ('the
> automobile city').." (p. 113).

One major issue of city reconstruction it appears might be to simplify

the rebuilding by the authorities and the planners. A real case is

the reconstruction of the city Hoveize in Khuzestan, Iran. The city

was totally razed to the ground by Iraqi troops during their long term

occupation. A much larger new city was built in the absence of its

inhabitants and without any sign of their involvement. I visited this

city in late 1987, when it was claimed that more than forty percent of

the population were re-settled but it still looked like a ghost town.

In one word it is a complex of modern houses and streets built for a

small population of a few thousand, many of them farmers. I had the

feeling of a small boy wearing his father's large but new suit. In the

case of Fruili, it seems that those involved were more cautious.

Geiple writes;

> "Fruili, Barbina argued, on May 6, 1976 lost not
> only its buildings but its history, geologists and
> engineers could reconstruct the buildings. But to
> reconstruct the pattern of human activities as it
> existed in this area before would require that the
> expressions of a culture and a way of life be
> brought back in order to restore to the people
> their lost identity" (p. 114).

Geiple (1982), then moves on to argue that there are of course parts of an old city which are useless in our present life. What was built centuries ago, for needs of that time, may not necessarily be useful today. He also argues that there were two major solutions for the reconstruction of Fruili;

> "(a) gradual reconstruction *in situ* in traditional
> style, but more secure against earthquakes, or
> (b) the importation of the missing housing stock in
> the form of prefabricated houses made elsewhere and
> merely assembled inside the disaster area"(p. 115).

This notion of preserving the past or just ignoring it is a two edged sword. In our view, it is dangerous to be overwhelmed by 'modernism', as it is to be totally committed to rebuilding brick by brick the previous settlement. This question of new build or conservation is one of the major discussions concerned with the rebuilding of historic settlements. Keeping signs of the damage may also become relevant in some circumstances. In the case of war for example, preserving parts of the damaged areas could become a symbol to the resistance and the enemy's brutality for the next generation.

Geiple (1982), then moves on to count some advantages and difficulties involved with the first option; such as generating local

employment.   With   respect   to   the   second   approach   he   claims;

'Certainly, space is thus created rapidly, but it is of dubious

quality; it is 'housing' more than homes' (p. 116). However, he adds;

'For one thing, there are not enough architects properly trained for

such jobs.   The   latter are mostly prepared by their education for

building new buildings, and less for the restoration of old ones" (p.

116).

This problem is not restricted to Italian architects.   Even this

comment is surprising, because of the rich historical environment and

long period of experience and reputation Italians have in conservation

and preservation of monuments[3].   In the case of Iranian architects,

based on my own observation over a period of nearly 20 years, it is

true that most graduate professionals usually attach little importance

to their own country's architecture, and know little about the new

development and design methods that distinguish between conservation

and restoration.   Geiple (1982), continues;

> "The problem of reconstruction after a catastrophe
> cannot   simply be solved technocratically, but
> requires   considerable   social-scientific
> verification   of   all   measures   adopted.
> Consequently,   not   only   engineering   damage
> estimators, geologists and housing planners should
> be part of the 'zero hour' team, but also social
> psychologists and regional planners acquainted with
> empirical social-science methods" (p. 119).

Admitting that Geiple's view is correct, in practice reconstruction

still seems an architectural and engineering task.   Even if all other

disciplines he suggests should become involved, the co-ordination of

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3.Most   lecturers   in   the   'Conservation   Department'   in   our   school   of
Architecture graduated from Italy.

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such a group requires a minimum dialogue or understanding within these
disciplines, that can not easily be achieved.

Case 5- Darwin, Australia (cyclone 1978)

Walters (1978), provided a report of the reconstruction of Darwin, a city of 45,000 population prior to the cyclone Tracy that struck in 1974. This is a good example for comparing problems of post-disaster reconstruction in developed and developing countries. There are many interesting points in his report, including his claim that; 'High priority was given to getting damaged houses repaired so that the increasing population returning to Darwin could be sheltered' (p. 63). He also writes; 'A large liner, the 'Patris' was chartered by the government and berthed at the wharf to act as a floating hostel' (p. 63), an approach that is possible only in coastal areas. He continues;

> "In May 1975 Commonwealth Government contracts were placed with four major contractors for the erection of a total of 1,300 houses. The first new houses were started on 25 June 1975, six months after Tracy. ... Private house owners were recompensed by their insurance and were also to have access to low interest loan funds, this was at a maximum of $42,000 at 6% over 45 years. The government owned some 1,500 blocks of land out of some 8,000 blocks within the City" (pp. 63-64).

In developed countries damage to property insurance schemes seem to be common. On the contrary in the developing world they are unheard of. In Iran for instance, the insuring of households was becoming common under the heavy Iraqi missile raid in the second half of 1988 before the cease-fire was settled. It is also notable that land tenure again was one of the major issues in Darwin, as discussed earlier. However, it appears that the reconstruction of Darwin, with the advantage of different financial resources, improved at a reasonable pace.

Nevertheless, there were problems which Walters points out. He writes;

> "Today,[1978] nearly three years after the cyclone, the city is nearly rebuilt. The Commonwealth has completed or has under construction some $330 million worth of reconstruction work, some $500 million is estimated to have been paid out by the Insurance Industry..." (p. 64).

Let us see what contingency measures they considered and compare these with cases of Turkey or Iran or one of those disasters in Latin America. Walters (1978), continues;

> "Following cyclone Tracy it was essential to amend the local building requirements and a new 'wind code', as well as certain specific requirements relating to the reduction through building failure and protection of occupants from debris. Added to this there was a requirement to evaluate and test different materials for design and construction purposes.
> Under the Darwin Area Building Manual all aspects of design and material use have been defined and are continually updated" (p. 64).

Commenting on his report from Darwin, Walters (1978) then adds;

> "There are lessons of similarity from the aftermath of natural disasters throughout the western world....
> The most obvious, of course, is...total cost of the disaster ...the worst aspect, i.e. death, there is an obvious decrease in the numerical amount. From cost, one decreases to unemployment, then to damage, thence to homeless,sickness and health problems..." (pp. 65-66).

Does this not emphasis the fact that there are 'Two Worlds'? Walters (1978), also refers to the economic consequences of disasters, such as a sharp increase in property market prices and also the bonus to those who receive low interest loans from the government. This bonus,

Walters calculates might be up to $14,000 per person. (p. 67) He also claims that after disaster, 'There is the obvious tendency by retailers to extend their show rooms, offices, etc, in the belief that this boom will continue' (p. 68).

Walters' (1978), conclusion, particularly about development in the reconstruction period, seems very clear, as he writes;

> "There is always a debate on 'shall we rebuild', and, without exception, rebuilding has followed a disaster. The debate which went on in Darwin, as in other disaster areas, could be said to have only one advantage and this is therapeutic. It tends to waste time instead of getting on with the job.
> Generally, big plans do not succeed; one can look at San Francisco which brought in a planning team after the 1906 earthquake, and they, rather like Darwin, were left behind by the builders.
> The **only real chance** of having a **new plan** implemented after a disaster is to **have a plan** of agreement which has been fully discussed and accepted by the community **prior** to any **disaster**" (p. 68). [emphasis added]

Leivesley (1981), has studied 'The Social Consequences of Australian Disasters'. She claims;

> "Policy in relation to reconstruction is to assist with public repairs while leaving the householders to provide for his own reinstatement by insurance or bearing the loss. In a number of major disasters the government has modified this agreement by providing assistance in the form of grants or loans, tied to a means test, which have been made available to householders" (p. 43).

She also writes;

> "The findings of the study indicate that planning requires a broad range of social and physical adjustments and that organisations need to utilise the capacity of disaster victims for self help while at the same time providing direct welfare to certain groups in the population" (p. 43).

As has been discussed in the case of Darwin's reconstruction, the state used the sophisticated market system. In the absence of such a system in rural areas, we assume it is possible to support families to carry out the reconstruction of their houses as quickly as possible. Thus the government can be more engaged in the construction of infrastructures and services.

Case 6- Tangshan, China (earthquake 1976)

Gere and Shah (1980), report from their visits to Tangshan city in China following the earthquake of 1976. These two authors are engineers and had little interest in social and architectural aspects. The earthquake was so devastating that according to Lewis (1985), an estimated figure of '700,000 to 1 m.' people perished. In relation to the losses of the earthquake Gere and Shah claim;

> "In Tangshan [city] itself, 148,000 people died -
> with another 81,000 seriously injured. The total
> life lost from the great quake was 240,000 people,
> with about 164,000 badly hurt. These are official
> figures but many Chinese engineers believe the true
> loss was much higher. The economic loss to China
> has been estimated at 3 billion Yuan (which is
> about $2 Billion)" (pp. 47-48).

Gere and Shah did not provide any clear account of pre-disaster construction methods and only claim that they were un-reinforced brick buildings. (p. 48) However, a few photographs included in their reports also indicate that the previous buildings were mostly built of masonry bricks and presumably wooden trunks supported the roofs. They explain that instead of one single city 'three separate districts are to be built... These districts will form a triangle several kilometres on each side...[which] provide additional safety in the event of another earthquake' (p. 52).

This notion of dispersion of settlement as a mitigation measure must be taken seriously. In the case of war, as is our concern, this issue is extremely relevant and will be explored in a later chapter. Concerning the housing aspects of the reconstruction approach Gere and Shah (1980), report limited observations.

"We were able to visit one of the residential sites currently under construction. A typical apartment building is four or five stories high, has about 60 apartments, and houses 200 to 250 people. (An apartment for four people typically has four rooms with a total area of 42 to 52 m^2.) Gas will be piped to apartments for cooking purposes, an improvement over the present coal-burning stoves" (p. 52).

They also continue to report that;

"The entire reconstruction project will provide apartments for almost three quarters of a million people,...Apartment buildings are of the same design in each complex, but vary from one complex to another; all are designed to be earthquake resistant,..." (p. 52).

We do not currently have access to any further study to address the issue of the inhabitants' satisfaction with these new dwellings or any other possible matter of performance associated with these apartment buildings. It is likely that this change in the housing situation constrain the families for the adoption. In this respect it should be added that different nations and cultures might provide different degree of ability to adopt change in their life style.

Case 7- El Asnam, Algeria (earthquake 1980)

There are certain countries and more specifically certain disasters from which more reports are available. This issue in itself calls for further , investigation, which unfortunately is beyond the resources of the present research. For instance, it would be good to know why so many researchers had been able to visit Turkey and more specifically, why Gediz earthquake had attracted their attention, while a case like the El Asnam earthquake has been only occasionally studied. Among possible reasons, one might be the political system of the stricken country and its attitude towards foreign agencies. At least in the context of Iran this speculation seems to be strong. One reason which may explain the small number of published reports and studies, (in English) might be because, not only since the Islamic Revolution but even prior to it, we never heard of the direct involvement of foreign agencies in relief or reconstruction following disasters.[4]

The El Asnam region of Algeria, with an estimated population of a million in 1980 was stricken by an earthquake of Richter 7.3. The result was 400,000 homeless[5] caused by the destruction of 80,000 dwellings and damage of 60,000 other houses. (UNDRO 1982, p. 73) James Lewis in 'Housing and physical development in Algeria', [no date available] after saying that the same city had been stricken by earthquakes in 1905, 1922 and 1946 claims; 'The earthquake of October 10 1980, destroyed the city for a second time, killing 1,500 people. 15,000 dwellings were destroyed and 148,000 people were made homeless'

4.Another example, is only one report from Albania by Elmaz Xhediku, 'Coping with earthquake in Albania', in Ekisticks 318-9 1986.

5.Lewis (1988), once reports an exact figure of 331,216.

(p. 8). (see the last footnote).

The emergency shelter provision was based on tents and plastic sheets, plus many survivors stayed with their friends and relatives. (UNDRO 1982, p. 73) It appears from the same reference, housing reconstruction was based on the construction of 'Prefabricated temporary' housing (pending reconstruction) 'in El Asnam town'...and reconstruction of 'traditional housing in rural areas'. (p. 73)

Concerning the reconstruction policy, the same document reveals that;

> "1. After some debates, decision to retain existing site of El Asnam. Reconstruction only after micro-zoning study.
> 2. Provide prefabricated *temporary* housing, pending reconstruction.
> 3. Reconstruct conventional, reinforced concrete housing to earthquake-resistant standards" (p. 73).

It appears that again the location of the new site has been one of the major issues, as in other cases discussed earlier. Altogether, UNDRO (1982), identifies the following 'lessons learned';

> "1. As a consequence of recent rapid urbanisation many unsafe modern, reinforced concrete structures collapsed in the earthquake.
> 2. The collapse of 85 schools indicated the priority need for aseismic design and construction of public buildings.
> ....
> 4. Officials underestimated the self-help capacity of survivors" (p. 73).

An Algerian friend[6], remembered a rumour spread among the survivors of the El Asnam earthquake, that the event was due to the unfair name of

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6.Ahecine Saouli, Kings Manor, 1988.

the city. The word 'El Asnam' means 'idols', that is what the Arabs worshipped before the introduction of Islam. For this reason alone the people insisted on changing the name of the city. The new name was 'Chleff', which is the name of a river passing by the city.

James Lewis, in 'Housing and physical development in Algeria', also focuses on a historical review of Algerian earthquakes and is especially concerned with 'vulnerability aspects' of this country. However, since he has been involved in after-event activities, his report provides some useful information about the El Asnam earthquake.

Case 8- Honduras (hurricane 1974)

A hurricane 'Fifi[7]' in 1974 swept Honduras, it left behind up to
350,000 homeless, and caused the destruction of up to 15,000 dwellings
and further damage to another 12,000 units. Tents and prefabricated
units were provided as emergency shelter and as UNDRO (1982), reports,
a 'wide variety of systems including prefabricated timber and pre-cast
systems' were used. (p. 68) Concerning the reconstruction policy the
same document reveals that;

> "There were the major programmes of house building
> - each by a voluntary agency. In addition, CARE
> distributed roofing materials for 5,324 houses;
> housing was built above the flood plain, on the
> hill side, but remained vulnerable in many
> instances, due to poor 'cut and fill' techniques"
> (p. 68).

In the view of UNDRO (1982), the following lessons can be learned from
reconstruction following the hurricane of the Honduras 1974;

> "1. One of the new housing settlements ' Colonia
> Canada' in Choloma is interesting in that it
> evolved from a refugee camp of 485 families to a
> permanent settlement of 381 houses.
> 2. There was a marked absence of government
> provision of new housing.
> 3. There was a marked lack of local involvement in
> the refugee camp and in rehousing programmes, many
> of which were culturally unsuited to local
> conditions.
> ....
> 5. Many of the housing systems have not been easily
> modified.
> 6. New buildings have not been designed or sited to
> adequately resist future high winds or flood
> action" (p. 69).

7.UNDRO NEWS, September/October 1988 contains information of the terminology
of hurricane, cyclone and so on.

Snarr and Brown (1980), carried out a survey concerned with an assessment of the users' satisfaction with the permanent post-disaster-housing built after Hurricane Fifi of 1974. In the introduction they state that surveys of this kind are scarce and they quote from Ian Davis who " observes that after examining 1,500 items, ...he only found 5 'in-house' evaluations of relief performance, and they all stemmed from Oxfam" (p. 83). They also mention that 'Two papers on user satisfaction in high-rise apartments in Singapore did, however, give some direction to this effort' (p. 83).

Snarr and Browns' (1980) findings from this survey can be summarised as follows;

"Replacing housing after natural disasters enables victims to avoid personal disaster and in some instances may help them surpass their pre-disaster standard of living....
Diminishing the amount of space per house in order to provide more lots for houses is a second means of increasing the number of houses and diminishing the cost per house. ..
The crowding, which is generally new to these people and the loss of some independence associated with the possibility of raising part of one's food are high costs to pay. It is also generally true that the availability of land is not as crucial in this area as it is in most Latin American urban areas.
Finally, it would be possible to build a partial home and let the owners complete the structure....
Of the three options (traditional houses, less space per house, or the construction of a less complete house) we feel that the latter is, at least in these cases, the more viable alternative"
(p. 90).

The issues they raised are significant. That intervenors unlike users are in favour of providing a higher number of units, rather than focusing on the quality or the minimum local standards. They also

observed that access to land was not as difficult as predicted, thus one should be careful of generalisations in such matters. The outstanding suggestion they propose, however, is the three choices of housing reconstruction and that they feel 'construction of [a] less complete house' tends to be more efficient, since it provides the opportunity for gradual expansion of the house according to the inhabitants' requirements and the availability of the necessary resources.

Snarr and Brown later, in 1982, published a report on a continuing survey from Honduras. Some of the major findings they report are as follows;

> "After 3 years of occupancy at least 66% of the original residents of the three CEDEN Projects continued to reside in their houses..... In order to investigate the correlates of continued occupancy and attrition we analysed seven variables that authors felt might be related to such. Of the seven we found three seem to be statistically significant: (1) the number of persons per household, (2) religious affiliation, and (3) participation in the construction of the houses. ... After 3 years 90% of the occupants surveyed had made some improvement on their houses (out of a total of 218 houses where occupancy was continuous for the 3 years) ... Of the five variables we examined with reference to housing improvement, only one proved to be statistically significant and this was the number of persons per household" (p. 131).

As can be seen a high proportion of occupants, 90%, made some improvements to their houses. This can be perceived as evidence supporting Snarr and Brown's suggestion to consider the house as a growing feature and not a static one.

Case 9- Chimbote Peru, (earthquake 1970)

An earthquake with a magnitude of 7.7 Richter, shook Chimbote, Peru and villages around it in 1970. The earthquake affected a population of 1.8 million, of whom half a million became homeless. Out of 2,550,000 [255,000][8] pre-earthquake dwellings an estimated number of 59,800 were damaged and 139,000 destroyed in both urban and rural areas. (UNDRO, 1982, pp. 66-67)

UNDRO (1982), reports that a variety of approaches to emergency shelter were implemented. Tents, corrugated iron roofing sheets and polyurethane igloos as well as traditional shelters were used by survivors. The same variation existed in terms of shelter reconstruction from '...prefabricated systems to adobe houses'. These were also provided by different bodies and via different approaches; 'the Government, through loans, roofing schemes and from other sources' (p. 67).

The same document made the following observations;

"3. The Government decision to relocate some towns, due to risks of further mud slides was logical but highly unpopular with those affected.
4. The decision to halt all reconstruction activity in Huaraz until seismic micro-zoning studies and the master plan were completed, seriously retarded the reconstruction process.
5. The 16,180 conventional houses built were only accessible to middle class families" (p. 67).

Sagov (1981), reporting from Peru, criticises the approaches implemented there after the 1970 earthquake. He highlights some political constraints within the community as well as delineating the

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8.The figure of 2,550,000 dwellings seems to be wrong, perhaps the correct figure is 255,000 dwellings.

people's initiatives in reconstruction. Not surprisingly he also says
that the privileged had a better chance to gain from the reconstruction
incentives. (pp. 179-184) The same author in conclusion writes;

> "The conclusion I am forced to make is that the
> reconstruction of Huaraz is a fake, little more
> than a sop to the consciences of the remote
> agencies who send their taxpayer's money as
> 'foreign aid', currently totalling about £30
> million. Not only have the planners failed to
> reproduce the qualities of charm, ... but they
> have failed in their stated intention 'to avoid
> repeating the same mistakes'" (p. 183).

Case 10-Tabas, Iran, (earthquake 1978)

Iran is an earthquake-prone country. (see Ambraseys and Melville 1982) The north east province, Khurasan, is one of the vulnerable areas from earthquake. Different cities and villages of this province have been affected by earthquakes in 1952, 1962, 1968 twice, 1970, 1972,1978, 1979 twice. (Parsa, 1985, pp. 8-10) At the moment we are concerned with the Tabas earthquake of 1978 in which according to Abedini Rad (1983), 7,000 dwellings and 5,500 other buildings were destroyed. The earthquake flattened the city of Tabas and affected 100 villages in the area, claiming 6,381 lives. (p. 62)

Tents were provided and tent-cities or camps were established by the government and some old buses were also hauled to the area to provide emergency shelter for survivors.

Parsa (1985), in his dissertation reports his observations from reconstructed areas after the Tabas earthquake of 1978. His main findings are, that in some cases the villagers have abandoned the reconstructed settlements, which were built to earthquake-resistant standards and built new dwellings with traditional materials. The main inconsistency of the newly built units, he claims, is the new houses 'were not hospitable in the local environment'. He also writes;

> "Other people who deserted entire villages and migrated to other areas, mainly urban centres, were forced to move out of their home because they were unable to continue life in an area without water and any services" (p. 133).

It is astonishing that there seems to be a regular pattern to the deficiencies arising after most reconstruction of disaster affected rural areas. On a national level in Khuzestan for instance, it was

observed that the shelter provided sometimes did not suit the inhabitants needs. In one way or another the same has been observed in Tabas. Examples can be found in other countries, as we will see in forthcoming rural examples.

Abedini Rad (1983), reports from the same earthquake about a new approach he tried for construction of earthquake-resistant houses, based on training the local inhabitants and improving traditional methods of construction, which will be referred to later. However, he also points to the fact of the unaffected communities' participation and the significant role they played in the relief period. (P. 62) This seems not to be peculiar to Iran or the Tabas area. It is people's humanitarian instinct. It is important to see why as the emergency period of disaster passes, the participation of outside agencies becomes more unlikely, especially in the last reconstruction phase. In Khuzestan province, there were many enthusiastic voluntary groups at the beginning coming to the area with goodwill and resources, including cash, manpower and occasionally skills. The management of these groups, and the fact that the one who has the resources naturally wants to have control of its use and distribution, created a lot of problems. It is again the issue of accountability, which tends to be a major obstacle in the case of voluntary organisations, though it exists with official organisations as well.

Case 11- Gediz, Turkey, (earthquake 1970)

Like Iran, Turkey is also an earthquake prone area. The Gediz earthquake of 1970 damaged more than 5,000 dwellings and destroyed 14,852 others. It left behind 90,000 homeless and killed more than a thousand people. (UNDRO 1982, p. 66)

For emergency shelter, polyurethane domes and tents were provided and new apartment buildings were built to create permanent shelter for survivors. Relocation of Gediz and its consequences is one of the major components of all reports available from the Gediz reconstruction. Mitchell (1976), from the reconstructed rural areas of Turkey especially Gediz, makes the following observations;

Although the relocation of Gediz site, was due to vulnerability of the village and to rock fall, the people still kept their links to the previous site, their working places are still there and old Gediz is more crowded than the new settlement[9].

The new settlement has many services and public amenities such as water, sanitation, a mosque and a school. The villagers complained that the houses were small and that no room had been provided for their animals. Some of the houses cracked because of poor construction. There are other villages in the area that remained uninhabited, Kiran, for example. 'Cold in the winter and hot in the summer' was a frequent complaint, says Mitchell (1976). (p. 312)

Germen (1978), in relation to the Gediz earthquake claims;

> "The price of dwelling-units in New Gediz has more recently reached big-city levels. In old Gediz itself houses are now changing hands in what is technically an abandoned town in the eyes of both

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9.D'Souza (1986), has researched on 'Recovery following the Gediz earthquake

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geotechtonics specialists and of the public administration" (p. 69).

Germen (1978), then reports that some of the local people claimed that relocation of Gediz was not made on a scientific basis. They claimed that the report indicated that the old location was relatively safe and that the authorities were under some pressure from certain groups of Gediz inhabitants who were ' without property in Old Gediz and may have wished to strike a blow at the town, who were strongly represented through employment in the municipality' (p. 71). Germen also points to another factor justifying relocation , because the clearance of debris could be an expensive and time consuming task. (p. 71)

Concerning land expropriation Germen claims;

"Whilst expropriation was made at rather low land
values there are 'nevertheless' people who do not
mind quoting very exact figure and who claim that
this figure was 14 times the pre-earthquake market
value of this land" (p. 72).

Germen (1978), then refers to the sharp increase in the population of Gediz after the earthquake and claims that since reconstruction, some migration has taken place from other areas of Turkey to Gediz and from surrounding villages to Old Gediz. Altogether, he thinks that some prosperity has come to the area because of the reconstruction of Gediz. (p. 72) (For more detail of economic and social consequences of the Gediz earthquake reconstruction see D'Souza 1986).

Germen (1978), then adds that; 'It is said that in New Gediz only debts for commercial property are paid back on the insistence of the Government and those for residential property not at all' (p. 73). Germen also reports his observations that houses built were small and

roofs were too low and the question of privacy had been raised by some residents of new Gediz. He also claims that old Gediz is gradually becoming alive. (p. 74)

Aysan (1987), has a cultural approach to post-disaster reconstruction. She focuses on the Gediz earthquake of 1970 which destroyed 17,000 houses and left behind 90,000 homeless. (p. 22) Then she refers to the post-disaster houses built in that area; both single storey and multi-storey[10]. Her criticism of the project lies in the examples of inconsistency of design to the users' needs, and the modifications they made to their houses. Her main emphasis is that not every house can be a home and that the common technological approaches to post-disaster housing are inconsistent. (pp. 21-25)

Aysan and Oliver (1987), wrote 'Housing and Culture After Earthquakes'. The focus of this book, as its title implies, is on cultural aspects of reconstructed houses with a detailed case report of Gediz. Aysan, presumably influenced by Davis, highlights his view about 'Survivors' resourcefulness', that he first raised ten years ago. Oliver, as emerges from his other publications[11], is very much culture oriented and familiar with traditional, rural settlements. The message of the first book is that there is a gap between the survivors' need for shelter and the needs of the donors. It usefully stresses the mismatch of 'outsider provided shelter' with the people's needs and shows how the users modify the provided shelter, when they don't abandon it altogether.

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10. UNDRO 1982, only mentioned apartment buildings.

11. For example, Shelter, Sign & Symbol (1975) and Shelter In Africa (1976)

UNDRO (1982), also reports from Gediz. The reconstruction policy given is;

> "1. The Government decided to rebuild Gedez 5 km to the south of the destroyed town.
> 2. New housing was built very rapidly by the Government.
> 3. The town of Ackaalan was rebuilt on the original site " (p. 66).

This latter reference quotes the following major observations;

> "1. The relocation of Gedez has created long-term problems, occupants still maintaining close links with the old town.
> ...
> 3. Co-ordination between village communities and Government planning officers was not satisfactory.
> 4. The very swift reconstruction of buildings created many problems. Local residents believed that more time could have been devoted to the planning process with long-term benefits" (p. 66).

D'Souza (1986), also reported from the Gediz area in a study of four reconstructed villages. Her main interest, however, is the social and economic recovery and the long term effects of reconstruction.

Case 12- Qir-Karzin, Iran, (earthquake 1972)

As Razani (1984), reports, on April 10, 1972 a destructive earthquake of magnitude 6.9 (Richter scale) destroyed the town of Qir and some fifty neighbouring villages, killing more than 5,300 people and destroying nearly 3,200 traditional adobe and masonry units. Tents were supplied by the government to provide emergency shelter and survivors remained near their destroyed houses. (pp. 79-80)

Razani (1984), discussing the Qir reconstruction plan reports that;

"According to the initial version of this plan, the Ministry wanted to move the people out of their small hamlets and relocate them in large rural centres which were to be administrated as rural cooperatives" (p. 80).

Taking the opportunity provided by earthquake, officials attempted global change in the rural communities' conditions. Razani (1984), also claims that despite the time available, no tangible attempt was made to identify the earthquake-vulnerable sites in order to avoid them. (p. 81) He also adds; 'According to some reporters, the new site was selected by high officials who flew over the area in helicopters' (p. 81).

Scrutinising new sites conditions, Razani (1984), writes;

"For the sake of expediency, new village sites were often selected within the treeless areas, far from the old village sites. The old sites were usually located at the centre of the farms and orchards and close to the sources of water supply. Many co-operative members who wanted to live in the new rural centres had to become separated from their private farms and orchards. Every day they had to spend a few hours of their time going to their farms and coming back to new towns" (p. 81).

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As can be seen the story of Gediz *is* repeated here, as it was in some villages of Khuzestan in the recent reconstruction after the war. Razani (1984), also explains that there were twenty separate contractors for reconstruction and they were supposed to complete the project in 5 to 7 months. In practice they had an average delay of seventeen months and the cost overran by 30%. He also observed that seven contracts were not completed four years after the earthquake. (p. 82) He says that four years after the earthquake 'many of the houses, roads, water distribution systems, and public buildings' in the area were not completed or operational. (p. 84)

The shortcomings he observed in 'concrete block buildings' are enormous. He writes;

> "There were many shortcomings mostly due to insufficient client field supervision. Some important ones were; use of poor aggregate, leaky roofs, wall cracks due to improper foundations, and poor quality of finishing" (p. 83).

He also observed more technical problems in another type of shelter provided called; 'Dome-Shaped Buildings'. (pp. 83-84)

Razani is an engineer, so less familiar with architectural aspects of housing, nevertheless his recommendations are interesting. He refers to some basic mistakes in house design such as ignoring the Islamic and traditional privacy of houses (p. 84), and suggests that flexibility of design for different uses and for future expansion of the units, must be incorporated in the design. He also suggests that after disasters it is better to invest in the production of building materials on site, in order to give future advantage. (P. 85)

Case 13-Bingol, Turkey, (earthquake 1971)

The 1971 earthquake of Bingol affected some 19 villages (over 75% of buildings collapsed or were heavily damaged) and 46 other villages suffered the loss of more than 25% of their dwellings and over 100 other villages and three major towns were reported moderately damaged by the shock. (Coburn, Leslie and Tabban 1984, p. 49)

In relation to 'reconstruction strategy' the authors claim;

"The decision concerning reconstruction were heavily influenced by the methods adopted in the previous major earthquake around Varto, Mus Province, in 1966....
A vital aspect of the reconstruction was to have permanent shelters for all the homeless before the onset of winter: speed of construction and organised, efficient logistics were major priorities to produce the 5000 housing units needed within six months. Only prefabricated housing could be constructed fast enough and it was decided to adapt a prefabricated housing factory in Ankara, newly opened to manufacture holiday villas, to produce houses which could be assembled in the damaged villages" (pp. 49-50).

Coburn et al (1984), refer to their major observation where they claim;

"The resettlement of the occupants of traditional villages in Bingol Province has caused a massive change in the life style, and the physical, economic and social structure of the villages. Communities suffering from the effects of an earthquake, not least the economic disruption of the losses of animals, possessions and houses, have been put in new and unfamiliar surroundings.
A large number of other villagers have not accepted the houses provided, because they could not adapt them to their normal life style, and thus their household economy was disrupted. Some, with private funds available, have abandoned the prefabricated houses and built another house elsewhere.." (p. 55).

As can be seen some similarities such as abandoning the newly built

houses and the inconsistency of the new houses with peoples requirement
are emerging from different cases reported.

Case 14- Lice, Turkey, (earthquake 1975)

The Lice earthquake of 1975 in Turkey affected an estimated number of 50,000 population, mostly in rural areas. More than 8,400 houses were damaged and more than 7,700 were destroyed. Tents were provided as well as polyurethane igloos and survivors also used their initiative to improvise the remains of existing houses for the emergency period. (UNDRO 1982, p. 69)

According to UNDRO (1982), the main housing reconstruction scheme was through providing prefabricated units: (asbestos sheets in timber frames) provided by Turkish Government. They moved the town of Lice 2 km to the south due to the risk of rock falls at the old site. (p. 69)

> "The housing policy was to provide prefabricated homes, *not* to rebuild on local building traditions. The town of Lice was planned for an eventual population of 20,000 (twice the pre-earthquake total)" (p. 69).

UNDRO (1982), refers to the following observations under 'Lessons learnt';

> "The decision to relocate Lice has been very unpopular with its residents, and was made without their participation. The new site does not possess climatic shelter from the hillside, has taken valuable agricultural land out of use, and was initially without water supply. The new choice of a flat site may have been influenced by the requirements of the prefabricated houses. ...
> The capacity of the Turkish Government to build prefabricated houses so rapidly (1,568 units in 54 days) was an achievement, but conversely the houses had many deficiencies: climatic and cultural unsuitability; no provision for animals; they were too small; and they did little to generate local work. Essentially, they reflected an urban middle class set of values, in sharp contrast to rural values and priorities" (p. 69).

These observations are simply more evidence of some issues that are fast becoming 'the traditional deficits' of post-disaster settlement reconstruction.

Case 15- Van, Turkey (earthquake 1976)

The 1976 earthquake of Van Province affected a population of over 180,000 creating more than 50,000 homeless caused by damage to over 5,000 dwellings and destruction of another 9,200. Tents and winterised tents with stoves were provided for survivors, while many of their number preferred to live in the improvised shelter they prepared for themselves. (UNDRO, 1982, p. 71)

According to UNDRO (1982), for reconstruction prefabricated houses, asbestos panel/timber frames were used (10,000 erected between April and November 1977). (p. 71) The reluctance of many survivors to leave their ruined area, as referred to earlier, for emergency shelter or temporary accommodation is notable. However, the same reference points to another fact that no advice was given 'for the improvement of traditional adobe or masonry dwellings.' (p. 71)

Case 16- Andhra Pradesh, India, (cyclone 1979)

In November 1979 a tropical cyclone with winds up to 270 Km/hr killed 30,000 people and left behind 250,000 homeless. An estimated number of 150,000 homes were damaged or destroyed. Local materials were the main source of emergency shelter. (UNDRO 1982, p. 72) For housing reconstruction, according to the same source, a 'Wide variety of 'low' or 'appropriate' technology solutions using timber, mud, thatch....

Some 'pukka' (brick/concrete blocks) ...' were used. (p. 72) The 'Reconstruction Policy' is reported by UNDRO (1982), as;

> "1. The state Government made certain promises to provide 'pukka' housing for surviving families in lieu of providing support for traditional types of construction. (The houses to cost about Rs. 6,500 with a plinth area of about 190 sq. ft.).
> 2. Build 1,300 community of cyclone shelters (500 completed by March 1982).
> 3. Build environmental protection measures, such as tidal embankments, tree belts and other plantation" (p. 72).

The following observations are made from the reconstruction programme in the same affected area; (UNDRO, 1982)

> "1. The debate between supporters of 'pukka' housing and those of traditional housing was ultimately won by the former, with the proposed building of 20,000 'pukka' houses.
> 2. The Government adopted a Preparedness Plan which included 1,300 Community Cyclone Shelters.
> ....
> 4. Nevertheless initial evidence suggests that the concrete block housing has had a positive effect in the local economy.
> 5. Opportunities were missed to instigate programmes in improved construction techniques, the only exceptions being the programmes organised by the Village Reconstruction Organisation (VRO), and an organisation called Appropriate Training and Information centre (Artic)" (p. 73).

Case 17, Ecuador, (earthquake 1987)

The 1987 earthquake of Ecuador is among the most recent disasters from which reconstruction reports are available. Dudley (1988), reports that an estimated number of '3,000 houses were totally destroyed and a further 15,000 seriously damaged' (p. 111). The major point was that the affected population were scattered over an area of '30,000 Km^2 that include the Amazonian jungle and mountains up to 5,800 m high' (p. 111).

Dudley (1987), reports, from his involvement in reconstruction following that event, of the problem of access to the affected areas and justifies the housing reconstruction approach they urged and claims;

> "From the start we excluded the possibility of 'providing' new model houses because:
> -it would be too expensive
> -the population is so dispersed that any project involving bringing in large quantities of cement, blocks and steel would be impractical
> -it would take far too long
> -it would be socially divisive
> thus we wanted to help primarily through 'enabling' actions and education" (p. 62).

They initiated an educational training programme which incorporated 'moulding the corner of the walls', while the straight parts of the walls were built by the families themselves. Also some training was given for making stronger roofs. (pp. 62-65)

In 1988 Dudley published another report from the same area with more details. Dudley seems very genuine in his report, and it is clear he is very development oriented. He named his 1988 article, 'Disaster mitigation: strong houses or strong institutions?'.

Dudley (1988), explains that for reconstruction after the earthquake, they were invited there by CAAP (Centro Andino de Accio'n Popular), which is a developmental oriented organisation and 'has worked in the zone for more than 12 years on agricultural and community development' (p. 113). He writes;

> "Our thinking in drawing up the programme was
> partly influenced by my visit the previous year to
> the Dhamar Building Education Project in North
> Yemen (Leslie, 1987). But unlike Yemen, in Ecuador
> there was an existing organisation in the area with
> both organisational infrastructure and extensive
> personal contacts within the affected communities"
> (p. 114).

Their approach was to use an 'L' mould for making stronger corners of rammed earth. Dudley (1988), also briefly reviews other technical approaches implemented by others in the area. He points to the problems each of the approaches faced, including; ' Stabilised earth', concrete foundations, wall reinforcement and lightweight roofs'. (pp. 116-118)

His sincerity can be seen for instance in this part of his report; ' It would be easy to give the impression that the project was formulated by the people; this would be misleading' (p. 114). The notion of survivors participation in the reconstruction process is not always easy and there is evidence that community participation, regardless of its context, be it a normal development project or a post disaster housing reconstruction, has many issues to be addressed. In fact it deserves a separate study in its own right. (see Chapter VII)

Dudley's conclusion from their modest approach is as follows;

> "We have learnt that with outside support but not
> external control, and with limited technical

objectives the people can achieve great things.
The character and long term presence and
perspective of CAAP in the affected zone made this
particular reconstruction programme possible. A
team of four people in CAAP, with occasional
technical advice from *Centro Sinchaguasin,* helped
the people of 80 communities build 1,500 of the
1,700 damaged homes in six months" (p. 120).

One problem with this approach is that we will not know anything about
the real performance of the reconstructed houses, until the next
earthquake occurs. Nor are we are sure about the users' view of these
settlements. However, this is not peculiar to this case and it seems,
to some extent to be applicable to other post-disaster settlement
reconstruction efforts.

Case 18- Dhamar, Yemen, (earthquake 1982)

An earthquake with a magnitude of 5.5-6 on Richter scale in 1982 caused extensive damage over 6,000 Km^2 of Dhamar Province, Yemen, it destroyed 25,000 hoses and damaged 18,000 others creating an estimated number of 300,000 homeless. The main form of temporary shelter was tents. (Coburn and Leslie, 1985, p. 2)

The significant feature of reconstruction following this disaster is the training programme conducted by the Oxfam team in the area. (see following section) We know from Dudley (1988), that this training programme was the source of inspiration for their training based response in Ecuador. However, there were more conventional approaches as well from from the government of Yemen, including the construction of prefabricated concrete units.

The Swiss Disaster Relief Unit and the Ministry of Health of Yemen Arab Republic (1984), reported from their observations of earthquake reconstruction in Dhamar 1982.

> "At the end of January the contract bidding for 1,500 homes (in about 200 villages) had already been completed. In comparison with other cases, this is noteworthy. ...
> . The construction of pre-fab houses has been, astonishingly, consistently rejected.
> . The bid was based, however, on a standard type and allowed unfortunately scarcely any freedom of design" (pp. 13-14).

It seems that some traditional mistakes were made in the reconstruction phase. The decision to produce a larger number of units in a short time, usually means sacrificing the quality of the products and their lack of suitability as homes for their users, seems to be repeated here.

Case 19- Albania, (earthquake)

Albania is a country politically famous for it's 'closed door'
policy to foreigners. It is a surprise to see even this single report
from that country published on earthquake reconstruction. Nevertheless
the content of the article itself is a manifestation of the system of
government of that country.

Xhediku (1986), first introduces the background of earthquake
research in Albania and claims that there are micro zoning
vulnerability maps for whole the country. Then he refers to the
earthquake of April 15, 1979 which shook Albania and as the author
claims; ' ...was one of the strongest registered in Europe during the
20th century'(p. 163).

Concerning the damage, the article claims, ' The earthquake of
April 15 and the after-shocks damaged about 17,122 items - mostly
buildings - in Shkodra' (p. 164). No death toll figure is suggested.
Most damaged structures were one storey stone buildings, with wooden
roofs covered with tiles...and single storey and multi- storey brick
buildings, mainly State housing. (p. 164)

The author then describes the process of reconstruction. The
important feature of the case is the bureaucratic system of preparing
the plans. Another important point is the repair methods they have
implemented for damaged houses. (pp. 168-169) The new house and site
designs are also illustrated. In general terms the report is as to be
expected, evidence of a highly centralised government planning
procedure. The reconstruction is primarily a highly technical and
engineering task in their view. However, the conclusion of the article
is worth quoting:

"The successful completion on September 29, 1979, of the effort for the elimination of the consequences of the earthquake of April, 1979, was a strong manifestation of the solidarity and unity of the people of Albania. As Enver Hoxha, the unforgettable leader of the country, said at a ceremony to celebrate this event, 'The earthquake shook the mountains, but not the hearts of the people'. It proved, above all, the vitality and power of its citizens that they will be able to overcome successfully any future difficulty or natural misfortune, always aiming at a beautiful and prosperous life" (p. 170).

4-2- A review on major issues of post-disaster settlement reconstruction

Introduction: In this section our aim is to review some of the recurring issues of settlement reconstruction in the light of the case studies already reported, as well as reviewing other sources in literature.

In the previous section, when looking for a 'conceptual framework', we came to the conclusion that the literature fails to provide a concrete and universally applicable structure, to classify those issues concerned with the relationships between shelter and disaster. The realism of that conclusion can be seen if we look at the case studies above. For example, there seem to be different issues faced in reconstruction of urban areas than in that of rural areas. For instance, the way to deal with 'legacies of the past' may be one of the concerns in urban areas, while it seems unlikely that such a concept would on present showings, become a major issue in reconstructing a village.[12] Another example, is the subject of housing deficits in urban areas and adopting appropriate policies to handle them. In rural areas, regardless of the quality of pre-disaster dwellings, which might have been very poor, this problem is usually not faced up to.

The other major factor must be the economic and social situation of the affected community. There are evidently significant differences between the coping abilities of communities, within the developing world and those of industrialised nations (for example, compare Darwin

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12. For many reasons including psychological implications, of course it is relevant in both rural and urban cases.

with Managua). In addition, the issues of settlement reconstruction could be grouped according to the views of the different parties involved. For example, intervenors face some problems, that are very different from those of the survivors. All in all, it seems that any attempt to identify universally applicable guidelines and specifications regarding reconstruction 'remedies', will yield so few results that it will help but little, if at all.

Here we present two examples as evidence of different approaches to categorise the reconstruction issues. UNDRO (1982), identifies four key headings, each including some further issues. These four are; 'The opportunity for risk reduction', 'Relocation of settlements', 'Land tenure and land use', and finally 'Housing finance'. (pp. 38-51) On the other hand, the findings of a conference (Disasters and the Small Dwelling, 1978, Oxford), are grouped under ten headings that speak of the major issues involved. They are;

> "Survivors of disasters, assessment of needs, Aid
> and recovery, Accountability, Cultural collisions,
> Mitigation measures, Education techniques,
> Evaluation, Technology, and Application of research
> findings" (Disasters and the Small Dwelling pp.
> 193-194).

Bearing in mind that we are mainly concerned with the reconstruction of rural areas, we will concentrate on it. But first we will briefly review some urban problems and then shift to the rural ones. Housing reconstruction as the major component of settlement reconstruction deserves its own treatment.

Urban issues– Hass, Trainer, Bowden and Bolin (1977), in

Chapter 2 of their book entitled 'Reconstruction Following Disaster',

which is concerned with "Reconstruction Issues in Perspective', count

seven major issues existing in a post-disaster situation. Each of

these major issues has other 'subsidiary issues' related to it.

However, the seven key issues are;

"Should normal, as contrasted to extraordinary,
decision-making mechanisms be used in deciding how,
when, and where to rebuild the heavily damaged
city?
Should there be changes in land use?
Should there be changes in the building codes?
Should a concerted effort be made to make the city
more efficient and more attractive?
Should there be compensation or special financial
assistance for private property losses?
How should disaster-produced personal and family
problems be handled?
How should increased local public expenditures be
financed?" (pp. 44-57).

The authors then move to provide 'A Summary of Do's and Don'ts' based

on their study of reconstruction in four cities. (p. 67) They list

ten points as follows;

"1- Don't wait until the restoration period is
nearly over before starting to examine,
systematically, the upcoming reconstruction issues.
2- Begin immediately to consider whether new
decision-making mechanisms, including the
possibility of advisory groups, are going to be
needed.
3- Do examine, at an early stage, the availability
of an adequate number of local specialists who may
be needed to carry out rapid but thorough efforts
early in the reconstruction process.
4- Don't assume that decision-makers in the private
sector will hold off on their decisions until the
most important public policy decisions have been
made.
5- If there is to be significant relocation of
families or business, consider the full range of
services needed and full array of consequences
which may follow.
6- Remember that despite the best efforts to shape

the character of the reconstructed city,
fundamental change is unlikely. Past trends will
be accelerated in most cases. Design the planning
process with this in mind.
7- Don't assume that all temporary housing will be
temporary.
8- Don't confuse physical reconstruction with
recovery of the city as a whole.
9- Do use every reasonable opportunity to make the
city safer, but don't make invulnerability your
ultimate objective.
10- When tempted to delay an important decision,
don't" (pp. 67-68).

The case studies reviewed also reveal some common issues to be

addressed in the reconstruction of urban areas. It must be pointed out

that the **degree of damage** has a major role. By that we mean to what

extent the housing stock and other facilities of the city are damaged

or destroyed. This alone could affect the decision to **renew or replan**

the city or to keep its previous structure. Let us bring some real

examples from Khuzestan Province, Iran. The city of **'Susangerd'**

although it was seriously damaged during the war, the main structure of

the city and a high proportion of the **houses survived**. For

reconstruction purposes there was no point to think of changing the

location of the city, nor was there any consideration of major changes

in the existing pattern. It can be said that an **'in-fill'** approach was

selected and it appears to have been a correct decision.

The city of **'Hoveize'**, was different. It was **totally razed** to

the ground and therefore **replanning** of a new city became inevitable,

allowing planners to include any changes to the overall plan of the

city as they wished. In practice, however, they went too far and

completely ignored the remains from the previous plan and the familiar

characteristics of the old city. The remain of the destroyed city is

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now surrounded by the new city.

Between these two extremes the case of 'Khoramshar' comes to mind. The city is **seriously damaged** and thousands of buildings are flattened. The remains of the city is worth million pounds, so there is no way of ignoring it and moving to another place. After all the future of this damaged city and its rubble can not simply be overlooked, since its future will be linked with the future of any new Khoramshar. In this case, there seems to be an **opportunity for some change**, or replanning but not to the extent there was in Hoveize. Nevertheless, the restrictions of Susangerd do not exist either.

Through the case reports we found that the notion of replanning or **modernising** the city has been exercised after major disasters. (e.g. Skopje, Managua, Gediz) The success of the planning, however, was not automatic. Often, the physical reconstruction after major disasters aimed at **social and economic development** as well. Although there is no general rule for success or failure, evidence suggests that economic and social change requires serious long term commitment, that may not be compatible with the goodwill of the authorities at the time of the disaster or with the resources made available. In turn there are cases where previously socially deprived groups should have benefited and did not and even where **social segregation** widened the gap in the given community. (see case examples of Peru and Gediz - D'Souza 1986).

In urban reconstruction the **economic system** of the city plays a major role. Rural areas are dependent on land and land is fixed. The urban economies, mainly based on industry and marketing may be dislocated and established in another area. The example of 'Abadan' in

Khuzestan Province is significant. The original city was built to house those working in the refinery, the most active and oldest refinery in the country. The city had no other major economic source other than providing services to the refinery staff and workers. At the time of reconstruction it becomes crucial to know whether the refinery is going to be repaired and reopened and with what capacity it is going to work. Not having the refinery restored leads to there being no need to reconstruct Abadan and if the staff are to be substantially reduced that means a decrease in size of the future city.

The allocation of **appropriate roles** for different groups and parties in shelter provision after disaster is of major importance. Davis (1981a), illustrated his suggestions by using two matrices one concerned with the 'immediate shelter needs' and the other with 'reconstruction'. (pp. 18-19) Among the different groups the partnership of the **private sector** also must be identified.

Davis in the same document assumes the appropriate role of the local private sector to be mainly in construction of infrastructure (physical) and (social provision) and mitigation measures such as construction of dykes. (p. 19) Thus it appears that he does not suggests any direct involvement of the private sectors in housing construction. However, there is evidence that both in developed and developing world in several cases private companies were directly involved in housing construction. (see for instance the case of Dhamar Yemen or Darwin Australia). Though this role allocation which seems to be Davis' suggestion, is more likely to be applicable to the developing world.

There is a **dilemma** in engaging the private sector in

reconstruction.   On the one hand, it is legitimised by the fact that establishing new state supported organisations to handle a temporary job of reconstruction, would usually seem unrealistic.   It is a proverb among Iranian professionals that government can never make a good contractor.   There is evidence that projects implemented by government based companies in practice were overrun by time and costs. On the other hand, disaster destruction may be a booming business and provide a unique opportunity for private companies to make huge profits out of enormous number of projects to be built.   In some countries, present Iran for example, this may be **politically and socially unacceptable** to the public.

It must be pointed, that in this respect, the situation of developed and developing countries seems to be different.   In the former private companies are part of a system, that can temporarily increase their capacity to meet an emergency. They may be supported by several companies producing building materials and have access to skills and professionals to respond quickly. (see Darwin for example). In developing countries the situation might be very different. Production of building material might be limited and their distribution controlled by the government.   One example was the reconstruction of the village Jelizi in Khuzestan, that took three years to complete and the original contractor failed to handle the job.   One reason of course was that cement, steel beams and bars were all in short supply and their price on the black market were some ten times more than official prices.   In such a situation, the private companies are still dependent on the government and can do little to contribute to reconstruction.

An additional point is that reconstruction projects by their

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very nature are different from normal development projects. The professional staff of private companies may have no experience of reconstruction and its related issues. This is likely to be one of the primary reasons for unsuitable dwellings being built by companies after disasters.

One should be careful in using the term **'private sector'**. Since this can be applied to big companies, as well as to an individual builder working in housing sector. In the reconstruction of villages in Khuzestan, a especial approach was practised. For construction of each house the agency contacted a builder. Obviously the supply of the materials remained the responsibility of the agency and the builder had only to erect the structure according to the specified conditions on the contract. After completing each house the builder if wished to could apply for another house to build and so on.

A more imaginative method was practised in **Bakhtaran Province,** Iran for the reconstruction of the bombed houses in the urban areas. In that case the local authorities focuses on the use of the **local building** industry and used small craftsmen in the process. The authorities provided the raw materials, such as cement, steel profiles and glass sheets to the existing local shops. In turn they were asked to convert these materials to the components needed for the reconstruction of the damaged houses. The householder was then referred to these local businesses to receive the component or services required. This was very successful since on the one hand, it involved the local economy in a controlled manner and the prices were controlled by local officials.

On the other hand, the authorities were directly involved in the

construction and in turn were better able to centralise their efforts of management and control. Such a method in rural the areas of Khuzestan would be more difficult. The nearby cities do not have enough artisans to take part and could not produce the massive quantities of extra building components. In addition the transportation of the products to the villages, and to each individual rural householder, becomes unrealistic. However, there is still a need to devise a modified approach of that kind, even in Khuzestan Province.

One aspect of settlement reconstruction is the way in which the preservation of the previous settlement (**legacy of the past**) is determined. Certainly in the case of the reconstruction of a city with a historical heritage, this phenomenon becomes more important. The design and construction becomes more difficult since the products must be careful to harmonise with the rest of the buildings. A more difficult decision would be the reconstruction of a monument, for example if it has been substantially damaged and little or nothing is left of its original fabric.

Though the cultural heritage and buildings which contain such items such as museums are supposed to be protected by international law from attack in war time, in the recent war the Iraqis did in fact raid Iranian monuments several times. In Khuzestan in the city Shush, the shrine of **'Daniale Nabi'** was damaged by canon artillery. More brutal was a planned attack on the **Jame Mosque of Isfahan**. They carried out the attack at noon on a Friday, when thousands of people were gathered for the Friday prayer. The plane aimed to shoot up the two main domes of the mosque. In the event both were saved but instead a huge part of the eastern part of the mosque was destroyed. Another rocket missed

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the northern dome but killed a group of Afghan refugees settling in a nearby caravanserai there. Obviously the whole of this building, which is known as one of the best examples of Islamic architecture all over the world was severely shaken by the blasts and minor damage was found in many parts of the building.

In the case of the Jame Mosque of Isfahan, the reconstruction started promptly. Since detailed documents of the building were available, a group of architects and engineers skilled in conservation were able to rebuild the mosque to the correct specifications. The decision to rebuild could have been more difficult if the mosque had been razed to the ground.

At an urban scale we are facing similar cases as that of the single monument. In Khuzestan for example, the **city of Dezful** has a fabric that is at least a hundred years old. The whole city is built in brick and is **like a museum**. It is one of the best places for architecture students and researchers to study traditional and Islamic architecture. During the war over a **hundred missiles** were dropped on Dezful and about **third** of it was destroyed. Reconstruction was very difficult because the damage was scattered all over the city. In such a case the reconstruction became very difficult. It was not just the form and quality of the new buildings but many other practical difficulties were faced. There was the problem of identifying the boundaries of each house plot, deep basements (Sardab), a traditional feature of these houses, were filled with rubble. The large missiles were so devastating that nothing was left of the building and its inhabitants whatsoever. Though the families insisted on finding their original plots in order to rebuild, the removal of the rubble on a

house by house basis would have cost too much. So the idea was to level the damaged area and rebuilt on top. In most cases, the new houses were built on the same plots and with a design inspired of traditional layout and style.

There is still a further point to raise in relation to this issue of conservation. In our view the conservation of physical structures, such as those traditional family houses referred to above, also means the conservation of traditional social values. In the industrialised countries the economies are far too dependent on increased of consumption, this is also somehow a social value. In another view consumption might be replaced by contentment.

The **repair business** is quite common in our countries, more than it is the case in developed communities. We learned for instance from our fathers, that when his suit had been used for many years, it was re-tailored for the children. If a jacket had become faded by use, there was a service in the city that would dye it to new colour. Nowadays, some of these recycling practices are dying out especially in the urban areas. But still the repair of cars and electrical machines is very common. In Iran it is normal for a car to be fifteen years old and very often this may go to twenty years or more. When a car is delivered to the scarp yard of necessity all its useful parts are removed for use in other cars.

The same philosophy, it has to be said, mainly because of economic constraints is also applicable to housing, where the high cost of building has encouraged householders, even in developed countries, to develop do it yourself (DIY) techniques of repair and maintenance. In our view this notion of repair and maintenance in place of new

build, is applicable to the reconstruction of damaged settlements.

One example of this can be found in Khuzestan. There for sometime, the authorities have wanted to use bulldozers to level the remains of houses with 50% damage. Also all the mud built houses regardless of the degree of damage were supposed to be taken down. For the first time, in the city of Bostan we[13] adopted the policy of **repair instead of rebuild** and houses that were to be razed to the ground, were instead repaired under our supervision. We kept a detailed analysis of the costs. The final records indicated that the cost of repairs are up to **50% less** than the cost of constructing a new house. This practice convinced the agencies in charge of reconstruction to pursue this policy in other cases. There was however, one major difficulty. The technical analysis of the damaged structures was usually beyond the ability of ordinary builders. Some degree of risk was also involved in working in such buildings. In one case I was urgently called to the area because of a collapsed wall which fortunately had not caused any casualties.

The same Agency asked the University team to repair and renew one of the **mud built houses**. The result cheered both the Local Authorities and the Agency involved as well as ourselves[14]. The reconstruction work, including ours, had to be stopped because of continued heavy bombing by the Iraqis. Three years later, during my field survey trip, I was told by the head of the District that the owner was still concerned about our demonstration house. He felt that

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13.The School of Architecture, University of Shahid Beheshti, Tehran.

14.The report of this project is published by our School entitled; 'Maramate Khaneie Geli', 'The repair of a mud built house'. (Farsi, 1985)

he had lost an opportunity of obtaining a new brick built house. However, the head of the District promised to consider his case, should the reconstruction of Bostan started again. In brief, we would like to conclude that repair instead of rebuilding is still a sound philosophy to apply to the war damaged areas of Iran. In cities like Khoramshahr this could save millions of Rials.

In most instances the problem of **vulnerability** analysis of the **existing** site of the city and other areas around it becomes one of the major issues to be confronted. If the risk assessment endorses the future risk of hazard in the same area, which it is likely to do since there has already been one disaster there, then relocation of the city may be recommended. From examples we gave in Iran, it could be understood that the **relocation** of a large city has many economic and even psychological implications. Many other social and political constraints will also affect the decision-making. In Tangshan, for example they not only relocated but even divided the city to three different parts. In other cases new expansion or reduction of density have been exercised.

Land tenure, is the other issue faced in large cities with major damage. Private land ownership makes changes in existing situations difficult. In addition, there are those who have not owned land before and now require to do so. On the other hand there are the major landlords, who usually have political power as well, and are reluctant to lose the value of their land. (see the case of Managua for example). Along the same lines is the problem of land requisition and acquisition by the government. In China, or Yugoslavia, since the State is the owner of land this is not a major constraint. In other

countries the situation could be different. (See for example the case of Gediz and the price the Turkish government paid for the new site).

Underestimating the **costs** and **time** to reconstruct a city after major disasters seems to be another fact. Despite the initial plan and promises of governments to rebuild the city in five years or so, in practice it is found to take double or triple the first target time. (Skopje, Managua).

Rural issues- Rural communities, in developing countries, are characterised by poverty and subsistence. Despite the housing issue which will be examined in the following section, there are quite a few problems to be faced in their reconstruction after major disasters. One is of course concerned with **development** through reconstruction. This also exists in poor communities within urban areas. The aim of the reconstruction programme may go further than just re-establishing the **status quo**. This was one of the basic arguments in reconstructing rural areas of Khuzestan. However, this is often difficult in practice and deserves a more detailed study which we will come to later.

Relocation of the site, for vulnerability reasons, is found to be practised in the reconstruction of villages. The primary consequence is the change in farmers' access to their land. It appears that the feasibility of allocating **safe land** suitable for housing in rural areas varies greatly. In villages, very often there is 'spare land' for housing, but in Khuzestan for example, it was found that in some villages farmland extended to the edge of houses. Farmers therefore had to sacrifice their fertile land if they wanted to expand their houses, something which apparently they did not want to do. (see

for example the case of Jelizi in Khuzestan or Lice and Gediz in Turkey).

Modernisation of the **settlement** is the next issue. **Graded geometrical site patterns** are often substituted for 'organically grown' old sites. This is seen as one step towards development, since in some cases at least the villagers may have more respect for their traditional culture and be less prepared to adopt unfamiliar changes, this symbol of progress may in fact achieve the opposite effect and provide an unsuitable environment for them.

Housing reconstruction issues- Davis (1978), borrowed an idea from Dr. Fred Krimgold who suggested that ' there are three basic approaches to shelter **following** a disaster'. He describes these three strategies;

'Strategy 1- Housing survival,

Strategy 2- Filling the gap, and

Strategy 3- Accelerated reconstruction' (pp. 34-61).

Concerning the first strategy it seems to have led to confusion. Basically it suggests that the vulnerability of communities should be eliminated or at least mitigated **before** hazard strikes. The confusion is that this might be incorporated into one of the other two strategies, but if it is undertaken before a disaster then the earlier quoted sentence, ' ..three basic approaches **following** a disaster' must be amended. This seems to be Krimgold's original idea. [my emphasis]

The second strategy, as can be understood from Davis' explanation, refers to the two stages of shelter recovery. Again, he brings in examples and discusses the problems of emergency shelter and temporary accommodation provided after disasters. His sharpest

criticism is directed at donors who provide shelter, particularly the practical failure of Western designed shelters. On the other hand he focuses on the capability of local people to use their initiatives and local resources in shelter provision after disasters. (pp. 39-61)

The third strategy, 'Accelerated reconstruction' as the title itself implies, is actually a recommendation to abandon the two stage recovery and to go straight from the relief phase to reconstruction, or in more precise words to cut the phase of temporary accommodation as short as possible. Davis (1978), bases his argument on some assumptions that include; first, the construction time, especially of poor families houses using indigenous materials, is much faster than the time required to construct a house in a developed country. He says; "...in a poor country house building is very rapid, and can be thought of in terms of days, whilst in the 'developed' world it is a matter of months" (p. 63).

The second basis of Davis' argument is, in his words;
'Another myth that colours our thinking is to imagine housing as a static, complete entity, when in actual fact it is always evolutionary' (p. 63). Davis is saying that in many cases a house starts with a core, being a room or two and then gradually as more resources are available, more spaces or services will be added to the house. (pp. 63-64) Later on Davis also refers to some empirical cases such as the construction of '1,500 prefabricated (permanent) houses' by the Turkish Government over a short period of eight weeks after the Lice earthquake, (p. 65) as evidence that it is possible to build more quickly than is usually assumed.

Davis' first argument about the reconstruction of houses among

poor families 'in a few days' seems to be rather a sad fact. It is the irony of disaster that for those who have no home at all, living on the streets of Bommbay for example, a disaster will not destroy their house as such but their livelihood will be disrupted. Many of these families are immune to the consequences of disaster from living permanently in a disastrous situation. The same argument applies to the majority of people living in developing countries, some four fifth of the worlds population.

As has been discussed, one of the problems after a disaster is the decision about what attitude should be taken towards 'normal' housing deficits, that existed prior to the catastrophe. In this relation UNDRO (1982), recommends;

> "*Confusing the 'normal' housing deficit with that created by a disaster.* Experience indicates that authorities undertaking reconstruction are frequently asked to address *chronic* problems as part of the reconstruction process. Thus, pre-disaster housing deficits are added to disaster losses and reconstruction targets. Such a policy is probably inevitable but unrealistic, unless additional resources of cash, land, building skills and planning expertise are made available" (p. 44).

It is easy to recommend not confusing normal housing deficits with the disaster induced losses. In practice, however, it becomes a very difficult task and may create social upheaval. During the 'Susangerd' reconstruction, while the Local Authorities were discussing how to deal with somebody who has lost more than one house during the war, they felt oppressed by a very simple question from families who had no room of their own prior to the war: 'Is the Islamic Revolution in favour of rich or poor?' It seems that the problem of housing deficit occurs

more in urban areas. Despite the poor quality of shelter in most rural areas and the associated vulnerability, housing deficits are less a problem of rural areas.

As the review Table of Case Reports shows there were many rural disasters in Turkey. In relation to this Bayulke (1984), reviewing post-earthquake operations in Turkey, points out that in the past most earthquakes have occurred in rural areas or small urban centres. He also refers to reconstruction of permanent houses after earthquakes and claims;

> "The Ministry has a stock of prefabricated wall panels and roof elements suitable for 1,000-1,500 dwelling units. All these wall panels are built at the central factory of the Ministry in Ankara. All these units are light-weight one-storey elements. The wall and roof elements for a dwelling unit of 50 square metres weighs about 4-5 tons. A 10 ton truck can carry two units at a time. While the houses are light for easy transportation, their normal insulation is extremely poor. They are not suitable for the colder and hotter regions of Turkey, and can only be suitable for the western and coastal parts" (p. 110).

Turkey is becoming famous for the capacity of providing a large number of houses immediately after a catastrophe. Nevertheless, Bayulke (1984), about the reconstructed houses provided by the Turkish Government, said; ' ...a considerable percentage of these **houses are not used or accepted** by the disaster-stricken people. There are a number of reasons for this' (p. 113). [emphasis added] Among the reasons he refers to are **relocation** of the villages, the existence of undamaged parts of the original houses, which may encourage the owner to return there and make use of remaining space after restoration, the **poor climatic performance** of the prefabricated houses provided, the

building of three-storey apartment blocks for villagers with animals and the crucial fact of separating the users from the **process of design** and construction. (pp. 113-114)

Bayulke is not the only one recommending the participation of survivors in the design process. Van Essche (1984), on the same lines writes;

> "The spontaneous reconstruction of housing begins
> extremely rapidly after a disaster, and often
> during the emergency phase itself.....The key to
> success ultimately lies in the participation of the
> local community-the survivors-in reconstruction"
> (pp. 167-168).

Survivors participation in the design and construction process in practice seems not to be an easy task, since, it is time consuming, which in the race against time after a disaster is a great obstacle to the argument for such an approach. In any case, we explore this subject elsewhere in this dissertation. Van Essche (1984), also refers to accountability and the rising expectation of survivors, an issue frequently repeated by others. His other conclusions are exactly what can be found in the concluding section of the UNDRO (1982) book.

Cuny (1981a), reviews the major problems occurring in post-disaster housing provision from an intervenors' view point. His major point is that **housing is a complex process** and agencies attempt to simplify this process by providing units. His recommendation is to conduct the housing projects in accordance with the **normal housing process**. (pp. 3-4)

Another point he raises is understanding housing in the context of **development** of the community and not to perceive it as a separate

event. He also recommends that housing after disaster should be supplied in the same manner as the development projects. **Bottom-up approaches** and so on must be considered. (p. 4) This is more evidence for the importance of exploring the **relationships** between reconstruction and development.

Cuny (1981a), also refers to **'Real opportunities'** after disaster. He writes;

> "It is often casually accepted that a disaster provides an opportunity to create change, not only in housing but also in the social and economic standards of a community. This is often one of the prime reasons, in fact, why organisations attempt to deliver so called 'modern' housing systems and materials in the post disaster period. However, recent evidence suggests that the real opportunities for change are extremely limited" (p. 5).

This subject requires further investigation, since there are a series of contradictory claims for it. (see for example UNDRO 1977 or Drabek 1986)) we will develop this in Chapter VI.

Davis (1981), reviews some of the key issues of housing after disaster. He divides the key issues into three main categories; 'The **survivors' viewpoint'**. 'The **vulnerability of settlements'**. and 'The **role of intervenors.'**(p. 13) Under the 'Survivors viewpoints', he raises the issues of 'Coping abilities' of survivors, 'rising expectations', and 'Survivors priorities' as opposed to the intervenors priorities. (p. 14)

In relation to 'The vulnerability of settlements' he talks about 'Relevance to low income housing', **'Trade-offs'**, by which he means that vulnerable families have many problems greater than shelter. He also

refers to 'New settlements' and writes;

> "The application of the principles of safe
> construction are enforceable only to a rapidly
> reducing sector of low income housing. They are
> still applicable to middle income housing and high
> investment constructions" (p. 14).

Different approaches and methods used for **reinforcement of the new buildings** is another issue which deserves more comprehensive study and one of the following sections of this chapter is designated for this purpose.

Other issues such as the consequences of the relocation of settlements and land tenure are also among the issues he discusses. (pp. 14-15) We have already raised and commented on these issues the case reports. In relation to the **intervenor**, Davis (1981a) argues that the first problem is that they are not usually **accountable** to survivors, also that intervenors have their **'own values'** of housing, which are different from those of the users and that they lack '...knowledge of Third World housing' problems and the '...long term development'. He writes;

> "The traditional role of agencies has been 'first
> aid'. The problem with such a policy in the
> housing sector is that they are acting (perhaps
> unwittingly) in a 'development', not a 'relief'
> context. Agencies have only rarely accepted the
> responsibility of long term commitment with the
> groups they seek to help, and they only rarely
> consider the long term consequence of their
> emergency intervention" (p. 19).

He also adds that agencies occasionally have pre-disaster involvement in the area. However, there is evidence that this pre-disaster involvement and familiarity is a key to success for post-disaster

housing projects, especially when the community approach is implemented. (p. 19)

Ressler (1981), has written a very important and useful article about **accountability** in post-disaster activities. He believes that the **participation** of the users in all stages is the key to success of the programmes. He explores in great detail the reasons why the agencies do not feel accountable to the victims of a disaster. (pp. 145-149)

Oliver (1981), focuses on the points Davis has already raised namely that the **'survivors view point'** is different from that of the intervenors. The argument is very clear and many examples were found in the case reports reviewed. The new houses are often provided in a form that does not meet the users needs, habits and values. They might be both functionally and **culturally unacceptable.** (see for example, Gediz, or Qir reconstructions) Oliver (1981), writes about the cultural context of post-disaster operations and activities. He writes; 'A town is made of buildings, but a community is made of people; a house is a structure but a home is much more' (p. 41). He then continues to identify the reasons;

> "By far the majority of victims of disasters are
> the poor, while those who are engaged in the study
> of disasters, in the planning and implementation of
> relief and in the designing or rebuilding of
> appropriate shelter are from the more privileged
> classes" (p. 39).

Oliver's argument is a reminder of what Robert Chamber (1983), claims about rural poverty and urban bias.

Wenger (1984), after the 1980 earthquake which '...hit the regions of...southern Italy', is in favour of keeping the originality

of the reconstructed settlement. He claims;

> "We believe that prefabricated housing is justified
> following an earthquake particularly in the field
> of public and social buildings.... However, we
> feel that conventional construction work is in many
> respects the only way to properly reconstruct
> living quarters" (p. 19).

Norton (1980), who is a former Oxfam Field Director explains his general views about 'Disasters and Settlement'. Being a member of an agency he attempts to give recommendations to donor agencies. He recommends agencies concentrate their efforts in areas where access is possible and that they work in co-operation with, or inside an existing local agency to avoid duplication.

Concerning emergency shelter, his observation is that rural victims are particularly able to cope with their needs in one way or another. In the reconstruction phase he also advises agencies to keep the **local people involved** in all stages of reconstruction and as for decision-making, **to leave it to the users**. His emphasis is that after the agency has left the area the community must be **able** to cope with its **future needs** in terms of provision and maintenance of shelter. (339-347)

This preference for the previous settlement and location has strong psychological implications, which we have developed in a later chapter. It is interesting to quote the observations of Quarantelli (1982), in the context of American post-disaster housing;

> "It does appear that the vast majority of evacuees
> return to their old location, often rebuilding on
> the same spot they occupied in pre-impact times.
> However, this seems more true of home owners than
> renters. ... Overall, it does appear that the kind
> of permanent housing which will be developed in a

community after a major disaster is related to the
pre-disaster housing situation and the influence of
various local interest and power groups" (pp.
279-280).

So far a review of major issues faced in the reconstruction phase has

been made. The case reports and other authors conclusions both

highlight some recurring problems and issues to be addressed. We have

also identified the problem of **reinforcement of new buildings** to be an

important area of interest. In the following section we explore it in

some detail.

4-3- Technical innovation for building reinforcement- It is known that one of the major reasons for building collapse in a disaster situation is the poor quality of the materials and techniques used, such as adobe structures. After a disaster, one of the primary goals is usually to mitigate the next hazard by constructing strong buildings. In some countries this seems to be simple. New building codes are issued and new resistant materials and techniques developed to ensure any new buildings will withstand the next disaster. (See for example the case of Darwin)

In many others, however, the situation is different. The access of all the survivors, to new resistant materials and techniques is not always possible. The economic situation of the country as well as many other circumstances often do not allow the introduction of such speedy and comprehensive innovations. Moreover, the literature also points to another consequential factor that might arise when materials, designs and techniques are imported. That is the **long-term dependency** it creates and the unfamiliarity of users with these imported, presumably western materials and techniques. The same problem may exist even when introducing urban housing systems into rural areas within the same country. (See for example, the case of Gediz)

We have the technology to build constructions resistant to most disasters, but as has been discussed the **transfer of this technology** and the costs involved, make the process difficult if not impossible. For instance, Mayo (1988), has produced 'Cyclone-resistant houses for developing countries'. Recommendations on appropriate site location as well as construction details are provided. However, there remains the application of these techniques and recommendations to the real context

of developing countries.

These obstacles are felt by many intervenors and a new more appropriate idea for vulnerable poor or low-income families of the developing world is slowly developing. Rather than introducing wholesale change, modification in pre-disaster techniques and materials is being looked for. The best idea along these lines is the training and educational programme that we will elaborate in the next section.

There is evidence that the reinforcement of traditional buildings against hazardous forces and conditions is not a new idea. Many techniques have been developed in the past for this purpose. The use of wooden braces in mud structures in Iran has a long history. In this context Mathur (1984), introduces many examples of traditional approaches to increasing buildings' resistance against earthquakes in India, including walls, roofs etc. (pp. 129-131)

Lamping (1984), examines the usefulness of 'indigenous sources for post-disaster housing'. His argument is that;

> "A reconstruction project using all indigenous
> sources at disposal will certainly not need all the
> money donated by foreign countries. Thus saved
> funds could be used to build up an effective
> infrastructure (f.i. schools, roads) and to
> ameliorate the agricultural structure" (p. 113).

The argument of Lamping (1984), seems logical. It is a reminder of El Asnam earthquake where many public buildings, including schools, collapsed. It seems that giving higher priority to public centres is a correct conclusion.

Improving the resistance of existing housing stock is not completely peculiar to the developing world. For instance, Durkin

(1984), discusses the issues concerned with 'Improving seismic safety in unreinforced masonry buildings'. His major information source of concern is the United States, where many masonry buildings still exist. (pp. 553-557)

Razani (1981), explains comprehensively about the methods and problems of earthquake resistant adobe and masonry buildings. He brings in evidence that the research in this field has not been enough and that it is an urgent task, since millions of people of the developing countries are at risk of losing their lives. (pp. 123-132)

Spence and Coburn (1987), have written about their research on approaches to reinforced stone structures, that are an expression of Turkish vernacular architecture. They introduce a summary of the increase in cost of buildings in earthquake zones to different degrees of safety. This might mount up to **66%** of the original costs without reinforcement. (p. 292) [emphasis added]

Sturm (1984), proposes a design for modifying the traditional housing in rural Turkey. He claims that the Turkish government rejected their project without reason. (p. 60) Their suggestion is to add a separate wooden structure of posts to bear the roof made of corrugated iron sheets and covered in mud. (pp. 57-60) Although there was not enough information with their sketches, the first impression from their drawings was that there was no real disaster situation and at best they only thought of building resistance and cost.

Minke (1984), introduces the 'Bamboo reinforced rammed earth technique' which was experimented with in Guatemala during 1977 and 1978. He claims this is a cheap approach to earthquake resistant construction. (pp. 105-108)

Besides the reinforcement of indigenous materials and building techniques some attempted to introduce the notion of mass production as well. Kurowia (1984), introduces a project of 'Prefabricated Quincha construction'. He says; " A method for housing construction has been developed using prefabricated wood and bambu [bamboo] panels improving a traditional Peruvian construction named Quincha" (p. 115). This is

"A traditional Peruvian construction using wood bambu, mud and straw named Quincha has been improved by the use of modern ideas of prefabrication, mass production, quality control, rationalisation in the use of non-skilled labour ...in addition to use local, abundant and cheap materials, and low initial investment for the 'industrial plant'" (p. 121).

Salim Ullah (1988), introduces a project of Cyclone-Surge Resistant Housing in Bangladesh. He claims;

"Construction of [unsuitable] large community shelters, ...The reluctance to leave dwellings to go to a community shelter suggests the need for cyclone surge resistant houses to avoid population movement at the verge of a surge" (p. 46).

He also argues that;

"...any protection by dykes, of individual homesteads, is not economically feasible. Keeping in line with their living habit it is proposed that homesteads should be organised in a cluster around a community water body.. with agricultural land around each cluster. In deciding on the number of homesteads in each cluster, it is to be kept to the minimum in view of the existing attitude of the settlers to remain isolated from each other" (p. 46)

In terms of costs of the houses he admits that, '...consideration of maximum wind and surge loading in a low-bearing capacity soil,

determined through laboratory tests, made the houses **prohibitively costly**" (p. 48). [emphasis added] He suggests usage of a reinforced concrete frame and corrugated iron sheets for roofing.

Besides the development of new techniques for reinforcement of buildings some attempts have been made to repair the damage to the existing stock of buildings. This is a very useful approach but nevertheless difficult. The statistical analysis of the damage the building has received makes it difficult to assure its future strength. In Khuzestan it was observed that the main policy towards damaged buildings was to clear them and to rebuild again. That would mean the loss of all the valuable materials. One problem in that situation was to convince the authorities about the cost efficiency and usefulness of restoration techniques. The other problem, of course, was to find skilled people capable of carrying out restoration jobs. That made the restoration approach very limited.

Dartsch (1984), introduces 'Repair of building structures by concrete-techniques'. (pp. 153-160) Obviously these techniques are only viable in those countries where enough machinery and specialised tools, as well as skilled people are available. Generally the idea of repair instead of reconstruction is very significant.

Formis and Giovannozzi (1981), also introduce 'Methods of restoration and aseismic adjustment of masonry buildings'. (pp. 877-906)

Davis (1975a), explains about 'Stack sack', which was used after the Managua earthquake of 1972.

"This is a system developed by an American
engineering firm, Dicker Stack International,...The
system is very simple. A sand-bag is filled with

cement and is dipped into a tub of water. The bags
are then laid, stretcher bind in a concrete
foundation, 8. Small 8 inch mild steel bars are
then skipped into the wet sand-bags. The next row
of sacks spikes onto the vertical bars. The final
stage is spraying the surface with cement render.
A great advantage of the system that it can be
erected by an unskilled labour force" (p. 44).

So far, a series of technical reinforcement approaches experienced in
different disaster situations have been reviewed. Wherever
modification of indigenous buildings is concerned, the idea is also for
the survivors themselves or at least local builders to build the units.
One major approach has been the training of ordinary families or local
builders and masons in the new techniques. In the following section we
review some of these projects to see what the issues involved were.

4-4- Training and education- Holt (1981), in 'Some Observation with Non-Literal Communities', has discussed briefly problems of communicating with non-literate peoples in the third world. He writes;

> " Attitudes to disaster housing are changing. There is increased emphasis on helping victims of flood or earthquake to help themselves in rebuilding dwellings, as opposed to providing complete, pre-fabricated units" (p. 87).

Cuny (1983), on the same subject claims;

> "In earthquake reconstruction, there are three basic possibilities for housing assistance to victims. First, to provide people with the resources, money, or materials to rebuild; second, to provide a replacement house for the one destroyed; or third, to work within the usual system for building houses and teach better building methods" (p. 182).

Cuny (1983), introduces a case study of a reconstruction program from Guatemala which was implemented after the 1976 earthquake. He writes;

> "The three things that made Programa Kuchuba'l unique were the high degree of citizens participation and involvement at all levels of the program, the educational component, and the sophisticated strategies for utilising project funds" (p. 179).

Cuny (1983), continues;

> " The housing education programme that developed was the first attempt to use **housing education** as an approach to reconstruction following a major disaster. It was unique in giving priority to long-term objectives. The use of low-cost indigenous materials and support of the normal building 'profession' and processes were also unique and key elements" (p. 182)[my emphasis]

It is important to see why this shift from providing reconstructed units to the training and educational programmes has taken place. In relation to this Cuny (1983), admits; 'The realisation that relief agencies did not have the resources to build houses for everybody contributed to the decision to undertake a housing education program' (p. 192).

The main component of this program has been training the local builders or young people interested in training for a job. Cuny (1983) evaluating the 'contribution' of the 'Programa Kuchba'l' identifies the two short-term and long-term contributions. He says; 'In the short-term, the program helped alleviate the burden of reconstruction by providing materials that reduced the overall cost of rebuilding' (p. 189). He also continues;

> "The long-term contribution is also clear.
> Throughout the program, development objectives were
> stressed and, especially for those involved
> directly in the various project activities,
> permanent new opportunities were provided.
> Spin-off activities, such as the road improvement
> project, contributed to other development
> objectives, especially in the economic sector.
> Contracting the cooperatives as the agent for the
> materials distribution program helped to strengthen
> these institutions and enhanced their standing in
> the community. Finally, Programa Kuchuba'l has
> helped to reduce the vulnerability of the people to
> a future earthquake disaster by improving stock and
> developing the capacity of the local builders to
> construct safer housing" (pp. 189-190).

Obviously Cuny has taken the concept of development objectives very simply. His judgements on both short-term and long-term effects of the programme they executed in Guatemala are only based on his personal

ideas and he does not give any reliable data as evidence for such success. In fact it is the Guatemalan users whose views really matter for such a judgement.

Mckay (1981), talks about the same educational and training programme in Guatemala after the earthquake of 1976. Repeating the same observations, perhaps in more detail, under 'Lessons learned' she writes;

> "1- Reconstruction of permanent housing has proceeded at a much slower pace than anyone involved with the programme expected. A preliminary study of 20 villages in San Martin Jilotepeque showed that only 18.2% of the population had reconstructed a permanent house 2 years and 2 months after the earthquake. (Most of the people are still living in corn cane houses and other temporary structures).
> The housing education programme is dedicated to the principle of self-determination and letting the people decide their own priorities including when they feel they can reconstruct a permanent dwelling. Thus the programme has had to wait for the people to get ready and there have been fewer new houses to influence than originally anticipated.
> 2. With an educational programme such as this one can feel the pressure to measure success in the traditional terms of how many houses are rebuilt in a given amount of time...
> 3. Temporary houses, such as the small wooden houses provided in the department of Chimaltenango by the Red Cross have inhibited the construction of more permanent and formal housing..." (p. 101).

She also adds other issues such as the need to do more research on education materials, the need for a structural engineer standby to give advice and so forth. (p. 101) One of the most interesting observations she reports relates to the rising expectations of the local people. She claims that;

> "In rural Guatemala there has been a problem

related to rising expectations after the
earthquake. Expensive materials are considered
synonymous with safe materials. Everyone wants a
cement block house whether or not he can afford it
or even if it would not be a reasonable housing
solution considering where he lives. Thus there
are cement block houses being built without the
necessary (and expensive) steel reinforcement by
people who know nothing about working with cement"
(pp. 101-102).

Chisholm (1979), has written his dissertation about rural

housing in Bangladesh with special reference to post-disaster housing.

His dissertation includes an appendix on an educational chart programme

produced by S.F.C.A. (Swedish Free Church Aid). Mainly it is an

approach for the use of illustrations for teaching non-educated persons

how to use their own locally available materials. It shows the ways in

which bamboo can be treated to lost longer and also the ways in which

the poor rural families can strengthen their newly built shelters with

some additional elements such as wind braces. It is quite interesting

because it was produced many years before the Dhamar educational and

training programme by Oxfam in Yemen. (pp. 126-147)

Abedini Rad (1983), reports from a training scheme he has been

involved in after the earthquake of 1978 in Tabas, Iran. The idea of

self-help was in his mind when he started with two families to modify

their existing traditional rural techniques to make seismic resistant

buildings. However, he did not provide detailed information about the

training methods and materials he used for this purpose. Finally, he

admitted that although some interest to be involved was shown by

neighbours, the project ended in its 'pilot stage' because of financial

shortages. (p. 62-63) In our view, convincing the Authorities of the

use of a training programme is not easy. This relates to the

psychology of disaster and the position and role the Authorities may see for themselves. It is likely that the disaster damage be perceived by them more as material damage and therefore they may have a strong desire to see that building, and perhaps strong and modern building is under construction.

Leslie (1987), introduces an educational programme he has been involved with in Yemen after the earthquake of 1982. He was there as a member of staff of Oxfam and the author met him twice in London and Oxford to exchange ideas about our experiences. He is an architect graduated from Cambridge and has also worked with Coburn from the Martin Centre in Cambridge.

From this project Leslie published several articles. The first in March 1984 in a conference in Zurich, the second in 1986 in Disasters/10/3/1986. The third publication was in Open House International Vol.12.No.3. 1987. Meanwhile Leslie and Coburn have also produced a report for Oxfam in November 1985 entitled; 'Dhamar Building Education Project, Project Assessment'.

The idea of this training approach to reconstruction was very simple, instead of supplying building materials or building anything the training of local masons was started in new building techniques designed to withstand the next earthquake. This programme was especially interesting because of the need to use teaching techniques and materials suitable for illiterate people. They experimented several materials, including posters and drawings, photographs and even video. The demonstration of techniques was found very effective in teaching and persuading the local people to adopt the new technique. Leslie confessed that one major large problem with this approach was,

that those families who benefited most from this programme were the better off families. The poor simply could not pay for extra costs of materials for reinforcement and hire a trained builder.

The 1987 earthquake of Ecuador is among the most recent disasters for which reconstruction reports are available. As Dudley (1987 & 1988), reports they did make use of a training programme partly because there were problems of transporting building materials to the affected areas, he writes;

> "From the start we excluded the possibility of 'providing' new model houses because:*-it would be too expensive * - the population is so dispersed that any project involving bringing in large quantities of cement, blocks and steel would be impractical * -it would take far too long * -it would be socially divisive. Thus we wanted to help primarily through 'enabling' actions and education" (p. 62).

Dudley (1988), confesses that he was inspired by the Yemen training programme. (p. 114) He writes;

> "The offer had four components: * -building education * -a tool kit for each community
> -a salary for a master builder in each community for six months, and * -a standard contribution of roofing materials to each of the affected families" (p. 114).

Their reconstruction programme was based on moulding the corner of the mud walls by a trained builder and leaving the straight parts of the walls were built by the families themselves. Also training was given in how make stronger roofs. (pp. 62-65)

Dudley's conclusion from their modest approach is as follows;

> " We have learnt that with outside support but not external control, and with limited technical

objectives the people can achieve great things.
The character and long term presence and
perspective of CAAP in the affected zone made this
particular reconstruction programme possible. A
team of four people in CAAP, with occasional
technical advice from *Centro Sinchaguasin*, helped
the people of 80 communities build 1,500 of the
1,700 damaged homes in six months" (p. 120)[15]

One of the major issues faced in training programmes is the
communication with illiterate or semi-literate peoples. Bowers (1981),
in relation to this has written 'Some Thoughts on communication'. He
claims;

"There is a tendency to assume that written
materials are more or less useless in largely
illiterate communities, and that pictures are more
effective. There are three fallacies in this
seemingly logical argument. In the first place
there are very few communities in the modern world
which do not contain a smattering of literate
members who are ready to interpret the written word
to their illiterate brethren. Secondly the
understanding of drawings, photographs, etc. is
largely a learnt skill and research in many
countries has revealed that illiterate and
semi-illiterate adults have serious problems in
interpreting two-dimensional representations of
three dimensional realities. This phenomenon is
sometimes known as 'visual illiteracy'*. Thirdly
here is the difficulty of representing reality in
drawings, or indeed in photographs, and the
difficulty of finding people with the necessary
skill to communicate with the visually illiterate"
(pp. 93-94).

Windass (1981), reports from the reconstruction programme
following the 1977 Cyclone in Andhra Pradesh. Initially he explains
about some customs and beliefs associated with the traditional
construction of shelters. (p. 103) Then he writes;

15.See John Turners book 'Freedom to Build', 1972.

"The Appropriate Reconstruction Training and
Information Centre (ARTIC) was established in mid
December 1977 to fulfil a need expressed by many
voluntary agencies for an organisation which should
provide the following services.
A forum for exchange of ideas amongst agencies.
Information, technical advice and education on
housing, especially concerning policy issues and
ways to make traditional houses safer against
winds..." (p. 105).

Later he explains how they trained existing village carpenters and also

explains about the training materials they used, including Cartoon

books, Wall poster and Booklets. (pp. 107-108) He claims that;

"The modification represents an increase of about
5% in the total cost of a house or 10 days' wages,
a not insignificant sum, and for people living a
day to day survival existence the long term
benefits compared with today's expenditure may not
prove acceptable" (p. 108).

In brief it can be said that establishing training and educational

programmes as an approach to reconstruction of permanent houses is

becoming fashionable in the poor communities of the developing world.

Despite the problems of communication with ordinary and mostly

illiterate peoples the main idea is to improve the performance of

locally available materials or to teach the appropriate use of newly

provided materials. Two different groups might be trained; either the

local builders and masons or members of most affected families.

In the case of Bangladesh for instance the programme aimed to

educate all families and persuade them to strengthen their new

buildings, by showing them how it is possible to do it. In Dhamar and

Ecuador, on the other hand, the idea has been to train the existing

local builders or to train new masons. In both cases the problem of

affordability of the modifications will remain. In the second case, the additional problem is that many rural families can not afford to hire a builder, be he trained one or untrained.

However, training programmes have a big advantage for the intervenors, since they do not require material and cash imports on a large scale and they can run such a programme with just a few staff. Although in some instances the education programme has incorporated distribution of new building materials free or subsidised. All in all, it appears that education programmes have the big advantage of producing something; 'the skill' which remains in the community in the long term.

Conclusion: We are not going to summarise all the issues which have arisen through this long chapter about settlement reconstruction. Instead, we feel that a general personal impression would work better.

A review of the literature on post-disaster housing reconstruction over a period of two and a half decades, reveals a total shift in the attitude and policies of agencies and their supportive scholars. This is especially true in the context of the developing world. In sharp contrast to the goodwill of those who seek the bliss of 'One World', there is concrete evidence that 'north' and 'south', in terms of disaster have two different stories. To give an impression of the reality, in the northern hemisphere, in terms of emergency shelter, it is the question of the quality of 'mobile homes' that is scrutinised. In the south, however, the 'resourcefulness' of survivors is the major issue after a disaster and they must take refuge in shacks set up from the salvaged materials of their previous hut or mud house.

Call it a process of consciousness, or call it being cynical, as evidence of defeat and failure to see an effective response, this shift in policies has taken place as a change from 'idealism' to 'realism'. Implications of this total shift can be identified in all aspects of reconstruction. In terms of development, it is a shift from creating the 'utopian community' after disaster to the re-establishment of the 'status quo'. The Bengali rural survivors of the 1988 flood are awaiting the flood of 1989 to test their fate, and the squatter settlers of 'Rio' hoping the sloping ravine their shelters are built on will be kind for another year. On the same line Ecuadorian rural inhabitants live in hope of high performance of their 'earthen corner moulded' rooms.

There has been a shift in technology, from mass production of prefabricated 'quality controlled' units, to reinforcing masonry structures and finally under the blessing of 'appropriate technology' to 'stabilised earth'. In terms of material policy, it is a shift from steel and concrete to rammed earth and bamboo. From the design aspect a shift from 'modern' or 'western' design to traditional and vernacular layout. In terms of intervenors' aid a shift from providing a completed unit to limiting the donors' role, to establishing 'training and educational' construction programmes. From capital intensive approaches to purely cheap managerial intervention.

The literature is full of repeated stories, whether in Turkey or Iran, Latin America or India. The scenario is like this; An earthquake, flood or hurricane strikes a group of poor communities. The news of the disaster is followed by an appeal for antibiotics and tents. The government establishes a headquarters from which to operate the relief and rescue. The dead are buried, those injured treated, survivors evacuated or they remain inside the rubble and messages from the government announce that a totally new and modern settlement will be built.

Time passes quickly. Years after, visitors report that some of the survivors are still living in temporary shelter waiting for the reconstruction angels to come one day and do something for them. Those who were luckier and their settlement has been reconstructed are complaining because of the dislocation of their village. Their access to farms or jobs becomes troublesome. The houses provided are too small, so they cannot keep their animals, neither have they succeeded in finding an answer to the simple question of how to keep cows and

sheep in an 'apartment building'. Rooms are like saunas in the summer and like refrigerators in the winter. Roofs leak, joints open and rain and wind penetrate the houses. The design does not match the traditional life style and the householder does not find room for his extended family. Many houses are not occupied and many of those occupied are abandoned, those left are altered or modified by mud and bamboo structures. And unlike the time before the disaster, the community is no longer able to cope with its shelter needs. No doubt if this disaster had struck one of the so-called industrialised countries the story would be substantially different.

As this discussion had preceded promises were given that some of the outstanding issues would be elaborated in more detail. In addition to a section on 'War as a disaster' with a focus on rural issues, the following subjects will be studied in more detail in the following sections of the present study;

1-Development and reconstruction.

2-The opportunity to introduce change after a disaster.

3-People's participation in the reconstruction period.

CHAPTER V

DISASTERS AND DEVELOPMENT[1]

"Let's not fool ourselves, after a disaster is the most difficult time to work for long term development but it may also be the most important time." (Cuny, Disasters and the Small Dwelling pp. 196-197)

Introduction: When reconstruction of rural areas in Khuzestan Province started, the authorities debated whether the damaged villages should return more or less to their previous situation, or whether some improvement should be incorporated in reconstruction programmes. Evidence suggests that this issue has been one of the major preoccupations concerning several cases of reconstruction after disasters and it is one of the tasks that the present study needs to come to a conclusion about.

The author attended Development courses in the Politics Department because he felt this issue was so significant.[2] For the study of this topic more than a hundred pages of notes and reports were produced on different aspects of development theories, rural development and so forth.

In the study of the connection between disasters and development, three major observations can be mentioned;

    a-   The relationship between the development level of a society and the occurrence of disasters.
    b- The effects of disaster on the development of the community.
    c- Developmental objectives in the 'relief and reconstruction' period.

1.Part of the content of this chapter is included in a published paper by th author in an article named; 'Reconstruction and Development'. Open House International Vol, 13 No.3. 1988.

2.Most lectures and tutorials were given by Dr, Adrian Leftwich.

5-1- <u>Disasters and the degree of development</u>- Most natural

disasters occur in so called Underdeveloped or Third World countries.

Davis and Seitz (1982), claimed;

> "Numerous commentaries claim that disasters in
> general are more frequent or more severe (or both)
> in underdeveloped than developed countries.
> According to a 1972 (UNDRO) study cited by Ball
> (1979), 90% of some 300 disasters surveyed occurred
> in Third World areas" (p. 555).

Anderson (1985), writes;

> "An UNDRO study in 1976 estimated that 95% of
> disaster-related deaths occur among the 66% of the
> world's population that lives in the developing
> countries....between the 1960's and 1970's, while
> the number of natural disasters increased by 50%,
> the number of deaths from these disasters increased
> by 600%! Similarly, while the average annual death
> toll from natural disasters in Japan is 63, in Peru
> it is 2,900" (p. 46) (see also Cuny 1983, p. 3)

As another example we also refer to Shah (1983), whose study

found that 'average loss of life per disaster impact' (between

1947-1980) in North America was 32, while the same figure for Asia

accounts for 2,412 deaths. (p. 209) During the same period 1,054,090

people perished in Asia alone, compared with the relatively minor

figure of 11,531 people in North America. (p. 206)

Having discussed the concept of vulnerability and its roots in

the socio-economic status of the community in one of the previous

Chapters, it is clear that the poor suffer most from disasters. In

other words, <u>vulnerability to hazards can be defined as one of many</u>

<u>consequences of poverty and underdevelopment</u>.

5-2- Disaster impact on development- Whatever our definition of development, though this is crucial, it is also clear that disasters do destroy some of the resources, material and non material, necessary for the development of the community. Disasters can kill or injure people, damage or destroy infrastructure, buildings, industries etc. Some of these losses, human lives for instance, are not replaceable, where as the replacement of material losses will consume extra resources which could have been spent on the improvement of the same community.

Some people have attempted to illustrate the relationship between disaster and development in a graphic way. For example, Schramm (1985), introduces 'a three dimensional model showing the disaster development continuum', and the 'temporary break' disaster causes in the ongoing development of the community. (p. 42) Anderson (1985), also briefly introduces the 'Cuny - Beaumontmobius Strip'. (p. 50) The same concept is also explored by Cuny (1985) and its summary reported by the editor of the journal. (p. 27)

5-3- Reconstruction and development- Besides the two previous facts, a third point has emerged from disaster relief and reconstruction in developing countries. Many communities once supported by relief or aid, were found to be susceptible to further catastrophes. Bangladesh is such an example, for despite decades of help from various agencies, it is still regularly troubled by new disasters, particularly floods. This has led to a new understanding of disasters. Instead of perceiving them as separate and individual events, they must be considered in a broader context. It was thought that if the relief and reconstruction efforts were addressed the roots of poverty and underdevelopment, the degree of vulnerability would 'automatically' diminish. Whether or not this is possible, to what extent and what obstacles are confronted is the theme of the present section. (see for instance, Cuny, 1983, p. 15)

Along the same line, intervenors gradually became aware that in many cases, their short term help, had negative effects in the long term on the communities concerned. Very often surviving communities became dependent on aid and their previous coping ability was not only not enhanced but was weakened. For example, Mirren (1985), refers to the role of engineering in disaster response and his main point is that for the sake of long term development, it would be more convenient to use 'labour based' approaches instead of technological ones. (pp. 96-97)

Frequently even the primary objectives of reconstruction were not achieved. There are abundant examples of houses supposedly reconstructed to withstand further disaster which when finished, were found to have little more resistance when tested in another hazard.

(See for example D'Souza 1986) These observations encouraged the agencies to review their approaches. In fact this is the main theme of Cuny's 1983 book 'Disasters and Development'. Part of this book reads;

> "The disaster and the havoc that it causes form only one part of the picture. The ways in which agencies respond to disasters and the implications of that response for the development of the affected countries are of major concern, for inappropriate response, constituting a second disaster, occur frequently" (p. 89).

Thus there seem to be two major questions to answer: first, how is it possible to reduce or ideally eliminate any negative effects of relief and reconstruction efforts, and secondly, what chance is there of incorporating developmental objectives in reconstruction after disaster? Or, to what extent can reconstruction programmes address the fundamental necessities of the stricken community? In this section we explore some of the relevant basic issues.

What is development?

["Everybody wants development, but what does it mean?"]

(Todaro, 1985, p. 61)

Disaster literature is confused about the meaning and therefore, the objectives of development. It is surprising that Cuny in 'Disasters and Development' 1983, while giving a good analysis of hazards and their impacts on communities, has not designated a separate section to define what he means by development in the first instance. At one point he writes; '...development:stronger housing, better agriculture, a more diversified economy, and more responsive

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governments" (p. 13). In another place in the same book Cuny claims;

'Development: the modernisation of a society' (p. 262) If Cuny thought

that the concept of development was universally agreed upon, he could

be mistaken.

The 'Conference Findings' in 'Disasters and the Small Dwelling'

reads;

> "It was apparent that various speakers and
> delegates had different understandings of the
> nature of 'development', and also on the issue
> whether or not disasters provided any 'unique
> opportunities' for development activities by relief
> agencies" (p. 196).

We would like to claim that such a confusion is not restricted

to disaster studies or agencies involved in relief and reconstruction,

but has been a matter of continuous debate for decades among

development scholars. What is significantly important is that not

having a clear understanding of the definition of development in the

first instance, could only lead to a series of misconceptions in

discussions and conclusions there after. In our view these

misconceptions are apparent in much disaster literature.

"It matters little how much information we possess about development *if*

we have not grasped its **inner meaning**. Denis Goulet, The Cruel

Choice" (quoted by Todaro 1985, p. 61) [emphasis added]

In 1984 an 'Institute' was organised, sponsored by Harvard

University's School of Education to discuss the topic of 'Disasters and

Development', which its proceedings was published as a supplement to

'Disasters Journal' in 1985. The supplement included several useful

articles, one of them represents an adventurous definitions of

development proposed by Mary B. Anderson (1985) in that 'Institute'. Her explicit idea is manifested in the following phrase; '... -Disasters are indicators of the failure of development -Development is the process of reducing vulnerability to disasters' (p. 46). She then continues to analyse this definition in more depth, saying; '... Individuals and societies may be vulnerable in three areas: the material, the organisational and the socio psychological' (p. 46).

In terms of 'material invulnerability' she claims that there is a minimum that everybody needs to survive: the so called basic needs.

> "Material vulnerability is reduced when resources
> for meeting basic human needs are sufficient both
> for present consumption and for sustaining a
> community through a non-productive period which
> might be caused by a crisis event" (p. 47).

Obviously there are many debates about that 'minimum sufficient for meeting basic needs' can actually mean. (see for example, Stewart 1985, pp. 2-5 and Lisk, 1985, p. 23)

What Anderson later tries to explain is that in terms of material vulnerability, not only are the poor vulnerable, but also those who have too much wealth. They may be more vulnerable than poor families and communities. In another word, the poor families may lose less because they do not have much at all. She argues that we have not succeeded eliminating vulnerability to technological disasters and in that sense, modern life is in some respects more hazardous than the old life. She also raises the issue of dependency, associated with technology transfer to developing countries, as a kind of new vulnerability. (P. 47) Her statement is a reminder of Schumacher's

small and beautiful world.[3]

Concerning organisational vulnerability she then claims;

> "The **organisational capacity** to cope with crises is
> of equal importance to the material/resources
> -based capacity. A poor community which is closely
> knit and neighbourly may withstand or recover from
> a natural hazard more effectively than a wealthier
> community where social and political suspicions and
> divisions exist" (p. 47). [my emphasis]

The theme of organisations and institutions and their role in coping with crises in the community, has also been raised and highlighted by others. Cuny (1983), clearly emphasises this matter and Dudley (1988) was also concerned about this subject when he entitled his article 'Strong Buildings or Strong Institutions?'.

Anderson then confesses that institutional strengthening is not simple. She claims;

> "While both development and emergency relief
> programmes may directly address material
> vulnerability and help in disaster prevention by
> helping ensure adequate material resources, it is
> much more difficult for such programmes to reduce
> organisational vulnerability" (p. 48).

Thus she takes an optimistic view and advises caution about organisational damage in the stricken communities due to intervention.

> "However, while the creation of organisational
> strength may be difficult for external aid
> agencies, they may promote the climates, or
> encourage processes that, at least, do not
> undermine or weaken existing organisational
> capacity if they intend to address the issue of
> reduction in organisational vulnerability" (p. 48)

3.See for instance, 'Small is Beautiful', Schumacher 1973 and 'Small is possible' by McRobie 1981 or Kitching 1982, pp. 92-102.

Anderson (1985), then tries to identify another area of vulnerability.

Since the terminology is new it remains to some extent obscure.

However, she writes;

> "Finally, socio-psychological invulnerability must
> be of equal importance to material and
> organisational invulnerability, though we know much
> less about it....In another publication, I have
> suggested that, in addition to the three
> traditional neo-classical factors of production of
> land,labour and capital, there is an equally
> important fourth productive factor: ideology
> (Anderson 1978). Ideology, when joined with the
> other three factors of production, may greatly
> increase productivity in certain situations" (p.
> 48).

The next step Anderson takes towards opening her 'new idea' is to put

it in the context of existing development theories and to see what

differences and similarities emerge. She writes;

> "The understanding of development as a reduction in
> the degree of vulnerability reflects and
> incorporates elements of past development
> definitions and measures in several ways. These
> differences, in turn, suggest new approaches to the
> design and implementation of development projects
> and programmes, whether undertaken as a part of
> national development strategies by the governments
> of the Third World or as a part of the aid programs
> of intentional agencies" (p. 49).

Summarising development theories and trends throughout recent history,

she writes;

> "W.W. Rostow, launching the development approach
> of 1960's ...focused on the economic/material base
> of development...He was soon challenged by others
> who, concerned with the maldistribution of economic
> growth, stressed the 'social indicators' of
> development. Raymond A. Baur et al (1966) shifted
> away from the sole focus of development on 'how

> much' to include considerations of 'how good' and
> 'for whom.' Also concerned with distributional
> issues, 'the growth with equity' school of
> thought..World Bank....merged their concerns with
> equity and Rostow's focus on economic
> determinants" (p. 49).

But where does this new definition fit into the long string of theories and definitions? This is her explanation; 'The reduction of vulnerability definition of development goes one step further in integrating the material and non-material components of development' (p. 49). The real trouble starts when she comes to the conclusion;

> "By this definition, no nation is yet fully
> developed (i.e. invulnerable to all points). At a
> fundamental level, the reduced vulnerability
> definition challenges much of so-called development
> achieved to date by the northern tire insofar as it
> has produced new threats to the ecosystem on which
> all societies depend" (p. 50).

Anderson's definition, though it seems very challenging, still contains some problems. Firstly, there is no evidence that any development by this definition is achievable in the real world. For instance, concerning environmental aspects, the welfare of the world population is closely based on more and more exploitation and extensive use of natural resources. In our view, it is naive to believe that the present population of the world can return to a mode of isolated tribal-fashion life, living scattered on the land and in a natural balance with the environment. This problem is conclusively explored by others. (see for example, Riddell 1981 on Ecodevelopment).

The second problem is that Anderson' definition is totally based on 'survival' or elimination or at least reduction of 'vulnerability'. But man does not only live to survive, rather in all aspects he is

every day challenging some sort of progress and development. In another word, for man it is not enough to survive, it is his nature to move, to discover and explore and to achieve a higher or better degree of welfare, both in a material and a non-material sense.

Dudley Seers wrote two articles entitled 'The meaning of development' published in 1969 and 'The new meaning of development' 1977. In the first one he writes; "...We cannot avoid what the positivist disparagingly refer to as 'value judgements'. 'Development' is inevitably a normative concept, almost a synonym for improvement. To pretend otherwise is just to hide one's value judgement" (p. 10).

The next step is to see where we get our judgement values from. He then explains that the yardstick for judgement, in other people's view, might be taken from the government or history. By the latter, he means that the present situation of some of the so-called developed nations, might be perceived as a model for others to copy. This is more or less defining development as modernisation. Then he claims that those rich countries are not necessarily good models since they have many hazards, such as industrial pollution, which are not desirable. On the other hand, there is no evidence that so-called undeveloped countries are able to follow and achieve the status of the present rich nations, even if they wanted to.

Seers (1969), then moves to the question of 'If values are not to be found in politics or history, does this mean that we are each left to adopt our own personal set of values?' and he answers; 'Surely the values we need are staring us in the face, as soon as we ask ourselves: What are the necessary conditions for a universally acceptable aim, the realisation of the potential of human

personality?' (p. 10).

In brief Seers is trying to find a universally acceptable definition for development. Seers then identifies three main elements for his definition; first sufficient 'food and shelter',.. second, 'employment' and thirdly 'equality'. (p. 11) He writes;

> "The questions to ask about a country's development are therefore: what has been happening to poverty? what has been happening to unemployment? what has been happening to inequality? If all three of these have become less severe, then beyond doubt this has been a period of development for the country concerned" (p. 12).

In the 'The new meaning of development', 1977, Seers claims; 'The time is indeed ripe for another critical look at the meaning of development. ..The essential element to add - as is being widely recognised - is self reliance' (p. 27).

We can raise serious questions about the values Seers refers to, to build his universally acceptable definition of development. It is possible to take the argument one step back and to ask, for example, what are the 'basic needs' and how it is possible to qualify and quantify them. This issue itself has been debated by others. (see for instance, Stewart's 'Basic Needs' 1985, pp. 2-5). Seers frequently uses phrases such as 'self-respect', 'development of personality', 'potential of human personality', 'fulfilment of human potential' etc. These are all words with various interpretations which in different communities are perceived differently, so how could they be universal? Our conclusion from this argument is that any definition of development is a philosophical or ideological matter and will change from one society to another. However, with Seer's definition of development one

major question remains, he does not suggest any ideal model of development for the so called developed countries, for instance, we can ask what is the ideal level of consumption for those who have choice?

Kitching (1982), in his book 'Development and underdevelopment in historical perspective', reviews the history of development theories. In this book he takes a basic argument, 'an old orthodoxy', giving 'industrialisation' as the pre-condition for development. He brings forward two theoretical and empirical reasons for his claim. (pp. 6-15)

In relation to the definition of development Kitching (1982), says;

> "...I have talked about 'developing' societies and economies and of 'development' as if these were concepts with an obvious or agreed meaning. In fact, however, this is not the case, and....there has been great debate about the meaning to be given to the idea of 'development' ..." (p. 15).

Concerning the complexity of development he wrote;

> "Fundamental changes in the economic and social structure of human societies, total shift in their forms of production and ways of life, do not, even in this century of government-directed development efforts, occur overnight. They do not even occur in a decade or two, even in the most dramatic cases (such as Japan or the Soviet Union). On the contrary thirty years is the minimum for even basic changes, and other shifts, in social practices and in values and attitudes, may take fifty years or even a century" (p. 123).

We brought up this example to make it clear, that those who over simplify the expression of development, by assuming that sufficiency of food and new buildings could alone represent development are mistaken.

Todaro (1985), seems to be in favour of Seers' definition of development. Looking to the present situation of the developing world he claims;

> "Development must be redefined as an attack on the chief evils of the world today: malnutrition, disease, illiteracy, slums, unemployment and inequality. Measured in terms of aggregate growth rate, development has been a great success. But measured in terms of jobs, justice and the elimination of poverty, it has been a failure or only a partial success. Paul P. Streeten, Director, World development Institute" (p. 61).

In the next step he attempts to pull together some elements from different definitions and to establish his own version;

> "Is it possible to define or broadly conceptualise what we mean when we talk about development as the sustained elevation of an entire society and social system toward a 'better' or 'more humane' life? The question, what constitutes the good life? is as old as philosophy and humankind" (Todaro, 1985, p. 85).

He then attempts to define development;

> "But we believe ...that at least three basic components or core values should serve as a conceptual basis and practical guideline for understanding the 'inner' meaning of development. These three are *life-sustenance, self-esteem,* and *freedom,*representing common goals sought by all individuals and societies" (p. 86).

Todaro by 'life-sustenance' later explains that he means 'the ability to provide Basic Needs'. He says; 'basic human needs include food, shelter, health, and protection.' (p. 86). Then he writes; 'A second universal component of the good life is self-esteem, a sense of worth and self-respect, of not being used as a tool by others for their own

ends' (p. 86). He then adds; 'A third and final universal value that we suggest should constitute the meaning of development is the concept of freedom' (p. 87).

The problem with Todaro's definition, as was the case with Seers' is that the values he refers to are difficult to generalise, since they are moral values and their concepts may change in different cultural and ideological contexts. Is it really possible to define a universal 'freedom'? We know that this phenomenon has several different boundaries among Western, and Eastern thinkers, both of which are different from what we understand for example in Islamic ideology. Moreover he does not give any account of the role of wealth which currently many people consider it as a necessary element for comfort and development. Again like Seers he limits his definition of development to 'survivor'. The question is whether survivor is equal to 'good life'.

The importance of the 'definition of development' is that the objectives and concepts of Development Plans necessarily stem from it. Todaro (1985), after giving his definition, moves on to list the three objectives of development and he writes;

> "1. To increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health, and protection.
> 2. To raise levels of living including, in addition to higher incomes, the provision of more jobs, better education, and greater attention to cultural and humanistic values, all of which will serve not only to enhance material well-being but also to generate greater individual and national self-esteem
> 3. To expand the range of economic and social choice available to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states but also to the forces of ignorance and human misery"
> (p. 87).

Riddell (1981), under 'the development concept' writes;

> "The process, development, like the condition, underdeveloped, is an expression with many meaning. Some employ the word when 'change' alone is meant, others when they mean 'gain' or 'profit'. One helpful understanding of the term is that development implies change in favour of general human improvement, and change of two kinds, usually links: expansion in consumption and enhancement of welfare. Development is thus both a material and an organisational matter" (pp. 3-4).

To identify the roots of the present situation of so called underdeveloped countries he claims; 'A moral case, of deep concern, arises where it is proven that Northern prosperity is the result of Southern denial' (p. 5) He shares this view with others such as Macdonald 1981.

Our aim so far has been to get an insight into the issues and complexities associated with development theory and practice. We did not attempt to explore the content of different development theories, rather to highlight the confusion which exists within disaster literature about the meaning of development. It was also found that the definition of development, regardless of disaster has been a matter of continuous debate and has had many definitions over the years. It is dubious whether there is any universally acceptable definition for development, it seems that any definition must be built on philosophical and ideological premises. This is a very important issue since nowadays in revolutionary Iran such a task is on the agenda of both the state and the scholars.

It was also revealed that development contains both material and

non-material components. It is dangerous to limit it to employment or strong building. In addition it can also be assumed that the development process is a multi-faceted task. The global improvement of underdeveloped communities requires integrated action.

A glance at the development forum, (January-February 1989), which talks about 'The seven Sins', provides an outline of the problems of development planing and progress on an international scale. This report confesses that most new ideas and plans for development on an international scale have not gone any further than micro projects, therefore have a minor effect on the communities involved. The application of the new ideas and technologies to the broader scale, the report suggests, must be the challenge of the next development decade. (p. 24)

Very often disasters strike vulnerable rural areas of developing countries. Thus reconstruction in this context is concerned with rural development issues. It seems necessary to review the definition, approaches and scales of practice of rural development. This would help the later discussion, with the possibility of incorporating developmental objectives after disaster.

Rural development- According to the World Bank (1975), '80%' of the poor population of developing countries is rural, (see also, World Development Report 1988), thus the first step is to have a definition of the term 'rural development'. The World Bank (1975), reads; ' Rural development is a strategy designed to improve the economic and social life of a specific group of people - the rural poor' (p. 3)

By that definition, the same reference explains that;

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"The objectives of rural development, therefore,
extend beyond any particular sector. They
encompass improved productivity, increased
employment and thus higher income for target
groups, as well as minimum acceptable levels of
food, shelter, education and health" (p. 3).

It is true that very often rural buildings are susceptible to hazards.
Reconstruction then aims at rebuilding the houses with some
modifications to achieve a higher resistance. But the question is how
important is housing in the overall development of the communities. In
fact, the roots of poverty in rural areas of developing countries, are
deeper. The primary obstacle, very often, is that the peasants and
labourers do not have access to land of their own and this means they
can not build up an income of their own. They are at the mercy of
their landlords who totally control their lives by exploiting their
labour for very low wages.

"Land policy has obvious implications for the rural
poor, given that their incomes depend on the extent
to which they control land and its output. In many
instances, therefore, land reform is a necessary
part of a rural development program" (p. 6).

In how many cases can a reconstruction programme really address the
land issue? We believe that it is unlikely that such problems could be
dealt with by agencies involved after disasters.

Another important fact is the scale of development planning. It
is simple to write off the possibility of any contribution to the
development of rural communities, by stressing the necessity of
their co-ordination within the national development plan. Though,
basically, this is the case, development projects might still be

designed and implemented on smaller scales. The World Bank (1975),
claims;

> "Ideally, the planning and implementation of rural
> development programs involve adequate regional
> planning, strong central co-ordination, effective
> local level organisation and the participation of
> the rural people in the planning and implementation
> process. Few countries have been able to come
> close to this ideal" (p. 6).

Obviously reconstruction after disaster is usually restricted to the
damaged areas, a few villages for example, but how effective this can
be in an enclosed area, is a matter of concern. In relation to this
the same document reads;

> "Experience indicates that a strong commitment to
> rural development at the national policy level is
> necessary if the impact is to be effective and
> broad-based. In many countries, the commitment is
> lacking" (p. 6).

For different approaches to rural development see Poostchi (1986), (pp.
5-6). He classifies the approaches into the two groups of 'Extended
and Integrated'. On the other hand the World Bank has three approaches
divided into the following categories;

> '1-The minimum package approach
> 2- The comprehensive approach
> 3-Sector and other special programs' (p. 8).

For a long time the practise of rural development programmes
which only focus on some aspects of rural life, agriculture for
example, have been obviously doomed to failure. We have already argued
that change and improvement in other aspects of poor communities, such
as organisation and even culture is also necessary. 'Integrated rural

development' is a manifestation of this idea. Lea and Chaudhri (1983), in relation to this claim state;

> "Thus, the phrase 'integrated rural development' was coined for those situations where planning objectives had some or all of the following interrelated attributes in common:
> (1) To improve the living standard or 'well-being' of the mass of the people by ensuring that they have security and that their basic needs such as food, shelter, clothing and employment are met.
> (2) To make rural areas more productive and less vulnerable to natural hazards, poverty and exploitation and to give them a mutually beneficial relationship with other parts of the regional, national and international economy.
> (3)To ensure that any development is self-sustaining and involves the mass of the people (this involves among other things encouraging self-reliance and public participation in planning).
> (4) To ensure as much local autonomy and as little disruption to traditional customs as possible. The former usually means promoting administrative decentralisation and political self-government"
> (pp. 12-13).

As it can be seen reducing the vulnerability of the rural communities to the disasters is one among many other necessities of rural development. The main trouble is that addressing the vulnerability aspect without incorporating it with many other important requirements of the rural communities can become waste of resources. The same authors, concerning the scales of planning argue that;

> "A rural development project is a single, grassroots, or micro-level attempt at bringing about a specific type of change in a specific rural area, say a village or a group of villages." (p. 16)
> "Rural development programmes, unlike projects, ...deal with a number of related and carefully orchestrated mutually supportive activities which cannot be seen as discrete projects. Ideally a number of grassroots (micro) rural projects should aggregate into a rural development programme but in

practice they never do. Part of the reason is that
in the area of development the whole is always
greater than the sum of the parts" (p. 18).

What are the main ingredients of a rural development programme? Let us

investigate Lea and Chaudhri's answer.

"Any strategy of rural development has a strong
implicit or explicit ideological orientation...
The following basic elements are common to all
strategies of rural development. Their
organisation and interrelatedness is, as explained
below, uniquely different in different strategies.
(1) Land policy;
(2) technology policy;
(3) employment policy;
(4) education, research and extension policy;
(5) rural institutions policy;
(6) price policy;
(7) linkage with the rest of the economy" (pp.
19-20)

All these explanations may help to achieve a deeper understanding of

the scale, objectives and sophistication of rural development plans.

In our view, it seems that disaster literature and agencies involved in

relief and reconstruction have simplified this task for their own sake.

Regardless of the hazards, development programme implementation in

practice is not straightforward. The following is perhaps a cynical

view, but nevertheless has elements of reality. Knippers Black

(1985), writes;

"An American who has spent more than 20 years
trying to promote development in Latin America says
that development work is rather like shovelling
smoke. No precise boundaries can be drawn; no
projects are ever concluded; no results are
definitive; and no assessments are entirely
reliable" (p. 527).

The same author then introduces 'ten Paradoxes' of development some of

which are as follows;

"1- Development programmes Are Given Imputes Not by Underdevelopment, but by the fear of Development that is Not programmed from Above.... The objectives of the best financed programmes are the channelling and control of the initiatives of the poor.
2- To Every Solution there Is a problem (Exchanging feudalism for Capitalism)
3- The Longer a Development Agency Has Been in Existence, The Weaker It Will Be;
4- In Ecuador there is a Need for Technicians Who Are Less Well Trained
... Rural people customarily speak of officials of the Ministry of Agriculture as "homobres sin piernas' (men without legs) because, it is said, they never get out of their jeeps.
5- Treating the Symptoms May Prolong the Illness (development Programs May Divide and Demobilise)
... treat the symptom of poverty without dealing with its structural roots.
6- Credit Is Extended Only To those Who Do Not Need it.... The poorest peasants are often afraid even to seek bank loans, ...for fear that the bank will seize their land.
7- He Who Pays the Piper Does Not Necessarily Call the Tune.... ' It would be most naive to suppose...United States are greatly concerned about the welfare of Ecuadorian ...
8- The Impact of Rural Development Programs Is Most Apparent in the Cities" (pp. 529-547).

Whether these observations are relevant to all situations is not certain. Nevertheless a degree of reality exist in all these comments in case of top-down development plans. Perhaps, the distance urban based and trained officials or specialist of rural affairs keep with the villagers is a common problem. It is so with the loans which the banks apparently intend to make sure that the recipient is capable to pay back the money. In this case those who are better off not only knew of the procedures of applying for the loan but in fact can make a better use of this opportunity by presenting enough certification to

the bank will make use of it.

From this brief introduction to the definition and concept of rural development, several issues emerged. The rural settlers of developing countries are poor and at risk from natural and man-made disasters. Rural development plans should aim at global change in the life and welfare of these communities. Ideally the plan should be integrated to encompass several aspects of their lives. This has the difficulty that the integrated development plans naturally become top-down plans. In any case, land ownership is a fundamental issue, it is well established that a high proportion of fertile land in developing countries is owned by a small wealthy landlord group.

Rural development plans can take several forms and scales. What is obvious is that micro and isolated single sectorial projects, can have only a minor effect and whether any improvements are sustainable in the long term, is suspect. In fact this kind of activity is what the 'charity industry' of the industrialised world is often engaged with in developing countries. Until more recently they have failed to address the roots of vulnerability and poverty. In fact the action they take can undermine the way of life of rural people as much as put it up. Food aid is a good example. Imported food encourages dependency and communities loose the means to cultivate for themselves. In these circumstances they are vulnerable to pressures from all quarters. The voluntary agencies have a seemingly sound philosophy; 'something is better than nothing'. It is of course difficult and perhaps unacceptable to stop these agencies providing this emergency aid. And it has to be said, that the lessons learnt from the case of Ethiopian famines, first in 1970s and then again ten years later in

1985 have helped to shift aid to long term agricultural development. But we should never forget that the foundation of the problem is that these people are poor and lade resources of all kinds because of political and economic games being played by the rich countries.

5-4- Discussion- We have reviewed the meaning and objectives of development and rural development, now it is time to see what it really is possible to do about development after disasters. We build our argument on two foundations; first a theoretical reasoning and secondly a review of the empirical records.

a- Theoretical argument- At this stage let us examine the ways in which development of the stricken community can be seen in a post-disaster situation. Initially three options can be assumed;

1- to ignore any developmental objectives and to re-establish more or less the previous situation;

2- to only improve the resistance of some vulnerable aspects, housing for example; and

3- to launch development projects, with or without the second option.

As far as the first option is concerned, there is no argument, that without development objectives the negative effects of intervention could always occur.

As far as the second option is concerned, it is important to see what significant role housing improvement can play in the overall development of the community. Cuny (1983), writes;

> "Recognising poverty as the primary root of vulnerability and disaster in the Third World, is the first step toward developing an understanding of the need for change in current disaster response practices. *For if the magnitude of disaster is an outgrowth of underdevelopment and poverty, how can we expect to reduce the impact with food, blankets, and tents, the traditional forms of assistance?* (p. 15).

Davis (1983), in 'Disasters as Agents of Change?' argues that the

disaster makes communities aware of destruction and persuades them to find counter measures to eliminate future losses.

> "There are three contexts in which these risks can be addressed: existing buildings, new buildings, and reconstruction. By far the most difficult context is that of the existing building stock.... Such families have other more pressing risks and priorities to contend with than protection against a long-term hazard such as an earthquake which last occurred 'when grandma was a small girl'" (p. 295).

It is this knowledge of all the needs of the survivors and matters of priority, that in some cases, has convinced agencies to disregard any housing reconstruction after disaster. And to come to the conclusion that the resources designated for house building can be shifted to the more chronic and fundamentally important needs of families, such as agriculture and education. (see for example, Winchester, 1981 p. 157)

Apparently development programmes can be launched at any time and their success or failure depends on many circumstances, which are out of the focus of the present study. Agencies' or governments' decisions to initiate development programmes immediately after disasters, knowing that disaster is a state of change, are based on two assumptions; first that in comparison with normal situations more resources are available after disasters, and secondly, that the stricken community is more prepared to accept changes in their life style.

We have already explored the truth of this latter assumption in the previous chapter. It was found that as far as survivors of a disaster are concerned, there is no evidence that such a higher degree of acceptability exists. In fact, mainly the agencies and governments

were found to perceive such a chance. Therefore, if there is a government really concerned with the welfare of its population, development could and should be its task even without a disaster. Working under the temporary pressure resulting from the havoc of the hazard, in our view does not provide sufficient stimulus to lead to a long term and realistic improvement in the lot of the poor communities.

The other underlying assumption of the availability of more resources is also in our view much over trumpeted. There are several reasons for criticising this assumption; first, there is evidence that the donations from other countries and what the agencies bring with them contributes only a minor percentage of all that is spent on reconstruction. Even without any further development costs, Cuny (1983), talks of between 30-40 percent (p. 3) and Davis (1977b), states that something around 20% of these costs may come from other sources than the national resources of the stricken community (p. 21). Both might be optimistic and the real percentage might be much less.

In any case one thing is certain, the burden of financing reconstruction after disasters in developing countries is felt most and borne up on the shoulders of the same community. Even if more resources are temporarily allocated for the stricken community, this will be at the cost of putting pressure on other areas of the same country and with the corresponding cost of halting other development programmes or projects in other parts of the country. These plans would presumably could have been well studied and prepared in normal times and thus would have had a greater chance of success as a result. In brief, as far as global national development is concerned, spending money in disaster areas may not be the best option.

In addition, one can argue that the availability of funds, although necessary, does not necessarily have the most significant role in the development of the community. Wealth does not equal development. A glance at the World Development Report indicated that the wealthiest nations of our world are the 'high-income oil exporters', such as Kuwait and Saudi Arabia, whose 'GNP' per capita is much higher than the United States. Still by any definition of development, there is evidence that in terms of many indicators applied to measure their degree of development, such as life expectancy, the illiteracy rate and infant mortality, they must be counted among the developing countries.

There are other important issues to raise at this stage. Disasters are selective in their damage and area. Development plans on a regional or national scale do not necessarily follow the order of disasters. In an area where for example, education or land reform and agriculture are the major priority, an earthquake may damage the housing stock. Reconstruction then has to focus on housing while it is only the immediate need of the given community. If the reconstruction ignored house building and focused on other developmental issues, then it is hard to call it 'reconstruction'. It then will have the same chance as any other development programme for success or failure.

Disaster reconstruction is a matter of a limited period, while development plans are matters of long term commitment. Development plans should be based on empirical data and a close study of the communities to find the benefits and costs involved. The immediate urgency after a disaster does not permit such studies and data collections.

Another major point for which we have evidence from Khuzestan, Province, is that if the reconstruction is going to address the welfare of the survivors, their post-disaster status must also be compared with other areas not stricken by a hazard. For example, Khuzestan farmers are usually much wealthier than peasants in the Kerman Province, where there are several rural communities that have no access to a clinic at all. They also have land problems and there is no river to supply regular water to their farms. The question is whether when they are compared with Khuzestan farmers, though the latter are war refugees, the land-less peasants of Kerman, on humanitarian grounds, deserve higher priority for attention and resources.

b- Practice of development after disasters- In the next chapter we will reefer to Drabek (1986) that several studies indicate no significant trend for accepting change in communities because of disaster. We also brought forward several case reports of post-disaster housing reconstruction and the long term problems they caused in the community. Let us review a few other experiences and see what will emerge and why.

The Conference Findings in 'Disasters and the Small Dwelling' in part reads;

> "Subsequent to the conference Mary McKay has made the observation that statement suggesting that ' Disasters are unique opportunities for development', or that 'temporary injections of financial and technical aid may be essential for development' have been proven to be false. She suggests that there are three myths still subscribed to:
> A. Large injections of money equals development.
> B. Development can be defined in terms of *things* (such as big dams or nice houses) rather than in

the development of *people*.

C. Development means converting people to a superior 'modern' or 'western' life style....

If you understand development to be defined in terms of human development, it is clear that the time following a major disaster is a particularly difficult, time to develop self-confidence, leadership, technical capacity, community organisation and self-reliance. The impact of the disaster itself plus the many activities of other organisations (busy taking care of people) are going to be in direct opposition to your development goals. Therefore, in planning a disaster relief programme, you must be even more careful than ever to respect local initiative and self-determination and and to strengthen local organisation and self-confidence.

Let's not fool ourselves, after a disaster is the most difficult time to work for long term development but it may also be the most important time" (pp. 196-197). [emphasis added]

Sibtain (1984), reports his experience of reconstructing an earthquake damaged village in Afghanistan. Despite his claims concerning integrated development and so on, his work is completely top down, artistic, full of stranger ideas. Houses he built only resemble traditional houses in 'Form'. It is no surprise that he has studied in a school of 'Art'. He has imposed communal toilets and stables, using dome shaped roofs etc. The village was very small with '25 dwellings'. His plans and illustrations are reminders of the colourful drawings of second year architecture students. (pp. 167-176) What is most disgusting about his work is that he did not realise the mistakes he had made and at the time of his next visit, he still believed that he had succeeded in building the utopian village.

Johnson (1985), from American Friends Service Committee (AFSC) scrutinises the applicability of the earlier definition of development proposed by Anderson (1985). He writes;

"Question: What is development, and what does AFSC
try to do about it in its work outside the United
States?
Answer: ' Development is a process through which
people's vulnerability (economic, social,
political, personal) is reduced'- a definition that
emerged during the 1984 Institute on Disasters and
Development sponsored by Harvard University's
School of Education, in which Corinne Johnson
participated" (p. 36).

The author brings examples of four projects they were involved in in

Chile, Kampuchea, the Gaza strip and from Mali in Africa. Through

these examples he attempts to reveal how agencies are facing

situations, prohibit any significant achievement towards the goals of

development as defined earlier. For instance from Chile, where they

launched a health programme he claims;

"The dilemma is clear - as people are strengthened
on one arena, health and community, are they made
more vulnerable in another, the political? The
program tries to address this totality and to avoid
decisions that expose people beyond the exposure
they themselves have chosen" (p. 36).

From their involvement in agricultural promotion in Kampuchea he

concludes that ;

"For development activities, we have had to rely on
funds from non-U.S. sources, handled by non-U.S.
citizens, for purchases made outside the United
States. It is a credit to the donors and reflects
a certain ingenuity all around that such work does
continue to reduce the vulnerability of Kampucheans
to future disasters and pressures on them. (It is
a discredit to the United States government that it
continues the conflict of the war in Indochina in
such a way as to maintain that vulnerability.)" (p.
37).

The third example is from the Gaza strip where the Israelis do not

allow promotion of any viable projects among the local inhabitants.

(p. 37) In the case of Mali the author concludes;

> "The difficulties and dilemmas for this work in
> Mali are many, but perhaps chief among them is that
> it is carried on in an area subject to repeated,
> severe drought which leaves people in need of
> immediate as well as long-term help to alleviate
> the impact of future natural disasters, and how can
> immediate relief be provided in ways that enhance
> rather than impede continuing development? " (p.
> 38).

The author then very cleverly points to a major issue.

> "This discussion has focused on people and
> communities at the local level and on what might be
> called micro-development. It has not placed these
> projects fully in their national and international
> contexts, but we know that macro forces do impinge
> with enormous significance on the capacity for
> local development" (p. 38).

The author wanted to express the fact that tackling development

problems is much easier on paper than in practice. Isn't it true that

many Chilean peasants will remain poor until their dictator vanishes?

Is it possible to do anything fundamental for the deprived Palestinian

poor while the Israelis are still brutally shooting them in the street,

destroying their houses and villages and bulldozering their 'olive

groves'? What kind of 'development' are American and western agencies

going to undertake there?

D'Souza (1986), in a study entitled 'Recovery following the

Gediz earthquake: a study of four villages of western Turkey' writes;

> "This [study] is particularly urgent in view of the
> fact that preliminary investigations of other small
> rural and under-developed communities struck by
> earthquake suggest that material aid may actually
> preclude recovery in the longer term" (p. 35).

After discussing the question of how to define development and measure it in the stricken community, she suggests;

> "If recovery is equivalent to development and development implies a reduced vulnerability to disasters, then perhaps recovery has not been achieved in the Gediz region in spite of the massive assistance programmes" (p. 37).

As one example of the consequences of disaster reconstruction, which was broadly described in the chapter on reconstruction of permanent housing, D'Souza writes; 'One farmer reported that a house built in 1972 cost 35,000 Turkish lira and could be sold in 1984 at 1.5 million Turkish lira. Land prices are doubling approximately every year in the Gediz region' (p. 47). She then adds;

> "The post earthquake programme was clearly not directed towards intensifying agricultural production in the area, quite the opposite since the decision to build New Muhipler necessarily took away precious arable land and prevented the new residents from relying on agriculture as a sole source of income" (p. 49).

Her observations from the study seem very important in that they highlight many of the points we raised earlier in this chapter. She concludes;

> "If we consider that disasters represent a failure in development (Anderson, 1985) in that it is only in under-developed societies that disasters have such a major impact, then we perhaps ought also to see development initiatives as attempts to reduce people's vulnerability to disasters" (p. 49).

In her conclusion from the study she claims;

"The overall conclusion must be that remarkable
changes have occurred in this region as a whole due
to the creation of the marketing and industrial
centre in New Gediz....A degree of poverty and
under-development is still apparent in the villages
which because of lack of land and remoteness still
cannot participate in the wider economy. However,
those communities which before the earthquake were
more favoured have clearly gained from the
Government package of housing, cash and opportunity
for work in Germany" (p. 51).

One should think about the 'opportunity' for a Turkish villager to
labour in Germany as being counted a kind of prosperity and
development. In terms of housing which we discussed in the previous
chapter, the same author claims; 'Finally the increasing vulnerability
due to poor construction of new houses may have been avoided if a
building training scheme with appropriate subsidies for safer housing
materials had been part of the government housing scheme...' (p. 51).

D'Souza (1986) retains her optimism, she claims; 'Disasters,
after all, in that they focus both attention and resources on small
under developed communities, can be an opportunity for development' (p.
51). What she did not address, is that the cost with which this
development has been achieved in Gediz and what else could have been
achieved with the same resources, in other parts of the country.
However, she confesses that those better off before the disaster, have
apparently gained more than the poor and isolated.

Winchester (1981), reports his observations from the work
progress of some development agencies in India, where most of them were
involved in post-disaster activities particularly after the Andhra
Pradesh Cyclone of 1977. From one training programme he writes;

"I discovered that the ARTIC-trained carpenters had
not constructed or supervised many houses because

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they had returned to agricultural work soon after
their training. The diagonal bracing, successfully
introduced in Guatemala after the 1976 earthquake,
had not been accepted here, possibly because in
these different conditions one group of villagers
could not be relied upon to implement the changes"
(p. 156).

In relation to another type of house provided by agencies he explains;

"These [pucca] houses...are made entirely of
concrete, cost about 5 or 6 times more than a
traditional house, but are usually about half the
size with one room,...In many cases they have been
used as cores for extension in traditional
materials, and used for food and grain storage, but
not for animal shelters" (p. 157).

In the previous chapter we brought in several examples of houses

reconstructed after disasters which were not used as they were intended

to, by their inhabitants. The extension of vulnerability by people

rebuilding their unsafe houses was also observed in many cases.

However, one of the basic developmental arguments we have already

discussed, is reported by this author. 'The same agencies add that the

money which goes into housing would be better spent improving the

economic prospects of deprived villagers in other ways' (p. 157).

Winchester (1981), then argues that the role housing improvement

may play in the economic improvement of the survivor communities is a

suspect matter. Moreover, all the projects conducted after the Cyclone

in the area he visited are small micro projects.

"So far this article has looked at small scale
rural and urban housing projects and concluded that
the link between improved housing and the
achievement of economic independence by their
occupants, is slight. It was obvious that
agricultural improvements and craft regeneration
were more important, but the small size of the
projects associated with housing also seemed to

critically limit their effectiveness" (p. 159).

The debate about the priority for developmental goals is a matter of concern. The same author reports; '[one agency]... regard adult education and literacy as the foundation of development together with the Credit Union formed to enable the villagers to raise loans from rural banks for communal projects' (p. 160).

Micro projects might be effective to some extent. Nevertheless the question of dependency on the donor organisation is something which must be looked at more carefully. Winchester writes;

> "...Many people have benefited from their economic
> strategies and in some cases the social effects
> have been remarkable,...However, until the
> voluntary agencies withdraw it will not be possible
> to see if 'community awareness' can be sustained"
> (p. 161).

Cuny (1978),[quoted by Ressler (1981)] says; ' It remains to be seen, however, whether the short-term contribution (in Andhra Pradesh) will out-weigh the long-term problems which the programme has created.' [Disasters and the small dwelling, p. 196]

UNDRO (1977?), also discusses developmental issues of shelter after disaster. This document highlighted four major aspects of development; first, that the procedure of relief and reconstruction must be based on developmental methods such as 'bottom-up' or 'citizen participation' and that usually these approaches are left aside by agencies. (p. 54 and p. 58) Secondly, that 'the vast majority of foreign intervenors do not realise the development issues ...' and then explains why this situation exist (p. 55).

Thirdly, several development issues are overlooked by the

intervenors, such as 'land reform and land tenure'(p. 56). It is of course questionable whether a foreign or even a local intervenor is in a position to play a major role in effectively changing land tenure in a developing country. We would like to argue that foreign intervenors are not capable of this, they are not merely 'overlooking' the problem. The fourth issue is that whether we like it or not relief and reconstruction have a long term effect in the community. (p. 59)

UNDRO (1977?), discussing the negative consequences of some housing programmes writes;

" Some of the most common negative factors relate to;
    a. the creation of a dependency relationship;
    b. the destruction or inhibition of local initiative;
    c. the setting in motion of demands which cannot be met in the long term;
    d. the creation of unrealistic expectations"
(p. 57).

It is uncertain to what extent these negative side effects can be eliminated. It is not only the international relief agencies whose unfamiliarity with developmental issues creates problem. In the context of Khuzestan's reconstruction this issue has become more critical since several voluntary groups rushed to the area. They were usually organised through the mosques and religious leaders and were composed of ordinary people such as peasants and shopkeepers or even students. It was almost impossible to expect such voluntary interest groups to be familiar with developmental issues or be be able to spare time to study them.

Thomson (1987), from 'The Reconstruction and Rehabilitation Fund' in Canada, writes about the projects they funded in Latin

America. The main concern of this agency is development matters through the reconstruction projects they fund. In conclusion he writes;

> "If the goal of long-term development is a serious one, the degree of analysis required for reconstruction projects is, if anything, greater than that needed for 'normal' development projects. Just where the line is between reconstruction and 'normal' development, between urgency and careful planning, is difficult to perceive in the best of circumstances" (p. 9).

As we can see, development planning after disaster is by no means easier than the same task in normal times.

Chisholm (1981), explains about problems of relief and reconstruction in Bangladesh. He claims 'over 182 relief and development agencies' were involved in Bangladesh. He also talks about a school building whose roof sheets became like 'razor blades' flying about the village, jeopardising peoples' lives and 'huts'. His main emphasis is on development. He writes;

> "Confusion exists amongst many relief, and voluntary workers, as to the role of relief and initial aid in their place in the on-going process of development. Thus, there seems to be a blindness or an unwillingness to see the implications of various types of relief in the socio-economic set-up of the local communities" (p. 173).

Scawthorn and Lofting (1984), have a more positive view about the possibility of economic development after disaster. However, they do not show any empirical example of such a success and claim;

> "Although a region may have had economically viable industries and businesses prior to an earthquake, the post-disaster relief-intended infusion of

> capital and human resources offers opportunities
> for development in patterns differing from those
> prior to the earthquake. This is especially true
> for less industrialised areas since their
> development is less integrated than other, more
> industrialised areas" (p. 87).

Fernandez (1981), in a study of 'The Relationship Between disaster Assistance and Long-Term Development', has an optimistic view. He tries to seek for the opportunities a disaster provides. He writes;

" Disasters however can be 'Acts of God' in a more positive sense: as opportunities to break the pattern of events which together hold people in the grip of increasing poverty" (p. 186).

In terms of housing-reconstruction he uses the term 'pedagogy of home building'. By that he means that changing people's attitude requires a long-term commitment and they must be changed. He also writes;

> "Development agencies, often due to lack of
> resources, or under pressure to spread them over a
> wide area, tend to develop a halo around
> 'microrealisations' -small is beautiful. Small
> projects that succeed in the short run (their long
> term record is poor), do so largely because they
> are protected from social pressures in developed
> areas and supported by institutions-often
> church-related- in the disaster-prone areas. For
> their efforts to be self-sustaining in disaster
> prone areas, agencies need to operate on the
> macro-level" (p. 189).

This was just one instance of what we have already argued in theoretical discussion in this section. At best the agencies can get involved in micro development projects. Without relating them to the broader context of regional and national scale plans, little success or positive effects should be expected from such efforts.

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It seems that the conventional mode of development by agencies is what is currently carried out by the British Government. 'British people in development' (1983), is a report from the 'Overseas Development Administration' (ODA). It reveals that Britain pays over £1000 million a year to 130 countries. This is one approach to development. The report reads;

> "The 'top ten' aid recipients in 1981 were: India £169 million, Kenya £35 million, Bangladesh £33, Sudan £32 million, Tanzania £30 million, Sri Lanka £25 million, Zambia £24 million, Pakistan £21 million, Zimbabwe £17 million" (p. 7).

The question is what effect such aid can really have in these countries. If we distribute the amount of aid to the population of the recipient countries, something around 30 pence a year is given to each person. Even if we assume five or ten other generous countries all over the world are paying the same amount of aid, the result would not change substantially. What development can be achieved by 30 pence per capita in the life of the poor in developing countries?

Conclusion- The findings of the present chapter can be summarised as follows;

1- Most disasters occur in the developing world. These communities lose more and are less able to cope with the aftermath of disasters.

2- Disasters directly damage or destroy part of the resources necessary for the development of the stricken community.

3- Disaster responses were also found on several occasions to create further long-term damage by undermining the coping ability of the community.

4- It is known that if the community's fundamental development needs such as income and employment, equality and political stability are achieved, the disaster resistance of the settlements and communities will be automatically enhanced.

5- Disaster literature is confused about the meaning and objectives of development.

6- It was found that such a debate exists in development studies as well.

7- It is hard to believe there is any universally acceptable definition for development to be achievable at all. In contrast we argued that any definition must be constructed based on premises, which have to be defined and agreed in the first instance. Thus, each ideology or political system and philosophy can define development according to its own values and basis.

8- By any definition, common sense tells us that development is a multifaceted concept. Some of the major components are access to basic needs, the nature of which are still a matter of debate; employment, social and economic equality,...

9- The concept of rural development was also discussed. The rural poor are usually struggling with poverty stemming from lack of land, unemployment, illiteracy,...

10- Rural housing has a minor role in rural development. 'Strong houses' do not necessarily contribute much, if any thing at all, to the betterment of rural families, if other basic and chronic needs such as land and employment are not addressed.

11- Rural development policies must be planned in different scales of local, regional and national levels. The co-ordination of all these plans is crucial.

12- Rural development programmes and projects can be designed on several scales. They can be so small as to cover only a few aspects of rural life, or so extensive as to cover all aspects. In any case, the integration of objectives and plans is a precondition for success.

13- Small sectorial projects (micro-projects) may lead to some improvement of the life of a small target group. However, the long term performance of these projects is dubious.

14- Development work is a very difficult task. Very often it may result in underdevelopment. More dependency may come out of it or unrealistic expectations might be created.

15- There are three modes in which reconstruction after disaster can view developmental objectives;

a- To ignore them;

b- To introduce sectorial improvement, housing resistance for example;

c- To launch development projects after the disaster.

There is no discussion of the first option. The problem with the second option is that even if the goal of resistant housing is

achieved, too often it has many side effects which are measured as negative on developmental scales. Moreover, housing has no significant role in development and usually there are many other priorities for the stricken community.

Concerning the third option, that is based on two assumptions; first, the availability of more resources after the disaster. And, secondly, the existence of a higher degree of readiness for change in the survivors. We argued that both these two are suspect. In contrast there is evidence that if the stricken community first returns to a 'normal situation', then when the development plans were executed later, there would be more chance of success.

16- Some of the side effects of relief and reconstruction can be reduced or controlled by minimising the role of outsiders and increasing the role of survivors and local organisations in all stages of planning and executing the operations.

CHAPTER SIX.

CHAPTER VI

CHANGE AFTER DISASTER

Introduction: The literature about disaster suggests that, whether disaster creates a 'unique opportunity' in the stricken community to introduce changes in its previous norms and situations, is a matter of controversy. In normal times, perhaps the attitude towards change might be ambivalent, showing interest and resistance. Psychologically, it seems, man is more comfortable following familiar routines, but increasingly in the modern world there is the expectation that life at least for some, has provided new things and new ways. That when change appears to be for the better it is possible to overcome fears of the unfamiliar.

In the post-disaster situation, this notion of change is relevant since mitigation measures usually require change in pre-disaster norms. Thus the adaptation by the users to the new environment becomes a matter of great concern. This phenomenon, however, becomes even more significant when it is one of the underlying assumptions for execution of post-disaster development programmes, where change is planned not only on behalf of the settlement but in the economic, social, even political and cultural situation of the community.

The exploration of this subject may help to achieve better understanding of its complexities, and facilitate identification of some of the factors that can encourage acceptability of change in communities after disaster. At the same time moderate the thoughtless enthusiasm of politicians and officials, who are often tempered to take

advantage of communities in shock, to impose their priorities.

The structure of this section is as follows; after the introduction some examples of the contradictory literature will be used to illustrate the relevant factors. After discussing the major issues identified, we will take advantage of psychological Studies to examine the subject.

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6-1- Controversy in literature- Davis   (1978),   quotes Professor

Otto   Koenigsberger   as   saying;   '   Under   the   immediate impact   of   a

disaster   people are ready to change long-standing methods and customs.

Therefore   act quickly to   introduce improved construction   methods and

bye-laws'   (p. 66).   Professor Koenigsberger himself   in 1982, claimed;

'The   immediate post   disaster   period provides the   planner (reformer)

with two unique advantages:

a) Survivors are ready to accept change;

b) The public is ready to provide funds.' (p. 1).

From the above citations two major points are noteworthy; first that it

is   the **survivor** who is assumed by the   planners to be ready for change

(an   imposed   assumption)   and that   the **planners**   are provided   with a

unique   opportunity to implement their   plans with the increase   in the

funds available after disasters.

Not   everybody agrees with this conclusion.   For instance, Cuny

(1981A), discussed 'real opportunity' as being one of the 'gaps in our

knowledge' of post-disaster activities.   He claims;

> "It   is   often   casually   accepted   that a   disaster
> provides   an opportunity to create change, not only
> in   housing   but   also in   the **social and economic**
> standard   of a community.   This is often one of the
> prime   reasons, in fact, why   organisations attempt
> to   deliver so called **'modern'**   housing systems and
> materials   in the   post   disaster period.   However,
> recent   evidence   suggests   that   the   real
> **opportunities for   change are extremely limited**.
> One   of   the   major gaps   in our   knowledge is   the
> inadequate   understanding   of   exactly   what   the
> opportunities   are and   how   to use them   to create
> long-term   changes within the community" (pp. 5-6).
> [emphasis added]

As   can be seen this assumption that communities are prepared to accept

change, is one of the reasons which persuades agencies to provide modern houses after disaster.

Cuny (1983), in his book 'Disasters and Development' dedicated less than three pages to the discussion of 'Change after Disasters'. He writes;

> "It is a common adage within the relief and development community that disasters have the potential to introduce change and to improve the society during reconstruction period. Often after a disaster, one hears **government or relief agency** staff talk about the possibility of rebuilding a model society and describe the tasks ahead much in terms of a phoenix rising from ashes. That such a desire is felt and expressed is certainly laudable. If **millions of dollars** will suddenly be available, why not use them to rebuild a better community? Unfortunately, the record of **success** in producing the phoenix has **not** been overly **noteworthy**. For the disaster **victim, recovery means returning to normal,** and normal usually means whatever existed before the disaster. *The success ratio of these* attempts to use disaster as opportunities for change has been rather low, even in the more industrialised nations where more extensive resources exist" (p. 101). [*emphasis added*]

From the above quoted piece a few important points can be raised; firstly, that it is governments or agencies assuming that wholesale change is possible. Secondly, that funds may persuade the agencies, thirdly in contrast to Professor Koenigsberger's proposition, Cuny assumes that survivors of a disaster are more in favour of returning to pre-disaster norms and situations, and finally that in practice the 'success ratio' of 'change' is poor.

UNDRO (1977?), in relation to this subject claims; "The opportunities to create 'change' following a disaster are limited" (p. 53). The same reference reads;

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"Many **organisations** view a disaster as an opportunity to create or promote change. They feel that a disaster provides a **climate of receptivity** to new ideas, methods, technology and life styles. Undoubtedly, **there are some opportunities** to introduce change, but these opportunities are much more **limited** than is currently believed; and the long-term impact of such change has been, in many cases, **extremely negative** in terms of traditional social values" (p. 53). [emphasis added]

Four points can be extracted from UNDRO 1977?. First that this is the view of organisations. Secondly, a 'climate of receptivity' by the community is assumed to exist. Thirdly, there are 'some opportunities' and four, they are 'limited' and the results are found very often to be 'negative'.

To bring an example of housing which is closer to the main theme of our study we quote from UNDRO (1982);

"Post-disaster housing programmes are different from normal low-income housing to the extent that;
In major disasters there is more **money** available for housing assistance;
The need to modify housing to achieve hazard resistance is **generally accepted**;
There are more agencies present than in normal conditions;
The provision of post-disaster shelter for the poorest sections of the community is of special **international interest**; and
The **euphoric** mood of the reconstruction period presents unusual opportunities for improvements" (p. 40).

The same source later modifies its position shortly after and claims;

"Disasters will inevitably be regarded as ideal opportunities to introduce wholesale reforms in housing, building and planning. In reality **reforms** are **costly, technically difficult and politically complex**. Progress in reform is generally slow, and an incremental approach is therefore easier to adopt" (p. 40). [my emphasis]

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UNDRO (1982), then under 'Pre-conditions required for change' mentions;
'... The need to limit changes, respecting traditional values and
housing forms;... The need for **confidence of survivors** in those
advocating changes;..' (p. 40). [my emphasis]

Fernandez (1981), has an optimistic view of introducing changes
after disasters . He claims that; " Disasters however can be 'Acts of
God' in a more positive sense: as opportunities to break the pattern of
events which together hold people in the grip of increasing poverty"
(p. 186). Without giving any particular example he claims that;
"...some 'constructive self-sustaining programmes' have been
implemented and some ' fell by the wayside'. Unfortunately the causes
of success and of failure have not been sufficiently researched within
disaster prone areas" (p. 186).

Fernandez then goes on to claim that disaster can have the
following positive consequences; ' Disasters foster linkage..and local
leadership... Disasters lead to co-operation.. Disasters draw
resources and personnel to the most needy areas.... Disasters
introduce a process of selectivity..Disasters often lead to surveys'
(pp. 187-188).

UNDRO (1977?), proposes a contradictory view to Fernandez and
claims that 'disasters have been shown to precipitate rapid political
and social change in developing countries' (p. 52). Then it goes on
to state that the creation of Bangladesh was partly due to 'the
inability of the national government to respond to the cyclone
destruction in East Pakistan'.... 'More recent examples include the
fall of many governments in the Sahelian region' (p. 52). What emerges

from this last reference is that the political aspects of the governments' role in a disaster situation is significant.

Besides those references cited, it seems advisable to look for some empirical findings after disasters to see whether in practice disasters have any significant consequences in the stricken communities. As has been noticed the 'change' could be so broad as to include economic and social affairs or be limited to, change in housing. Here we introduce examples of findings on both scales.

Cuny (1983), identifies three approaches to change after disaster. The first is 'invisible change', such as modification of traditional houses in reconstruction without interfering or changing the appearance of buildings. The second method Cuny gives is the 'substitute method', which he claims; ' is often used when introducing new varieties of crops'. (p. 102) The third approach is the 'building block method', where 'an agency begins to introduce change slowly by first working to re-establish a semblance of normalcy, and then introducing limited innovations.' (p. 102)

Cuny (1983), also gives the example of Andhra Pradesh, in India where agencies interpreted the high demand of the local people for hurricane resistant buildings, as a sign of their readiness for change. They built 'duplex and larger multi-family' houses and also some 'one-room single family units' intentionally designed to be rather small so that the available resources could be stretched as afar as possible. (p. 103) Cuny then claims;

> "In both cases, the agencies overestimated the willingness of the people to sacrifice their traditional houses (which met the functional needs of the families) ...Today, many of the agencies' housing units stand vacant, while immediately next

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to them, a traditional building has been erected and occupied" (p. 103).

As an example of broad results of disasters we refer to Torry (1978), who has written about,' Natural Disasters, Social Structure and Change in Traditional Societies'. His study, besides the literature review, is based on observations of an 'African tribal population confronted by floods and the adaptations they made, as their homelands became flooded, following the erection of the colossal hydroelectric installations on the Nile, Zambezi and Volta rivers' (p. 170). It is necessary to be reminded that we are dealing with a tribal and traditionalist group of people in rural areas of Khuzestan.

Torry's conclusions are very important.

> "*A few of the citations earlier in the paper refer to the 'flexible' adjustments inherent among traditional populations. If by the term 'flexible' these writers mean a capacity to readily alter established behaviours to conform to new socio-technological exigencies, then the preceding analysis suggests the contrary. Instead, traditional societies during the post-disaster equilibrating phase-...- are loathe to experiment with new routines. Major social and technological innovations are avoided. Yet organisational modifications do occur, but on a modest scale. Under such circumstances established conventions are adjusted*"[1] (p. 180). [emphasis added]

Torry (1978), also quotes this from Sjoberg;

> "*As to change in these pre-industrialised civilised orders, we submit that most disasters – catastrophic though they may be for countless persons and family groups – seem, over the long haul, to have had relatively minor effects upon the society's dominant structural arrangements*" (p. 168).

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1. In the original text, small characters instead of Italic. It is the same with the next two quotations as well.

Torry's final conclusions about change in disaster stricken communities (1978) were;

> "I concur with Scudder's remark made in the context of dam resettlement: (n.d.: 468)
> *to introduce major changes in economic and social behaviour during the transition period would be unwise since the degree of stress among the relocates would be increased still further. A better strategy would be to help the people get back on their feet at the earliest possible date while preparing the way for more rapid modernisation once the transition period ended"* (p. 181).

This final suggestion is a crucial task in our study as a whole. Whether or not it is possible or how it could be implemented in practice are matters of further investigation.

Drabek (1986), has a section on 'Disaster-Induced Community Change'. (p. 293-303). He writes;

> "... when the University of Massachusetts at Amherst project members...concluded that disasters produced no discernible long-term effects, some relief agency representatives were not sure how to respond. ..this conclusion paralleled that reached at about the same time by a team at Northestern University...Thus, for a limited range of variables and across a broad sampling of natural disasters, the hypothesis of 'resumption of normalcy' received substantial support. .... While lacking a comparative community data base, these conclusions are not consistent with the interpretations from many case studies" (pp. 293-294).

So far discrepancies surrounding change after disasters, have been illustrated. It was also seen that the feeling that there is a unique opportunity to introduce change after disasters is viewed differently by different parties involved. The availability of funds and the psychological status of the survivors were frequently pointed out.

6-2- **Discussion-** Further exploration of this dilemma requires finding an answer to the critical question of 'whose opinions are most important, the intervenors or the victims?' Initially, it may look as if it is the survivors who, as a result of observing and personally experiencing the trauma, insist on implementing significant changes and improvements as a contingency measure. Even though on the face of it this assumption seems to enjoy validity, the current literature does not support it with indisputable data (or observation).

Besides victims, there are other parties involved (e.g., international or national intervenors, planners and engineers), who have their own individual ways of viewing disaster and the changes required to be introduced in the stricken community. It should be pointed out that those who financially, socially and politically support the process of relief operations and physical reconstruction may wish to build a community in many different ways , such as, less vulnerable to future disasters than to the previous one. In other words, they may regard rebuilding everything the same as before the disaster, as a waste of time and resources and as a result they may enforce considerable change aimed at diminishing the vulnerability of the community in the future. At this point we suggest that the position of different parties involved in a post-disaster situation should be reviewed, to see whether they have any special reason to wish for change. Among interested parties the following are most obvious;

    a- Governments

    b- Planners and engineers or architects

    c- Intervenors (International or national or local agencies)

    d- Survivors

Before we move on to examine the above parties' position as regards change after a disaster, we should refer to an important issue of post-disaster activity, the issue of 'accountability'.

The heart of the argument is that, in a post-disaster situation, the outsiders involved are not usually accountable to the survivors. This has caused many problems in practice. We observed real examples in Khuzestan. Voluntary groups rushed to the area, overflowing with goodwill and with some resources to contribute to the reconstruction. It was almost impossible to find an organisation or a person able to take responsibility for these voluntary community based organisations. Naturally those who possess the resources feel liable to decide how and where to use them. The task of co-ordination then became a matter of the individual position of each group.

UNDRO (1977?), devoted the first five 'issues' of the study to 'accountability'. 'Issue 3', however, brings total disappointment. It reads; 'At present, there are no corrective mechanisms which make disaster intervenors accountable to disaster victims' (p. 17). The same notion is pointed out in UNDRO (1982, p. 4). In the same line of thinking Ressler (1981), developed the concept of accountability and explores the reasons why intervenors are not or can not become accountable to survivors. (pp. 145-149)

Ian Davis (1977b), in 'Intervenor', discusses the realistic questions which surround the concept of accountability. In an attached chart he illustrates very well, that most parties involved in a disaster scene are accountable to people other than the survivors. (pp. 21-23)

We do not aim to identify the potential factors which interact

to create this unaccountablity and one way relationship between the intervenors and the recipients. What emerges from this argument is the necessity to have a clear perception of the position of the parties involved after a disaster. To this end we assume the lack of accountability, we can solely influence the intention of governments, planners and intervenors in general terms.

It is necessary to point out that the humanitarian objectives of those involved in post-disaster relief or reconstruction programmes may still remain the major stimuli for their actions. To what degree this is true depends on the circumstances and must be evaluated in each individual case. Nevertheless, there are other possible factors which may influence a desire for change after disaster. In the following section an attempt will be made to identify some of these factors.

Government- Has a disaster any constraint on governments? Initially it seems that at least the more successful and effective the response of the government, the safer its future is. *Kreimer* (1978), claims;

> "Earthquakes ...bring to light a vast number of problems already existent in each country, but which were not normally visible. Thus, massive poverty, growing disparities between the rich and the poor, congested cities, shortage of housing, malnutrition, and illiteracy in countries affected by natural disasters surface and become public knowledge" (p. 23).

Cuny (1983), supports Kreimer and puts forward the same idea in other terms;

> "More than any other human event, a disaster traumatically brings into focus all the basic

problems in a society.....Disasters highlight the
inherent weaknesses in a society and often force a
reappraisal of goals.....When it became evident in
Guatemala that the earthquake had affected the
poorer sector..... people who had been unconcerned
about poverty in Guatemala were brought
face-to-face with the reality.... new
organisations sprang up to work not only in
reconstruction, but also toward more fundamental
changes in the society" (pp. 11-12).

Disasters do not always strike poor communities. An example from the

States is illustrated by Abney and Hill (1966), who have studied

'Natural disasters as a political variable'. They claimed;

"The argument set forth is that the effect of a
natural disaster depends upon two sets of factors:
the political and material capabilities of the
government to react to the disaster, and the
pertinent aspects of the political culture" (p.
975).

They claim that after the disaster the people become 'hostile to the

government'. (p. 974) Whether this degree of hostility changes if the

disaster was a man-made one such as war or an industrial one, or a

natural one such as earthquake, is a matter of interest. Initially it

seems that a man-made disaster may bring more hostility against the

government than a so called natural catastrophe. (see our Chapter on

War as a Disaster)

Abney and Hill (1966), report how 'Hurricane Betsy' of 1965

brought political movements in the area. The main purpose of their

study is to find out the effects of the hurricane on the election of

the 'mayor'. [Louisiana, New Orleans] Although their conclusion was

that no significant change was found, (p. 976) nevertheless they

illustrate well how winning the next election became a major concern

for 'Mayor Schiro' and his opponents.

> "Television newscasts showed the Mayor working in
> the heart of the disaster area with his shirt
> sleeves rolled up. In his handbills and
> street-corner speeches Schiro attempted to project
> the image of 'a man of action' which was his
> campaign slogan" (p. 975).

Angotti (1977), looked to the Fruili and Belice (Italy) earthquakes and titled his article 'Playing politics with disaster'. There he apparently shows how the way the resources are spent in the community and the approaches implemented by the government had caused political demonstrations. (pp. 327-331)

Bommer (1985), wrote an article entitled 'The politics of disaster - Nicaragua'. There he shows how the change in the political system of Nicaragua after the earthquake of 1972 and the flood of 1982, the latter occurring after the revolution, related to significant differences in the performance of the government in response to the victims. (see also Case 2 - Managua, Chapter IV)

We are not about to explore all the political dimensions of disasters. However, the references mentioned so far obviously indicate that for several reasons governments are almost forced to move towards change in pre-disaster situations. At least two factors seem relevant; first, that re-establishment of the status quo or generally poor performance after a disaster, may be perceived as a weak point in the government and causes social and political upheaval, as for example was the case in Fruili and Belice (Italy), (see also UNDRO 1977? p. 52) Secondly, the temporary instability of the disaster stricken community and the dependency of the survivors on the resources they receive from

the hands of the government, may persuade the latter to take the opportunity and to condition its aid with political changes in the recipient community. The case of the reconstruction after the Qir earthquake is just one example of this. (see Chapter IV)

Intervenor agencies- Davis (1977b), in 'Intervenor', referred to earlier in this section, poses serious questions to the intervenors. What he argues there , besides the problem of lack of accountability of the agencies, is that the agencies have a desire to prove their success with a more rapid delivery or a greater number of items delivered. (pp. 21-23) Agencies' social support and the donations they receive are to some extent dependent on their performance and the reports and publicity they make from their efforts. The crucial point is, that it would be unlikely that re-establishment of the pre-disaster situation would satisfy the supporting bodies. In the view of the intervenors the longer term efficiency of their activity may be achieved by introducing new ideas or items into the stricken community. Norton (1980), claims; 'It is perhaps too much to expect a voluntary agency not to take advantage of a disaster to capture the public attention' (p. 339).

In addition to the lack of accountability and organisational interest, we should add that the relationship between the agencies and the victims of a disaster, particularly in the developing world, is of a top-down nature. The staff of international, or even national agencies may feel that being educated, urban, or western will enable them to plan a better future for the victims. UNDRO (1977?) explored thoroughly the issues concerned with aid and its consequences in the

recipient communities. (see issue 29-35 pp. 45-51) All these are signs to persuade the intervenors to think of change after disaster.

Planners and engineers- The planners and engineers may perceive the occasion as a opportunity to introduce new designs and plans because the accountability of their performance is usually less in the post-disaster situation than under normal circumstances. After disasters a unique opportunity is created for them to put into practice some of their new ideas or designs. Usually money becomes available for experimental work. For instance, after the Tabas earthquake in Khurasan, Iranian funds became available for some engineers to build examples of their new earthquake resistant designs. (see Parsa, 1985)

The number of units which must be provided and decisions made in a short time after the event, provides a more indifferent atmosphere for the authorities. The professionals usually feel secure of being questioned about the long-term and final results of their innovations. This could encourages them to, or more they may feel that it is their professional duty to introduce new methods or designs in a stricken community.

Survivors- The earlier discussions revealed in short that, parties involved may wish to impose some changes to the pre-disaster norms for their own benefit rather than for the sake of victims. However, victims of a disaster might also be considered as the major body seeking change after a disaster. The simplest assumption which can be made is that those who have experienced a catastrophe become aware of the risk associated with their previous position and will look

for substantial change in order to escape further potential loss. For instance, Professor Koenigsberger focused on the readiness of disaster victims for change. However, there appear to be a number of other factors which should be taken into account including the following:

a- Rationality of victims- Survivors may accept new things only because they find them financially beneficial. For example, if a house is donated to them as a free or subsidised gift, it is likely that they will accept it anyway. The real readiness of the survivor can be measured when they have to pay for it.

b- Availability of choices- Victims may not have many options (or any alternative at all) but to accept the conditions or accommodation offered them by the agency. Therefore, they may be forced to accept rather than to select what has been offered to them. For instance, Glantz (1976), claims;

> "Each of the drought victims has only limited options....Their only real options are, in fact, a return to a subsistence way of life as nomads or to less-than-subsistence way of life as refugees in a camp or as migrants in a city slum. Such options are apparently perceived as offering no favourable alternative to returning to the known way of life. Things apparently do not have to change. They have to be made to change" (p. 8).

c- Acceptability and sustaining the changes- There is abundant evidence, suggesting that victims' acceptance of what is offered, does not necessarily mean that they will sustain their acceptance for long periods of time or use donations as the intervenor intended. In our chapter on reconstruction of permanent houses, several examples were introduced of the inconsistency, of the house units provided or the settlement in general, with the inhabitants requirements. (see for

example, the Gediz case). Any judgement on change in people's attitudes should be based on the long term performance and use of the aid provided. However, in several examples we found that contrary to the desire of the agencies or governments the inhabitants showed resistance to changing their attitude toward their pre-disaster housing or even in a broader view, towards the social structure. (see for example Cuny, 1983, p.   and Torry, 1978, p. 180) Yet, the reasons why governments regard the higher degree of acceptability, shown by survivors after disasters, as an opportunity to introduce changes remains obscure.

d- **Reasons for rejection in normal times-** Over-emphasis on the post-disaster situation as an opportunity to introduce change, overshadows the reasons for rejection of change in normal times. If the change is so beneficial to the people, what are the reasons for rejection? Whose fault is it, the recipients' or the planners' and designers'? Is our assumption that traditional systems and objects should be replaced by modern or western substitutes always correct? Perhaps we should remember an example referred to by Glantz (1978), who claims;

> "Commenting on the value of the traditional nomadic
> way of life, a recent USAID report
> 'suggested that the only cost/effective and
> realistic approach to this critical problem is to
> create the necessary environment to permit the
> traditional management systems, with some
> improvements and adaptations to again function'"
> (p. 13).

e- **Psychological effects of disasters-** Despite all the debates which may potentially predispose outsiders to see a unique opportunity

to introduce change after disaster, it may be worthwhile to inspect the psychological effects of disasters further, in relation to their direct effect on the survivors' willingness to accept new things.   To tackle this problem, we now turn to three intermediate and underlying mechanisms which may help us understand the psychological effects of disasters in relation to 'accepting the changes'.   These three are: peoples attitude towards change, the role of observation and stress effects.[2]

Davis (1983), in 'Disasters as Agents of Change?' argues that disasters cause changes in pre-disaster forms and norms, so as to eliminate or at least mitigate the loss from other disasters. He argues that disasters are agents for change. That man learns from his past experience for the future.   It is hard to dispute such a clear conclusion, but it would be wrong to assume that this is a general rule and has no other pre-condition. Glantz (1976), under 'Nine fallacies of natural disaster: the case of the Sahel' writes; 'Historical evidence, however, tends to indicate that individuals, as well as governments, do not necessarily learn from past mistakes either directly or by analogy' (p. 7).

Glantz (1976), also quotes an example from a person who was going to shift to picking 'string beans' instead of his routine of picking 'peas'. He quotes;

> "...And I still remember how hesitant I was that
> first morning as I was about to address myself to
> the string bean vines. Would I be able to pick
> beans? Even the change from peas to string beans
> had in it elements of fear.

2.A more comprehensive description of survivors' psychological status can be found in our chapter no VIII.

In the case of drastic change the uneasiness is of
course deeper and more lasting" (p. 8).

We can find many examples of this nature in our daily life. Moving
from home to a new country, addressing an unknown audience in a
conference and so forth. That is to say, in normal time and for the
ordinary person, change involves some anxiety and instinctively people
prefer their known routines.

It might be claimed that the survivors of a disaster have
different situations. That is true but unfortunately against our wish,
there is evidence that they are more in favour of their normal and
known situation and are more reluctant to change.

For instance, UNDRO (1982) in relation to this claimed;

> "The disaster period is one of trauma for the
> stricken population...On occasion, the weakness or
> vulnerability of the disaster-stricken population
> is taken advantage of in order to impose social or
> economic policies which the victim population is
> temporarily unable to resist.
> After a disaster, people simply want to get back to
> normal as quickly as possible. If change is to be
> effected during this period, it must be
> evolutionary and appropriate to the constraints
> previously existing within the society" (p. 53).

Professor Koenigsberger (1982), points to this fact and says; '
Pre-disaster conditions, however bad, appear to victims in a rosy
light' (p. 1). Glantz (1976), in 'Fallacy 2: Things Have to Change'
writes;

> "There is a strong tendency for people to return to
> the known way of doing things, to return to
> 'normal'. This is a feeling manifested by the
> Sahelian drought victims: nomads, sedentary
> farmers, herders, and Sahelian governments. Yet,
> one must ask, what options do they have?" (p. 8).

The same author in conclusion writes; "Like the preceding nine generalisations, 'where there's a will, there's a way' could also be considered a fallacy. One might argue that sometimes when the will exists the way does not" (p. 20).

Thompson (1985), goes further than endorsing the reluctance of the survivor to change, he suggests that 'over-learned familiar routines', which result from living in the same or similar environment, may be regarded as a therapeutically effective means of assisting people under stress. [see our own chapter on psychology].

Role of observation- The underlying assumption is very simple. Victims who personally witness the vulnerability of their homes are likely to become aware of the risks involved, and as a result they will seek significant improvements in the strength and resistance of their buildings for example. In other words, they are prone to rejection of their old buildings (and perhaps, very susceptible and suggestible to the offers regarding new things, i.e., 'change').

The current literature, however, does not empirically confirm this apparently common-sense speculation. There is a wide range of differences in the way people perceive a single event, while factors which contribute to the formation of different perceptions are not very clear. (see Drabek, 1986) There is evidence suggesting that interpretation of a single disaster (and its causes) may vary from one observer to another (see Holder, 1982). Therefore, the perception and effect of observing a disaster may not be necessarily be the same among different observers.

The theory of 'belief, attitude, intention and behaviour'

described by Fishbien and Ajzen (1975) may be employed to assist us with assessing the claim, that observation of a disaster may induce a change of attitude in its observers. According to this theory, if we desire to change the 'behaviour' of survivors towards their traditional buildings, for example, we must first change their 'intention' about that type of housing. The change in the latter, however, requires a change in their 'attitude'. Furthermore, a change in their attitude requires changing their 'beliefs' regarding, for instance, their houses. One way to pursue this line of reasoning is to ask about the process whereby the 'belief is formed in the first place'.

According to Fishbien and Ajzen (1975), there seem to be three modes of belief formation, namely, "descriptive belief" (which is formed through direct observation), "inference belief" (which is based upon inferential reasoning) and informational belief (which depends upon acceptance of what is told to us by a source of information).

Our next task is to identify the means by which the currently held belief could be influenced and changed. In brief, a person's belief may be influenced either by personal observation or by receiving information. The problem of the marked difference in different individuals interpretation of the same event still remains to be resolved. The following excerpt may help us understand the intricacy of this matter:

> "An attitude represents a person's general feeling of favorablness or unfavorableness toward some stimulus object. In our conceptual framework, as a person forms belief about an object, he automatically and simultaneously acquires an attitude toward that object. Each belief links the object to some attribute; the person's attitude toward the object is a function of his evaluations of these attributes" (Fishbien and Ajzen, 1975; p. 216).

The key point perhaps is the "person's evaluation' of attributes because people evaluate the situation or the acquired information in association with their other beliefs, backgrounds, or experiences. Thus, experiencing a hazardous event, or receiving information about it will not necessarily lead to a similar change in beliefs, attitudes, intentions and behaviours in all people, if they experience any change at all. However, the likelihood that similar psychological consequences may follow can not be completely ruled out.

Governments and intervenors' perceptions of a disaster may direct their efforts and plans towards mitigation of the next potential disaster(s), but this concern may not necessarily be shared by the victims because a change in their beliefs and behaviour is not the inevitable consequence of experiencing a disaster. Therefore, observation of a disaster may have some influence upon the rejection of past relevant experiences, but it seems unrelated to the selection of new things for the future.

We would like to claim, that victims' lack of opportunity to experience or to get acquainted with the new techniques and materials, casts serious doubt over the allegation that they may accept changes very readily. The desirable acceptance of these new things bears no relation to their experience of the vulnerability of their own homes. To persuade victims to accept the new things, we should give them a chance to "observe" or "be informed" about the suitability of the new materials or techniques.

It may be added that there is no reason to believe that the post-disaster period is the best time for "induction" of such "attitude

changes" through learning or observation. Under those circumstances, where victims are provided with the information about the new things, their acceptance of the offers has no direct and clear relationship with the actual observation of disaster. In other words, information could be provided for victims before the disaster, or at any time, irrespective of the disaster, in which case there is no evidence indicating that victims are more likely to accept changes after the disaster, than at any other time.

The tragic mistake which commonly occurs after disasters is that the intervenors and governments focus their attention and efforts solely on the 'improvement of the strength of the homes' at the expense other important aspects of the new building. It may be added that 'resistance' of a home against hazards is only one of the many attributes of a 'suitable home'.

People expect many additional, and perhaps even more important qualities (such as space, proper location, costs and maintenance) from their homes besides just resistance. Thus, dwellers who abandon their new homes or carry out major alterations to them may not do so because of their disbelief in the resistance or stability of the new buildings, but rather due to their 'discomfort' and 'discontent' with living in homes that do not satisfy their tastes and basic needs. In short, a 'strong and resistant building' does not necessarily provide a 'home'.

Stress and higher acceptability- Another important issue is the effect the disaster has on victims' suggestibility, so they are more likely to accept changes offered or imposed. There is some evidence to suggest that for a certain period after the traumatic event, the survivors may become to some extent modest and more suggestible than

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before the disaster. However, this period of heightened acceptability is short. We believe that the alleged enhanced level of suggestibility may be due to the feelings of "helplessness" (i.e., learned helplessness) immediately after the disaster (see Seligman, 1975).

Otto Koenigsberger (1982) claims that the period immediately following any disaster may provide a particular opportunity for intervenors or planners, because survivors appear to be at a higher state of readiness to accept changes offered to them. This implies that the period of greater susceptibility due to the disaster is short-lived. However, it might be debated whether there is a better chance of success if changes are introduced after the community has returned to its normal life. We believe that intervenors and governments should have a long-term outlook and avoid basing their plans, policies and resources upon the immediate and short-lived effects of the disasters.

Conclusion- In this section we explained that the assumption of the existence of a 'unique opportunity' to introduce change after disaster, has been one of the underlying factors encouraging governments and agencies to introduce change either on a small or a large scale. The controversy in the literature and the fact that this issue is one of the gaps in our knowledge were shown. It was also found that the literature suggests empirical findings from change after disaster to be more negative.

For the purpose of analysing the subject we tried to see the disaster situation from the relevant positions. It became apparent that governments, intervenors and their staff, including planners and engineers, have the intention to create change in pre-disaster

conditions. Among the different parties, survivors were considered and some misleading factors which may cause outsiders to perceive a readiness for change were explored.

Concerning the psychological status of the survivors, we pointed out that in normal times change involves some degree of anxiety and psychologically we are reluctant to make it. For the survivor of a disaster, we brought evidence that they are more reluctant than usual and furthermore that a return to normal has psychological benefits for survivors.

Concerning victims' point of view, we pointed out that there is no unanimous perception and reasoning by survivors and that the underlying factors are not yet known. Further more we discussed that even if we assume that witnessing a disaster influences the beliefs of the survivors, this change will be against the pre-disaster situation and has nothing to do with accepting new things. On the other hand, so far as the stress consequence of a catastrophe is concerned, it appears that under the pressure of the event the survivors may lose confidence for a short period. This mood changes quickly for the majority of victims and we doubt that taking advantage of such a helplessness would be beneficiary for either the survivors or the intervenors.

To sum up our conclusion, one should ask, what change is planned to take place after the disaster and whose view really counts. While governments, intervenors, planners and architects view the post-disaster situation as the right place and time to introduce change, there is no evidence that readiness for change exists among survivors.

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CHAPTER SEVEN.

CHAPTER VII

DISASTERS AND POPULAR PARTICIPATION

Introduction: This introduction serves two purposes; to indicate the relevance and importance of the subject to the present study, and to clarify the scope of our objectives.

Several factors prove the relevance of this subject to the present study. Initially, a participatory approach was pursued in the reconstruction of some of the villages in Khuzestan province. Later it was changed to a technocratic method. The inconsistency of the professional practice approach temporarily caused a shift to participatory approach. (see our Chapter on Sample portrait, cases of Sarie and Bardie) However, the implementation of the participatory method confronted several obstacles and later the degree of the villagers' involvement was reduced and the role of the intervenors enhanced. Nevertheless, the necessity of the people's participation is still agreed on by the authorities in the reconstruction of war damaged Iran. Besides all that, our field survey also indicates the importance of survivors' participation in reconstruction.

Disaster literature almost unanimously recommends increasing the survivors' role in all phases of disaster, from pre-disaster planning, to relief and reconstruction. For example, one of the most promising approaches to reconstruction, training and educating, involves a certain level of survivors' participation. (see for instance, Dhamar training programme, Leslie, 1987).

Our study of the psychological recovery of survivors and its links with physical reconstruction (Chapter VIII) also led to the

conclusion, that the greater the role of the survivors in different reconstruction activities, the greater the chance of a rapid psychological recovery.

Despite the strong case for participatory relief and reconstruction, the evidence suggests that there are several obstacles in the way of these approaches. For instance, the role of the State in pursuing such approaches remains a matter of interest. While community participation implies grass-roots, local, bottom-up action, in practice the co-ordination of these initiatives by a state based organisation becomes necessary. There is a 'contradiction in terms' when the instigation and possible control of grass-root initiatives comes from the State. (see Midgley 1986, p. 151)

Our aim here is to study the issues surrounding the participation by the *survivors of* a disaster in their own reconstruction. Thus far, we have not found any document explicitly concerned with this subject. However, suggestions as to the role of survivors are we believe, an indispensable ingredient of disaster guidelines. In general terms the notion of popular participation is an old theory, well explored in many other contexts such as development, rural development and housing. Here, the intention is to review those aspects of the participation theory which might be relevant to our own subject.

Both time and space act to constrain the presentation of a comprehensive review of the subject.[1] But, there are several issues it is essential to understand in the analysis of participatory approaches

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1.In September 1987 I submitted a report of a hundred pages on this subject The present chapter is a revised, summarised version of that report.

to reconstruction after disaster.

In this chapter, first some of the major theoretical issues about popular participation will be discussed. Then, since we are dealing with rural settlement reconstruction, a brief review will be made of community participation, in the context of rural development, in the provision of shelter. Finally, we will attempt to outline some of the specific aspects of disaster and community participation.

7-1- The spread of people's participation- Community

participation is discussed in most documents dealing with planning and

development. As Oakley and Marsden (1985) claim; 'In fact it is rare

these days to find a document on development strategy or approaches

which does not refer to participation or suggest that the strategy

under discussion is participatory in nature' (p. 1). Styles (1971),

writes; 'Participation has become a key word in the planner's

vocabulary' (p. 163). Ekistics Editors (1972), claim; ' In the past

few years, almost every planning report has had its participation

component' (p. 71). Carapico (1985), says; 'Virtually all

contemporary development strategies stress the importance of

participation by working people in both policy formation and the

benefits of economic growth' (p. 203).

In terms of human settlement there are studies on 'community

participation in water and sanitation', 'low-income housing projects',

'squatter settlements upgrading' and so on. The notion of 'community

building', 'community architecture' are also on the agenda of present

architectural debates in Britain, all of which have the people's

participation as their central theme. More generally, there are

studies of 'community participation in development planning', in 'rural

development' and 'social development'. It seems that from this long

list of documents a study on ' disasters and community participation'

is missing.

7-2- Historical background- Although the notion of people's

participation is among the recommendations of new development plans, it

is in fact an old approach. Gittell (1980), says; ' The role of

community organisations in America has been a primary subject of

concern for all the social sciences since the 1960s' (p. 29). Claude

and Zamor (1985), in relation to this claim;

> "The notion of participation was brought into focus
> in the 1930s. The idea was that the more involved
> people were in the challenges of production, the
> more productive they would be....But the term
> 'participation' continued to gain currency
> primarily in decision-making processes in
> industrialised societies. It is only since the
> late 1960s and the 1970s that the concept started
> to be used in the context of the newly developed
> subdiscipline of 'development administration'" (p.
> 5).

Martin's Preface to Lisk's 1988 book entitled, 'Popular participation

in planning for basic needs', reads;

> "One of the key features of development planning
> that has emerged from the wider conceptualisation
> of development since the mid-1970s is the notion of
> *popular participation*, both as an important
> condition for achieving sustained economic growth
> and social progress and as a fundamental goal of
> development in its own right" (p. vii).

Moser (1985), also argues that the reason why community participation

was introduced, in fact was the failure of the 'growth theory' of

development. She writes;

> "It is a commonplace that the growth strategies
> undertaken by many governments in Third World
> countries have frequently failed to secure a
> significant amelioration of mass poverty or a
> radical redistribution of income. It is this
> criticism which has led to an alternative view -
> that the involvement of the community in the

project can compensate for these deficiencies.
Over the past decade, community participation has
been incorporated in a variety of development
programmes and projects in order to make collective
involvement effective" (p. 3). (see also Oakley
and Marsden 1984, pp. 5-10)

It must be made clear, since time began that co-operation and communal

actions have been the dominant approach to problem solving in all rural

communities of the developing world. Several examples can be cited

from villages in Iran. For instance, cleaning the canals or 'Ghanats'

is a communal task, no individual can do it alone. Also the

distribution of water, where it is short such as in central Iran,

requires well co-ordinated measures not only in each village but even

between villages dependent on the same source of water. In relation

to this the United Nations report (1975), reads;

"Historically, most societies have a tradition of
popular participation at the local level. ...The
existence of these traditional forms of popular
participation indicates the willingness and ability
of the masses of the people to work together for
the collective benefit and that many of their needs
were served in this way.
**These local traditions have often been among the
first casualties of modernisation"** (p. 32).
[emphasis added]

It should be no surprise that the people have chosen participatory

approaches to solve their problems in traditional societies. What

needs attention is the difference between mutual co-operation and the

introduction and organisation of the co-operative. Between a

grass-roots community action and an imported or even imposed 'community

game' from outside. The traditional methods worked successfully

through the ages, but the new methods often end in disappointment. As

Mandl (1982), puts it; 'High hopes have been vested in community participation. ... However, some unforeseen problems and distortions have come to the fore. Implementing community participation has been more difficult than anticipated' (p. 9).

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7-3- <u>Towards a definition</u>- The literature indicates a variety of definitions for people's participation. (see, for example, Lisk 1988, p. viii) However, it is generally accepted to be a good thing. Wolfe (1982), writes; "From the stand point of many development analysts and planners, 'politics' is bad, 'participation' good" (p. 86). Moser (1983), says; " participation currently considered a 'good-thing'." (p. 3) Arnstein (1971), writes; 'The idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you' (p. 176). This positive attribute of participation might stem from values such as democracy and liberation which are the basis of Western thinking. Speaking up for the people implies an intellectual or even radical position as opposed to speaking in favour of bureaucratic systems, which indicates to support authoritarian governments with their centralised power. Although there is little doubt that participation is good, it remains to be seen to what extent it is effective and useful in practice. One concrete example is the ever-rising problem of homelessness in the developing world, despite years of propaganda for and practice of popular participation in solving the problems of shelter.

Moser (1983), concerning the definition of people's participation claims; '...no clear consensus exists, the diversity of definitions reflects the ideological range of development and the different approach, to planning' (p. 3). Whyte (1983), argues;

> "Community participation is, for some people, an
> ideology of development. For others, it is a tool
> for planning and management. .. Community
> participation has no absolute, distinct and clearly
> defined boundaries. It comprises inputs that are
> variable from place to place and from time to
> time" (p. 6).

Lisk (1988), says; 'A wide variety of interpretation is associated with the idea or concept of popular participation...' (p. 15).

White (1981) with reference to the definition of community participation agrees with the 'diversity in the objectives', nevertheless he looks for a 'working definition' which he borrows from the World Bank and says; '... participation has three dimensions: involvement of all those affected in decision-making about what should be done and how; mass contribution to the development efforts. i.e. to the implementation of the decisions; and sharing in the benefits of the programmes (World Bank 1978)' (p. 6). Whyte (1983), adds another component to the definition cited above; 'involvement in the evaluation and modification of the programmes' (p. 6). Lisk (1988), defines popular participation as follows; ' Popular participation in development should be broadly understood as the active involvement of people in the making and implementation of decisions at all levels and forms of political and socio-economic activities' (p. 15).

There are generally two categories of definitions; those which perceive participation as a 'means' and the others which see it as an 'end'. In the first definition people are as tools or 'objects' of development. For those who define it as an 'end' the people and the community are the 'subject' of development. But for those that see it as a 'means' the people and their activities are the resources. As Oakley and Marsden see it; ' participation as an end is the inexorable consequence of the process of empowering and liberation' (p. 28). Wolfe (1982), also argues that;

"One's conception of participation can be broad or
narrow, active or passive. It can be considered
equivalent to political democracy: the people
decide,...what development objectives and policies
they want, and what political representatives shall
try to convert the objectives and policies into
reality. It can be considered equivalent to
involvement in the processes of societal change and
growth that the term 'development' suggests" (p.
85).

Although 'involvement' of people in 'execution' and 'implementation' of

development programmes can be perceived as a form of participation,

Bugnicourt (1982), argues that participation 'is opposed to centralised

decision making' and the aim of 'popular participation' is to reduce

the role of people as 'passive executants'. He emphasises the role of

sharing in 'decision-making' and the meaningful presence of the people

at all stages of 'discussion, decision making (at various levels),

'training', 'executing', 'management', 'control' and 'education'.

(p.58) Arnstein (1971), claims; '...citizen participation is a

categorical term for citizen power. It is the redistribution of power

that enables the have-not citizens, presently excluded from the

political and economic processes, to be deliberately included in the

future' (p. 176). (see also, Gittell, 1980, p. 35)

Thus it becomes apparent that one of the key elements of

participation is a meaningful role in the 'decision-making' process.

Oakley and Marsden (1985), present a review of their impressions of

active participation as follows;

"...Popular participation in development should be
broadly understood as the active involvement of
people in the decision-making process in so far as
it effects them...
participation is considered to be an active
process, meaning that the person or group in
question takes initiatives and asserts his/her or

its autonomy to do so...
..the organised efforts to increase <u>control</u> over
resources and regulative institutions in given
social situations, on the part of groups and
movements of those hitherto excluded from such
control" (p. 19).

Arnstein (1971), suggests eight levels of participation, from the

bottom of the 'ladder' they are;

'1-Manipulation
2-Therapy
3-Informing
4-Consultation
5-Placation
6-Partnership
7-Delegated power
8-Citizens control' (p. 177).

In her view, the two modes mentioned first are in fact

'Nonparticipation', the next three imply 'Degrees of tokenism' and the

other three imply 'Degrees of citizen power'. (p. 177)

By 'manipulation', she means occasions where the people are

guided and used as tools by 'powerholders'. The 'therapy' mode can

often be seen in the literature prescribing 'remedies' for the Third

World. For example when a government agent travels to a remote area to

lecture the people about what is right and wrong and the of benefits of

the co-operative and so forth. Arnstein in defining the 'therapy'

mode of participation writes; '...under a masquerade of involving

citizens in planning, the experts subject the citizens to clinical

group-therapy' (p. 178).

The third level, 'informing', is more clear, the citizens are

called and gathered to be told about their rights and responsibilities.

'Consultation' is also clear. The citizens might be invited to

express their view about a matter. The same author claims; 'But if consulting them is not combined with other modes of participation, this rung of the ladder is still a sham since it offers no assurance that citizens' concerns and ideas will be taken into account' (p. 178).

By 'placation' Arnstein explains that she means those situations where the citizens have actual and legitimate presence in a decision-making process, but the final decisions must be taken by people other than the citizens, the local authorities for example.

Concerning the sixth level of participation, 'partnership' the same author explains;

> "At this rung of the ladder, power is in fact redistributed through negotiations between citizens and powerholders. They agree to share planning and decision-making responsibilities through such structures as joint policy boards, planning committees and mechanisms for resolving impasses" (p. 180).

The seventh level of participation in Arnstein's view (1971), is 'delegated power'. She says;

> "Negotiations between citizens and public officials can also result in citizens achieving dominant decision-making authority over a particular plan or programme... At this level, the ladder has been scaled to the point where citizens hold the significant cards to assure accountability of the programme to them" (p. 180).

The highest degree of participation, Arnstein argues, is where the citizens have the highest degree of control on a matter. She writes;

> "Though no-one in the nation has absolute control, it is very important that the rhetoric is not confused with intent. People are simply demanding that the degree of power (or control) which guarantees that participants or residents can

> govern a programme or an institution, be in full
> charge of policy and managerial aspects, and be
> able to negotiate the conditions under which
> 'outsiders' may change them" (p. 181).

There seems to be a theoretical problem with citizens decision-making. Citizens, either partially or completely in control of the decisions, will in fact themselves become part of the system or authority. The question is who are the authorities? They may be people from the same community. In that case it would make very little difference whether a few representatives make the decisions or the appointed or elected authorities to run the community administration. One of the theoretical obstacles to the participation of the masses, is that in practice direct involvement in all tasks becomes impossible, and an indirect participation through the representatives must be used. In this case, again a few people will decide on behalf of the others, as the authorities do.

The other underlying assumption is that governments may have different goals to those of the citizens. This is not necessarily always true. At least in theory we can assume a situation where the people trust their government and believe in its decisions. There is also another criticism of Arnstein's description of levels of participation. She assumes that 'citizens' are a uniform body. In practice it is unlikely that such a uniformity exists. Thus there would be factions among citizens on every matter. The final compromise will either be something less than everybody's ideal or that the will of the majority will prevail. In this sense again, the citizens have only a partial part to play in the exercise of power and control. There are several other theoretical obstacles associated

with popular participation which we will refer to later.

The United Nations (1975), points to the importance of popular participation in decision-making as the heart of the participatory approach. It reads;

> "A more comprehensive view of the decision-making process involves four stages: defining the situation requiring a decision; choosing the preferred alternative; determining how best to implement the decision once it is made; and evaluating the consequences of the action taken" (p. 5).

In brief, so far, we have found that the theory of people's participation is an old idea and its concepts have been defined in several ways. It is also realised that participation can be a matter of degree. The heart of the notion is identified to be, the power of the people (or citizens) to have control over their affairs through the decision-making process.

7-4- **Who are the people?** Although the words 'people' and 'community' imply a totality, everyone or all the members, it appears that in discussing community participation theory, another meaning is anticipated. Lohman and Muller (1986), claim;

> "If different opinions about 'participation' are held....there is hardly more clarity about the meaning of 'community'. Three points will be made. First, a community is not a uniform mass of people, but a heterogeneous collection of individuals and groups among whom multiple social ties have developed.
> Secondly the distinctive community groups have different, often opposing, interests...
> The third point about 'the community' is that, as individuals and groups have different interests in neighbourhood improvements, they do not have equal chances to participate in decision making. An improvement programme is not a neutral intervention" (pp. 25-26).

Along the same line of thinking, Racelis Hollnsteiner (1982), claims;

> "There is a general agreement that people's participation refers not to everyone in an identifiable community - since local elites already have a strong say in decision making - but rather to the poor majority with little access to resources and power..." (p. 39).

There are several problems with these narrow definitions of 'people' and the 'community'.

1- Dividing the community into the two groups of 'elite' and 'poor' will not necessarily apply to all societies. A community as small as a village, or as large as a country usually constitutes more than two groups. In addition there remains the problem of defining each of the groups and identifying the status of each individual as a member of a group.

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2- The exercise of so grouping the community may in practice, increase the existing differentiations and decrease the local solidarity without substituting it with a stable alternative.

3- This is an outsider's view of the community. It remains to be seen whether the members of the community see it as the outsiders do, or otherwise. In several cases the author found in rural areas of Iran, that the relationship between the poor and the so called elite is one of respect and not hostility. Racelis Hollnsteiner (1982), in this relation claims;

> "Peasants frequently maintain a functional paternalistic relationship with one or a few local elite families who would feel threatened by the dependent partner's linking with others of similar class interest. To cut oneself off from dependency upon one's person patron is to court economic disaster in the form of losing access to land and other employment" (p. 39).

4- In practice this classification becomes meaningless for another reason. Let us assume that a road, clinic or school is going to be built in a village. Is it correct to prevent the so called elites from participating in the decision-making in such a matter? On the contrary they might be in a position to contribute more, especially in financing it for instance, than the rural poor. In any case it would be ridiculous to assume that the children of the elites would not be accepted or treated at the new school or clinic.

5- Another difficulty is that this definition and classification falls short of explaining situations where thousands of young students for example, go to the rural areas to contribute to the harvest or the

construction of services[2].   These people are present in the village

and though neither poor nor elite, still their participation is

welcomed in every way.

2.Since the Islamic Revolution thousands of urban people have gone to rural
areas help villages with different tasks.

7-5-   Participation and politics-   It   is   said   that   the

'corner-stone'   of participation is 'sharing of power'.   In this sense

popular   participation becomes a political matter.   Whyte (1983), with

respect to this argues that;

> "Community   participation   is   the   most   political
> aspect   of the Decade approach   because it involves
> directly   the relations of a national government to
> its people.   It can also change the relative roles
> of   different   levels   of   government.   Community
> participation   is thus a political   process and, as
> such,   needs   political   commitment at   all levels,
> including the highest" (p. 4).

In   their definition   of participation   as a   process of   'empowering',

Oakley and Marsden (1985) claim;

> "....the promotion of popular participation implies
> a   redistribution of power (basically a conflictful
> process)....participation   is   concerned   with   the
> distribution   of power in society, for   it is power
> which   enables groups to determine which needs, and
> whose   needs, will be met   through the distribution
> of   resources....power   is   the   central   theme   of
> participation"   (pp. 25-26). (see also Smith, 1981,
> p. 16)

Although   initially it might be thought that people's participation may

jeopardise   the stability of the existing   governors, there is evidence

that   this is not necessarily always   the case.   Racelis Hollinsteiner

(1982) in this respect says;

> "Yet   leaders   truly   interested   in   promoting
> 'progress   for all' will   recognise that between the
> two   extremes of   apathy   and violent confrontation
> lies   a   broad   range of   legitimate and   effective
> participatory   behaviours that can lead   to peoples
> development   and   genuine   structural change" (pp.
> 47-48).

Costs and benefits- The United Nations (1975), has discussed the 'costs and benefits' of popular participation for 'leaders', 'planners and administrators', and 'individuals, citizens'. The cost for the leaders, the document argues is; '...reducing the leaders scope of decision making authority' and also that, '...the level of conflict in the society may increase'. (pp. 15-16) Among the benefits leaders may gain from popular participation, 'the most visible benefit ...is the elimination of popular resistance to decisions' (p. 11). In other words this approach can even legitimise the existing power of the rulers.

Contrary to the opinion of those who believe that popular participation, by its very nature, is an action towards democracy, it seems that the ruling system can control such actions and if its own power is endangered can stop it, unless it is convinced that the final result is compatible with its own goals.

Concerning the costs and benefits of participatory approaches for planners and administrators, the United Nations (1975), points to the fact that involvement of the people in the process can '...reduce the mistakes in programme or project design and implementation' (p. 19). Obviously this can only be achieved at some cost. The same reference in this respect claims;

> "First, popular participation in planning makes information processing more complex,..
> Secondly, opening the planning process to popular participation will make it more of a political exercise as opposed to a technical one, and the technical criteria used by planners will have to be harmonised with the collective felt needs and political preferences of the beneficiaries of development" (p. 21).

In terms of costs and benefits for the citizens, the same
document argues that;

> "The means clearly involve benefits for the
> individual in terms of educational effects-improved
> skills of self-expression, a sense of effective
> tactics to confront and solve problems and an
> increased sense of personal efficiency" (p. 26).

Among the costs to the citizens, the same document counts; the people
have to 'limit their involvement in other activities in order to be
able to be effective participants'. Also in participating, citizens
have to accept the responsibility of their decisions, and finally it
notes that 'individuals will make an extra effort to inform themselves
about issues' (p. 26).

7-6- <u>Advantages of popular participation</u>- White (1981) lists the following ten advantages for community participation.

"1- With participation, more will be accomplished.

2- With participation, services can be provided more cheaply.

3- Participation has an instinctive value for participants.

4- Participation is a catalyst for further development.

5- Participation encourages a sense of responsibility.

6- Participation guarantees that a felt need is involved.

7- Participation ensures things are done the right way.

8- Participation uses valuable indigenous knowledge.

9- Participation frees people from dependence on others' skills.

10- Participation makes people more conscious of the causes of their poverty and what they can do about it" (p. 11).

In the next section White (1981), explores in detail each of these advantages. (pp. 12-24)

7-7- <u>Obstacles to community participation</u>- Some of the obstacles of popular participation have already been reviewed under 'costs' for different sectors of a community. However, there are still other shortcomings which could be pointed out. It might be convenient to divide them into two groups of theoretical and operational obstacles. Apparently these two are closely related to each other.

a- Theoretical aspects- The first problem with the participation theory is that it is by its very nature a western product. It has already been pointed out that what the present literature suggests about participation has nothing to do with the ad hoc and grass-root co-operation and communal action in the developing world, rather it is a theory, designed on western 'values' such as democracy, liberation and voting. The participation theory then becomes under attack in a community that has values different from those mentioned, for its own good reasons. Then participation if imposed might become an insult to the community.

For instance, among many communities in Iran, particularly rural communities, the power and decision making is concentrated in the hands of a few older people. They are not selected by voting, nevertheless the village people can be happy with them and support them. In such a situation introducing a participatory organisation, that requires the involvement of all members, becomes an 'imposed external force'. If the people have the right to decide on their representatives and they appoint those who, in the view of the outsiders, should be discarded from the scenario, how can this be justified? Wilkinson (1986) says;

> "'participation' is very Western, very polite but generally makes little change to existing procedures,... the terms 'participation' and

'self-help' belong only to the professional world"
(p. 3).

Bugnicourt (1982), presents his impression about the same notion in the context of Africa as follows;

"The prospects for popular participation have been rendered even more confused by the incursion into Africa of theories of participation from the East, the Mediterranean, or across the Atlantic. This participationism - often influenced by Christian or Maoist thought - undoubtedly mobilises much goodwill, but **is not exactly suited to the African situation, and leads to distorted interpretations**" (p. 74). [emphasis added]

The second problem with this theory is that decentralisation of decision-making and distribution of power as were argued, are the major components of this theory. In practice development programmes require the assessment of the matter on a regional or national level. A higher rate of people's involvement is possible in small communities and on a local scale. Beyond that, indirect participation, through representatives only will be possible. In our view it is likely that these delegates, presumably elected by voting, will become part of the bureaucratic system. The decisions will be made by 'few' on behalf of the masses anyway.

The third theoretical problem, and in fact a dangerous one, is that participation requires knowledge. In our daily life we frequently rely on the knowledge of others, the so called professionals. We do not assemble a congregation to decide what to do with somebody who is sick. We simply take him to a physician and we follow his advice. In brief, participation by its very nature, opposes professionalism. At least there should be areas of social

affairs where the knowledge of the skilled must still be appreciated. The risk of this criticism is that it might be used to justify dictatorship. What emerges, is that those affairs which the community must leave in the hands of professionals, should be identified.

The fourth obstacle refers to democratisation and liberation, echoed by Oakley and Marsden (1985), for example. The editor of Ekistics 1972, (No. 201) in relation to this wrote:

> "...the issue of the democratisation of local decision-making has become a jaunting court for all speeches, policy discussion and political campaigns. Some of this rhetoric can be taken seriously, but most of it proves only to be a manipulating or quietening tactic" (p. 72).

Democratisation at the highest level will end in autonomy. One should wonder how is it possible to achieve in a country which has several groups, minorities, races and religious affiliations in its population. The meaningful existence of a modern nation State is in sharp contrast with the autonomous communities within it.[3]

The fifth shortcoming of the participation theory is that contrary to what it implies, it is unable to create the 'fundamental change' required for the development of a community. We have already discussed that this approach is quite neutral and can be applied in any political system. It was also mentioned that it could strengthen the roots of the ruling powers, which themselves might be 'the main obstacle to development'. White (1981), claims:

> "...it has to be made clear that in discussing community participation here we are not concerned directly with these broad goals of democracy,

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3.Examples can be found in recent clashes in Russia, Yougoslavia and Iraq.

employment, or income distribution: they must be pursued separately. The only exception is where community projects contribute-usually in a minor way-toward these goals" (p. 2).

The sixth and one of the most important problems with this theory is that it transfers the 'burden' of the problem from the authorities to the weak shoulders of the poor. Bugnicourt (1982), claims;

"The peasants and poor town dwellers have only to 'participate', that is to say, make themselves the effort needed to secure what the privileged part of the population enjoys free of charge, thanks to public financing" (p. 73).

One example of this is the self-help housing projects, where the people are asked to build their own houses, while they have to work everyday from dawn to midnight to feed their families. What is hidden under overemphasising the participatory approach, as the treatment for most if not all underdeveloped communities, is that it is not supported by an extraordinary success rate, rather it is evidence of the failure of scholars and administrators to find an effective alternative.

The seventh obstacle is the contradiction between participation and bureaucracy. Running a country approaching the 21 century without a bureaucratic system of some kind is unlikely. As Wolfe (1982), explains;' ...tension between bureaucracy and participation seems to be unavoidable, and it is unrealistic to expect the tension to be resolved in favour of one idea or the other' (p. 102).

b- **Operational obstacles-** Gittell (1980), studying citizens' participation in school affairs [USA] concludes that ; 'Our analysis

suggests that community organisations generally avoid and are virtually

powerless in, all aspects of policy-making in the major policy areas of

budget, personnel, and curriculum' (p. 156). The same author also

claims; 'The findings of this study and others confirm the great

difficulty in expanding citizens participation, particularly that of

lower-income population' (p. 253). There are several other operational

obstacles to popular participation. One major problem is the

institutional aspect and its relationship with the State. As Wolfe

(1982), claims;

> "During the past three decades, the real process of
> 'development' and modernisation have disrupted
> traditional community organisations and sources of
> livelihood to such an extent that the original
> suppositions behind the programmes have become less
> plausible, although in a good many settings
> peasants ways of life and local solidarity have
> shown unexpected resilience" (p. 99).

Midgley (1986), along the same lines claims;

> "There is a wealth of anthropological evidence to
> show that elaborate procedures for participation
> exist in rural communities throughout the Third
> World. But meeting of village elders or gathering
> of tribal clans to discuss common problems and find
> solutions are seldom regarded as spontaneous
> participation. The exclusion of these and other
> forms of indigenous involvement reveals that the
> definition of spontaneous participation used in
> literature is an externally imposed one which is
> based on western ideological preconceptions rather
> than local practices" (p. 152).

The substitution of these traditional organisations by governments are

found troublesome. For instance, Midgley (1986), writes;

> "The conclusion that state sponsorship of community
> participation has been largely incremental and
> manipulative in character, supports those who

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believe that state involvement in community
participation is a contradiction in terms" (pp.
150-151).

The same author concerning grass-roots and spontaneous participation

claims;

>"Although spontaneous participation may appear to
>be highly desirable, there are several difficulties
>with this idea. Some of these are conceptual
>problems revealing wider contradictory elements in
>the theory of community participation. For
>example, if spontaneous participation is so highly
>prized, why do the proponents of community
>participation continue to advocate its promotion
>through the use of interventionist strategies and
>techniques of various kinds" (p. 152).

He also writes;

>"...United Nations publications have consistently
>argued that local communities are apathetic and
>indifferent and that they require the stimulus of
>external change agents if they are to participate
>meaningfully in social development. It is odd
>that the same organisation should at the same time
>extol the virtues of spontaneous participation" (p.
>152).

So one of the major difficulties in the way of community participation

seems to be the difficulty of substituting the spontaneous local

initiatives with new state controlled and directed institutions. In

addition the United Nations (1975), claims; 'In some countries legal

obstacles still exclude certain groups from political participation...

The removal of legal barriers may not be sufficient for supporting and

encouraging popular participation' (p. 44).

Bugnicourt (1982), also argues that;

>"...the administrative system is a prolongation of
>the anti-participatory attitude of the schools.

The hierarchical spirit, bureaucratic tendencies, preference for written communication and paper work over direct contact (when, in Africa, many important problems are settled by oral debates), the desire for standardisation, insufficient personal commitment on the part of public servant- all this contributes to the formation of a real allergy to participation in administrative circles' (pp. 71-72).

United Nations (1975), points out another difficulty on the way in participatory initiatives. 'Since an official's status in the community frequently depends on the visible demonstration of his authority, he will tend to dominate local organisations and resist effective participation by local groups' (p. 38) Bugnicourt (1982), makes another observation, claiming; '...the technicians think their science should provide all the answers and many politicians believe it is their responsibility to think for others' (p. 72). United Nations (1975), also points to another major obstacle, that is 'sustaining' the sprit of participation and co-operation among the communities.

Starting a participatory programme requires some organisation. This organisation might be either adapting one of the existing local institutions or establishing a new one. In both cases an agent,' social worker', 'animator', is necessary to initiate and stimulate the organisation. This agent could be someone locally selected and known, or somebody who is trained and prepared for this job by the government or other intervening agency. In both cases there are problems. Bugnicourt (1982), in relation to this writes;

"This has become the daily reality in a number of so-called participatory institutions. There is an institutional model in which the social worker or *moniteur* in fact does the deciding for the rest of the population. Many of the achievements presented as the result of participation were planned and put

into effect quite independently of the people concerned, who were merely asked to contribute a few days labour" (p. 69).

If the agent is selected from and by the local community there would be another problem. United Nations (1975), refers to this as follows;

"Numerous studies of community power in all parts of the world indicate that traditional local voluntary leaders are relatively privileged members of a community's socio-economic structure. In rural areas, traditional local leadership is frequently vested in relatively large landowners, storekeepers or religious leaders" (p. 40).

The same document writes;

"As an alternative to reorienting traditional leaders to meet the increased demands placed on them by locally focused development institutions, many countries have sought to broaden the base for leadership by identifying, promoting and training new and generally young leaders who can more quickly learn the skill required for performing new institutional roles...
There are of course, many difficulties with this approach: Young people in rural areas are more likely to migrate, ...youth leadership may be resisted in societies where age is a traditional attribute of leadership; or young people may lack the necessary experience to be able to lead effectively" (p. 41).

Wolfe's (1982), concluding statement seems useful. He writes;

"The achievement of practically all of the programmes fell below their initial promise for many reasons, including the substitution of bureaucratic compulsion for authentic community initiative under the pressure of national targets, the inapplicability of many of the technical solutions offered to communities, and the inability of many of community-level workers to transmit them effectively. The most general shortcoming, however, seems to have been a failure to recognise the divisions of interests within communities and the constraints imposed on their autonomous action

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by local and national power structure" (p. 99).

Remark– The analytical argument we have made so far has assumed that they were relevant, regardless of any specific context, be it a rural development project, housing or post-disaster reconstruction. Now it seems that the phrases 'people's participation', 'community participation' and their synonyms are misnomers in the contexts where they are used. In fact our discussion showed that the communities really have no problems needing to be solved by the 'outsiders', with their 'spontaneous' participatory initiatives. The difficulty starts with the arrival of outsiders, the State organisations, the development agencies or their counterparts.

It is possible to claim that it is the outsiders who have problems with their participation in the community affairs. One should look for appropriate ways of 'government participation', 'planners and administrative system's participation' and 'agencies participation'. The editor's page of Ekistics 251, 1976 reads;

> "In a workshop at the UN Habitat Conference in Vancouver, Professor Otto Koenigsberger said he didn't particularly care for the expression 'people participation', but thought it should actually be the other way around: the people sometimes condescendingly allow the planner to help" (p. 199).

We would like to claim that what Professor Koenigsberger said in Vancouver should have been taken seriously. It is also possible to argue, that the phrase 'people's participation' is wrong also because, contrary to its goal of involving people in their own affairs and encouraging 'bottom-up' action, the phrase implies that the initiators

believe that responsibility of decision-making to be still theirs and are looking for the 'people' to become involved. This is still a 'top-down' way of thinking.

In the next sections, to put this more into the context of our present study, on reconstruction of rural areas, we will briefly review a few of the major observations concerning participation in the context of rural development. Then we will touch on the practice of community participation in relation to shelter and finally we move on to see what the implications of participatory approaches in relation to disasters are.

7-8- <u>Rural development and people's participation-</u> Oakley and

Marsden's book, 'Approaches to participation in rural development',

1987, is a comprehensive study currently available on this subject.

Concerning the historical background of the theory, they initially

point to development theories and try to identify the place of rural

development within this. They claim;

> "This search for a new order which emphasises the
> poor and the rural areas is not new. It has its
> roots in reaction to early forms of
> industrialisation in the West. What is new is the
> centrality that it has been afforded in
> international thinking in recent years" (pp. 7-8).

The authors then discuss the historical background of people's

participation in rural development strategies. (p. 14)

> "Such a philosophy holds the issue of participation
> as central and is primarily associated with the
> rural poor, not only because they are the most
> disadvantaged within society, but also because the
> rural areas in comparison with the urban areas,
> which constitute the industrial base, have been
> relatively neglected by previous development
> strategies. This philosophy of a 'people-based'
> development 'from below' assumes that participation
> is not only an end in itself but also a fundamental
> pre-condition for and a tool of any successful
> development strategy. The failure of past
> development strategy is fundamentally linked to the
> absence of this missing ingredient -
> participation" (p. 10).

Concerning the definition of people's participation in rural

development they also give different interrelationships, ranging from

simply 'voluntary contribution', to the full involvement in all stages

of 'decision-making' and 'evaluating' the programmes. (p. 19)

Next they point to the significant role of 'organisation'

necessary for promotion of 'people's participation' and outline the stages of action. (p. 70) They also raise several obstacles to implementing 'rural people's participation'. One major obstacle they discuss is the resistance of subsistence peasants to change. (p. 30) However, the most significant problem with participation, admitting that rural development requires fundamental changes in the community, they claim is;

> "The over riding obstacle to meaningful participation by the rural poor in the development process lies with the prevailing socio-political structure. It is folly to ignore this fact, as it is to propose prescription which implies changes in the structure which are unrealistic. The dominant paradigm of development thinking is a powerful influence on development practice and severely constrains the consideration of radical alternatives" (p. 32).

After reviewing some implemented participatory rural programmes, they come to a relatively disappointing conclusion and claim; ' Although this is the general tenor of the statement made, the reality is that the rural poor do not as yet have any direct part to play in rural development projects' (p. 65). They also add; ' We must consider, therefore, how to bring about effective participation, without waiting for the structural changes generally indicated as indispensable' (p. 65). Concerning the 'catalyst' or 'agent' they claim;' ... almost inevitably, will not be from the group, and thus we confront the issue of the outsider' (p. 75).

What emerges from this brief review of rural participation is that in practice it is found difficult for several reasons. The resistance of marginal rural people to change is one difficulty, and

the problem of the catalyst or agent needing to be an outsider to the community is another. It might be acceptable if we claim that the bulk of rural poverty cannot be tackled simply by prescribing participation. Those who defined participation as a process of empowering will face the sad fact that empowering the powerless requires 'power' in the real world. The development agencies seldom have sufficient power to interfere in the existing power hierarchy of the community never mind the country.

7-9- **<u>Shelter and participation</u>-** Like development and rural

development, participation has long been recommended in the sphere of

shelter. At present as Sneddon and Theobald (ed), (1987), write;

> "Across the world, one hundred million men, women
> and children have no shelter whatsoever. They
> live in doorways, on vacant land, on rubbish tips
> and on pavements. 30 million children live on the
> streets of cities. Half the population of third
> world cities live in slum or squatter settlements.
> In some cities this rises to over two-thirds" (p.
> viii).

It appears that the background of participation in shelter schemes also

dates back to the early 1970s. Habitat (1985), reads;

> "Until the 1970s, the usual policy of the
> authorities towards squatter settlements was to
> clear the land by demolishing the structures and
> resettling in low-cost housing schemes or in rural
> areas. The effect of this slum-clearance was
> negative...." (p. 1).

Looking for a convenient approach, people's participation was

introduced. Habitat (1984), reads;

> "In the early 1970s, recognition of the positive
> potential of squatter settlements and failure of
> many low-cost housing schemes eventually convinced
> some governments and development agencies that they
> should utilise the initiative and resources of the
> urban poor more efficiently than was being done.
> This change in policy resulted in two types of
> low-income housing projects-squatter-settlement
> upgrading projects and sites-and-services schemes"
> (p. 4).

Not only do these new approaches have their own problems some of which

we will point to later, the reality is that the bulk of the

homelessness problem still remains untouched and ever-rising. For the

present situation, however, there still seems to be no other option as
Habitat (1987) makes clear;

> "The scale of the shelter and services needed is
> such that governments, particularly in the
> developing countries, can not be expected to
> provide all the necessary resources. The most
> feasible alternative that most developing countries
> have is to maximise the productivity of their
> people, particularly the poor by facilitating their
> efforts to provide themselves shelter" (p. 7).

The Executive Director of the Commission on Human Settlements in 'A new
Agenda For Human Settlements' (1987)^{a}, claims;

> "Community participation must become a
> high-priority concern in decision-making
> procedures, so that the people endorse and take
> responsibility for development programmes rather
> than accept a passive role as mere recipients of
> benefits generated by others" (p. 29).

In another document from the same source, 'Shelter and services for the
poor - a call to action' (1987)^{b}, the same notion appears again when
reading;

> "The energy and ingenuity of the people is a major
> untapped resource for shelter and services in many
> countries, especially for the major task of
> upgrading the existing squatter areas and slum and
> poor rural shelter" (p. 11).

Attempting to define community participation in self-help schemes,
Habitat (1984), reads;

> "The voluntary and democratic involvement of people
> in contributing to the execution of the project, in
> sharing in the benefits derived therefrom and in
> making decisions with respect to settling goals,
> formulating the project and preparing and
> implementing the plans" (p. 2).

It is clear that such an approach has not yet been able to solve the problem of shelter in the developing world and much hope is pinned on it and only a little is achieved so far. For instance, Wilkinson (1986), is critical of the effectiveness of 'participatory approaches to shelter, such as self-help or site and services. He writes; " The 'self-help' syndrome is highly technical and requires hours of time and money either building your own house or trying to feel at home on large 'site and service' schemes" (p. 3).

Kessler (1977), writes;

> "Arguments against the use of self-help presented by such countries as Zambia and Cuba in the early 1960s claimed self-help produced government slums, that the quality of construction was below their acceptable norms, that the development process was too protracted and that people's efforts could be put to more economically productive uses" (p. 203).

However, many of the theoretical arguments we made in the earlier sections apply also to the shelter schemes. Community organisation is one of them. The transfer of techniques and knowledge, the difficulty of contradiction between grass-root motivation and guided organisations are others. In any case as Habitat (1984), reads;

> "Of all participatory activities in site-and-services schemes and squatter-settlement upgrading projects, participation of beneficiaries in the financing of the project is probably the most far-reaching one, since it commits the low-income families for many years" (p. 24). (see also Lohman and Muller, 1986, p. 25 and Robson 1986, p. 11)

The application of the participatory approaches is not restricted to

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the developing world.   In Britain,   for example,   we know   that the

notion of community participation dates back to the mid 1960s and early

1970s.   (see for instance, Wates and Knevitt, 1987 p. 27)   However, the

Skeffington   Report, 1968 was a turning point in its development.   The

first paragraph of the report reads;

> "1.   We were appointed   in March 1968   'to consider
> and   report the best methods,   including publicity,
> of   securing the participation of the public at the
> formative   stage in the making of development plans
> for their area" (p. 1).

From   those days there are several studies available in the literature.

For   example,   the Journal of   the Town Planning Institute,   issue no 4,

Volume   57 April 1971   was devoted to   participation and contains   good

articles   on   both   theoretical   and   experimental   aspects.   In   the

contemporary   situation   we   know   of   a   new   movement   in   'community

architecture'.   This has been a matter of contradictory debates.   But

what   is important is   that even in   the context of   Britain, community

participation   is approached where   the normal technocratic   system has

failed   to   address   the   needs   of specific   groups of   people.   Lord

Scarman,   forewording the   book   'Community Architecture' by   Wates and

Knevitt   1987,   merely   points   to what was   the initial message   of the

Skeffington   report of 1968.   He   writes;   ' The theme   of the book is

that   people must be given more control and more effective choices over

their   lives.   It   is   a crucial   change,   if we are   to avoid further

social   disorder'   (p.   10).   In fact what   Lord Scarman raises   is the

problem   of the   'inner-cities',   that   many parts of Britain   are facing

nowadays.

Rod Hackney,   the flag waiver for community architecture,   and the

present President of the RIBA, became famous for his 'Black Road' project of 1972. (For details, see Wates and Knevitt, 1987 pp. 70-73). Although much hope is pinned on the community architecture movement in Britain, there are nevertheless many critics who are dubious about its results. Graham Ridout for instance in Building, 3 July 1987 reports the idea of different architects about community architecture. The controversial nature of this idea is shown in the following views; 'Hackney will bring a new degree of realism to the RIBA...', and ' he's outspoken and hypocritical. He makes a lot of money out of community architecture and pretends it's very philanthropic' (p. 29).

With the spread of community architecture, there are now several publications on this subject and also a centre for dissemination of information. (see for instance, Wates and Knevitt 1987, p. 159 on the role of Community Technical Aid Centres) In other words, this is an example where community initiatives gradually become a directed, developed, routine process, organisation and eventually a bureaucratic system.

Remark- Our discussion on participation in shelter provision revealed that the idea dates back to the mid 1960s and early 1970s. 'Self-help' schemes were initiated in the form of squatter upgrading and site and services projects. Despite the introduction of such schemes the present situation of the homeless population of the world, which shows a dramatic increase and which is out of control, indicate that even these approaches have failed to facilitate the provision of shelter for the homeless.

It was also found that self-help schemes illustrate the

theoretical arguments we made earlier very well. Community organisation, the problem of financing the project and the fact that the burden of house building and financing is shifted to poor families, who probably have problems with employment, food and nutrition, health and so on. However, community participation is still an indisputable ingredient of the agenda the United Nations prescribes for homelessness in the world.

It was pointed out that people's participation also has a history in Britain. At least one turning point is the publication of the Skeffington Report in 1968. This notion was recently fuelled under the new title of Community Architecture. The usefulness of this approach is a matter of debate. It is no surprise if some <u>Community Architecture private consultants</u> advertise for clients, or the Local Authority open a special office of community organisations. The important point in relation to this is, that initially communal approaches are initiated to solve the shelter problem of those who, by the existing technocratic system, have no access to shelter. Somehow, this approach is earmarked for the poor, here in Britain or elsewhere.

7-10- <u>Disasters and people's participation</u>- It is safe to assume that most discussions made in the previous sections, are to a large extent, consistent with and applicable to disaster situations. Nevertheless there seem to be some discrepancies. One major issue is that unlike normal development programmes, the some-what restricted definition of 'community' or 'people' is not often used in disaster situations. It is true however, that communities vulnerable to disasters are usually poor, but this is not always the case. For instance, the Armenian earthquake in December 1988 in Russia, destroyed cities which were built up to earthquake resistant norms and affected a large proportion of the population of several cities. In such a case the survivors regardless of their social or economic status have to participate in rescue and other emergency measures.

The same fact is true in pre-disaster planning and contingency measures. Certainly an education and training programme has to encompass the whole population, whether rich or poor. Even in the reconstruction period it is likely that the unaffected population of the country wish to contribute to activities, either financially or even by their presence and man-power. In Iran for instance, many voluntary groups came to the damaged areas of Khuzestan to rebuild them. Thus, in such a situation it is difficult to pin point the 'target group' of the population as only poor or as any other defined group.

In this section, to assist in clarifying the matter, it seems convenient to examine the role of 'the people' in different stages of disaster, including; pre-disaster planning, relief and rehabilitation and finally reconstruction phase.

Pre-disaster planning- In our earlier chapter on pre-disaster planning the role of the people was discussed. By its very nature, pre-disaster planning is a training and educational programme as well as adaptation of bye laws and building codes. As UNDRO (1984^{a}), describes;

> "In relation to disaster preparedness, there are three elements which need to be considered:
> (a) Technical training, so that people likely to be required to participate in emergency relief activities will be able to utilise enhanced or specialised skills to greater effect;
> (b) Management training and education, for emergency managers and planners at different levels; and
> (c) Education for general public, by exposure to purpose-designed public information programmes of participation in general drills or exercises" (p. 83).

The same document also details the subjects of public education and training programmes and provides examples of materials useful for this purpose. (p. 88-99). Apparently such contingency plans in practice are more likely to be applicable to the developing world. However, organising these programmes tends to be an official and administrative matter, especially because it requires knowledge and skills. Nevertheless, each small community when endangered by a hazard will adopt its own organisation to take ad hoc measures to prevent or mitigate losses.

One major difficulty concerning pre-disaster planning, is to convince the people to take the risk of future disaster seriously and to take part in preparation programmes such as training and drills. In relation to this Drabek (1986), writes; '... The greater the

disaster frequency, the greater the proportion of the population who will have engaged in preparatory actions' (p. 24). The same author also shows that several studies have concluded that only a small proportion of the population will take the risk of future probable disaster seriously and take preparation measures. (P. 27) There is also evidence that the reaction of people towards the first warning message issued by the authorities is of 'disbelief'. Drabek (1986), writes;

"...Where a disaster is unexpected and the level of emergency preparedness low, most people's immediate reaction to the first warning received is disbelief and a continuation of normal routine, whether the warning comes from an authority or a friend or neighbour..." (p. 73).

Apparently people's reaction changes after receiving repeated warning messages and they become active. What can be concluded is that in the case of pre-disaster planning, community participation in education and training is very dependent on convincing the people of the risk and therefore, the usefulness of training programmes. Perhaps in this respect there are similarities with a development or housing programme, where the people must first believe in the usefulness of the proposed programme. The difference between the two example is that unlike the development programmes or housing projects, where the community can feel the difficulties associated with their present situation. In the case of disaster preparation, where no one can forecast the need, it is likely that the people will show less interest in participating in those programmes.

Emergency phase- Evidence suggests that the people's behaviour, when disaster happens, suddenly changes. Drabek (1986), says that; " Disaster victims react in an active manner, not passively as is implied in the 'dependency image'. They do not wait around for offers of aid by organisations". (p. 133) Psychologically the survivors may become brave. Drabek quotes one example from Japan, where a kindergarten teacher, who was usually afraid of even a slight earthquake, at the time of one event 'was more concerned about the safety of her small pupils than of herself' (p. 135). The same author also writes; 'Once individuals themselves and their families are safe, they form little groups and try to help as many as possible' (p. 155) As can be seen, people's instinctive behaviour is to act co-operatively and participate together in an instinctive humanitarian manner.

There is also evidence that the disaster situation strengthens the community spirit. Drabek (1986), writes; 'Communities struck by natural disasters will experience heightened levels of internal solidarity and intolerance of outsiders...' (p. 179). He also reports observations that are promising;

> "At the organisational level, the period of post-disaster utopia is often characterised by the emergence of ephemeral social organisations which incorporate utopian values. Sometimes these appear as completely new organisations; sometimes they grow within the framework of pre-disaster organisational structures..." (p. 160).

and UNEP

UNDRO (1986), also makes similar observations when claiming;

> "Contrary to what is often expected, and frequently to the surprise of disaster relief workers, the morale of a disaster-affected community is more likely to be buoyed up by optimism than to be shattered by despair" (p. 16).

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The same reference also advises; 'Disaster management activities, from preparedness to reconstruction, require a participatory process' (p. 27). Elsewhere one reads; "The most effective programmes are likely to be those carried out 'with' the affected population, rather than 'for' people" (p. 26). There are abundant documents on 'emergency management after disasters', which concern the participation of the community as one of the key elements of success in such activities.[4] In brief, the spontaneous popular organisations are a common feature in the emergency phase after disasters and they can operate and function effectively[5].

Emergency shelter- In the Chapter on Emergency shelter and temporary accommodation, it was found that in the developing world most are provided by the survivors themselves. The kind of co-operation for shelter provision within the community, depends on the circumstances of each individual case. Most likely the pre-disaster form of collaboration in shelter building will function again. In Khuzestan for instance, we observed that in the case of delay to reconstruction of permanent houses, the villagers returned to their familiar way of sheltering, with the same mode and organisations as before, even on some occasions building a new village as temporary

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4.See for instance, 'Emergency Health management after natural disasters, by Pan American Health Organisation 1981, and "Environmental health Management after natural disasters' 1982, or Assessment Guidelines, 1983, Office of United States Foreign Disaster Assistance Agency for International Development.

5.In some disaster situations these locally initiated organisations may beco paralysed by the fact that rescue for instance requires facilities which are not ready at the scene. Mud-slides or volcanic eruptions are examples.

accommodation. (See for example, the case of Jelizi)

Participation of survivors was also recommended as a major factor in the success of the any emergency shelter provided for the survivors, 'survivors' resourcefulness' was a common word. In design, construction and management of the temporary accommodation, the notion of survivors' participation was identified as a key factor. For example, UNHCR (1982), in 'Handbook for Emergencies' in almost all cases of the establishment of camps, points to the involvement of the refugees was the critical element in designing and setting up of the temporary settlements. Perhaps Professor Koenigsberger's short statement (1982), illustrates the message; ' You can not settle the people, they must settle themselves' (p. 1).

Reconstruction phase- It can be assumed that participation of the community in the reconstruction phase bears more similarity to that of normal times. Like emergency shelter provision, in the reconstruction phase the participation of the community was identified as a crucial factor. For example, Van Essche (1984), writes;

> "The spontaneous reconstruction of housing begins
> extremely rapidly after a disaster, and often
> during the emergency phase itself.... The key to
> success ultimately lies in the participation of the
> local community - the survivors - in
> reconstruction. ... The primary resource in the
> provision of post-disaster shelter is the
> grass-roots motivation of survivors, their friends
> and families" (pp. 167-168).

There seem to be three major reasons for recommending survivors' participation;

1- People are a resource,

2- people's participation is necessary to guarantee that the shelter will be built to the right quality; and

3- their participation can eliminate some of the long term side-effects of intervention.   ,

The first reason is clear, in many developing countries the reconstruction of shelter is still mainly carried out by the survivors themselves and since in most cases, particularly in rural areas of the developing world, the survivors are familiar with some kind of the traditional building skills, there is less reason not to enrol this cost-effective work-force with its local knowledge and skill.

Concerning the second reason, we have given abundant examples of reconstructed settlements that were found not to fit the users' needs or life style (see for example, the case of Gediz). Survivors' participation in this sense is a measure to enhance the chance that the products will be suitable for the needs of the inhabitants.

The third point corresponds to the fact, that since new materials and techniques are often introduced after disasters, if the local inhabitants are not taught how to use, maintain and repair these, or if the same kind of materials and skills are not available within reasonable access and affordable to the survivors, new long term problems will be created. While the expectations of survivors may have been realised initially, their future access to the means to reproduce their shelter might be worse. Participation of the survivors in this sense, is a measure to transfer any new construction techniques for use in the long term. Such schemes are practised in several ways and we have already discussed them in a previous chapter. The two most common models are training the builders and masons, and

training the families, where houses are usually built by family members without the help of a builder. (see for example, McKay 1981, pp. 97-102 and Dudley 1988, 111-121)

In terms of participation in settlement reconstruction, there are several concepts which may be left for the community or families to decide about. Allocation of land for the new site, site selection, site layout, public services location, design and construction, house design and construction, management and administration of reconstruction programmes are all possible examples. Also in each of these areas different levels of participation may occur. (see Arnstein 1971, p. 177)

So far, it seems obvious that the survivor's participation in reconstruction, as well as in provision of emergency shelter is, good, useful, necessary and significant. It is important to emphasis that the quality of reconstruction projects will not be enhanced by merely saying that, or prescribing the participatory approaches. Our earlier theoretical study in this chapter, indicated that any participatory approach involves several operational obstacles. What really is difficult, is to make this approach work on the site.

We discussed the fact that in relief and rescue or provision of emergency shelter, as long as survivors are in charge of their own affairs, there seems to be no serious problem. The spontaneous systems have their own conflict settling system. In fact the problems of community participation arrive at the disaster area, with the arrival of the first helping agency, and is likely to get more complicated in the reconstruction phase. It is good to remember again what Professor Koenigsberger said in Vancouver, that in fact it is the

agencies, planners and administrators who have problems with their effective intervention, not the people.

Overcoming the weaknesses of intervenor groups does not mean that the local organisations have no problems in sorting out all the reconstruction matters. In fact on the contrary, the capacity of these organisations is often very limited. In the village of Sarie, Khuzestan, for example, the restoration and reconstruction of each individual house was carried out with full co-operation and participation of the families, in a short time and an effective manner. However, when the time came to do something about the public spaces and services it became very difficult. For instance, it was difficult for a family to accept that even a small area of their courtyard should be added to the street for the public benefit. The common practice of compensating the owners in such cases was it seems unacceptable. The allocation of appropriate time for each family to work on the public buildings and recruiting enough volunteers became unrealistic. In such a situation everyone wanted to be sure that their contribution was not misused by others. Perhaps another factor which discouraged the villagers to actively co-operate in the installation of their public services, was their expectation of achieving all that from the resources and capital to be allocated by the government. The variety of family size, age structure, income, seasonal work and so forth made the decision about the work distribution for public affairs very difficult. In addition the management and control of such methods added to the difficulties. Generally it seems best to focus the families' participatory enthusiasm on the construction of their own houses and in turn outsiders can focus their resources on public

services.

It seems that the less interference in the existing local organisations the better. Perhaps the example of reconstruction in Ecuador, (see Dudley 1988) is relevant since the major part of the work has been left to the families themselves and for other affairs the existing local administration system has been respected.

Conclusion- To sum up our observations from this chapter, it was found that although the disaster literature unanimously agrees with increasing the survivors' role in disaster activities, this kind of approach involves many theoretical and operational constraints. Generally in pre-disaster planning the community may show less interest in co-operating. On the contrary in the relief phase the spontaneous community systems usually work effectively. **The main problem in fact, is the participation of outsiders and not the community.**

Generally community participation on a local and small scale can work more effectively than on larger scales. There is no blueprint to suggest the appropriate structure and organisation of survivors' participation, rather this matter must be studied separately. It is even likely that in different regions of the same country different methods are necessary.

There are usually two options for community organisation, which are identified to be the first step towards implementation of any project using this approach; either one of the existing traditional systems may be extended and employed, or a new organisation established. However, it seems that there is a greater chance of success for the first option. The only difficulty might be that

strengthening the local participation system can contradict other goals, such as abolition of power concentrated in elites. (see for example, Dudley 1988, p. 115)

Although there are people who define participation as a process of empowering, in the case of disaster, it is better to see survivors' participation as a useful resource and control mechanism, securing the suitability of the reconstructed settlement. There are many ways in which community participation can reduce the side effects of intervention, such as **long term dependency on outsiders and it is also the best approach to facilitate a speedy psychological recovery of the disaster victims.**

CHAPTER EIGHT.

CHAPTER VIII

POST-DISASTER PHYSICAL RECONSTRUCTION AND PSYCHOLOGICAL RECOVERY[1]

Introduction: Although 'human loss' is the indisputable component of any major disaster, there is evidence suggesting that social and psychological effects of disasters, unlike the material loss, are often overlooked during the post-disaster period. The activity of 'reconstruction' usually implies physical reconstruction (e.g., rebuilding houses and infrastructure), but the psychological recovery of survivors may need greater resources for reconstruction from the authorities and aid agencies.

One approach to this multidimensional problem is to consider the effects of disaster as physical, obvious and tangible or on the other hand psychological, latent and non-material. The current literature indicates that physical aspects of disasters have received a great deal of attention, while the problem of reconstructing psychological damage have generally been ignored (e.g., the Office of the United Nations Disaster Relief Co-ordinator, UNDRO; 1986). In an UNDRO report (1988), including a summary of disasters during 1987, the main criteria for inclusion of a catastrophic event such as a disaster, were 'property damage in excess of US $ 1 million' and loss of 10 lives.

The validity and consistency of these criteria may be scrutinised by asking questions such as 'what is so special about property loss over US $ one million ?' What about those people that

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1.This Chapter is an edited version of a paper produced in collaboration wit my Iranian colleague Bahman Najarian from Psychology Department York University.

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live but are permanently damaged that may be a greater disaster for the community ? It can be argued that Human loss and disablement and associated psychological trauma are the long term consequences and ultimate economic cost of any major catastrophe. The materialistic consequences of war are relatively easily and cheaply replaced. Loss of property has less to do with life-long starvation of a country, it is the disruption of the systems of food and transport that upset the market, from where they get their livelihood, that really hurts. Psychological consequences due to disasters, unlike the physical losses, are difficult to measure and record and therefore not visible. It is their quality of 'invisibleness' that lies behind the neglect by aid agencies and government departments of the long term rehabilitation of people. It is the same 'blindness' on the part of the planners of development projects that focuses on the initial cost of the buildings but often neglects the human needs of the users. The shortcomings of the current approaches to disasters are more pervasive and extensive than is admitted because they continue to exist often long after the post-disaster period.

It is well established that inclusion of psychological aspects plays an important role in the contingency planning for disasters, mainly because human responses to disaster are often strong, diverse and complex. For instance even when the air raid alarm is heard some people will ignore its warning to take cover because they have survived on previous occasions.

The present chapter on disaster mitigation focuses on the associations and interrelations between psychological aspects and physical reconstruction. The author strongly believes that this

inter-relationship is often underestimated or ignored altogether. The proposition that is explored is based on the premise that the complex mutual effects of psychological well-being greatly impinge on the success of the processes and practices of physical recovery and rehabilitation.

A point should be mentioned here, that the words 'survivors' and 'victims' in literature are used as synonymous. It appears that there is no general tendency to use the word for any special group of disaster stricken people. It is rather upon the author to select them as he wishes (Drabek, 1986 p.7). However, we preferred to use the term 'victim' only when referring to the immediate aftermath of a disaster.

8-1- <u>Psychological aspects of disasters: An overview</u>

a- Characteristics of disasters as stressful events- Disasters clearly differ from one to another on a number of aspects including their intensity, the degree of physical damage they bring about and the way people perceive them (Fritz, 1961; Barton, 1962, 1969). Therefore the selection of a reconstruction strategy and supporting policies depend upon the type and intensity of each particular event (see Drabek, 1986).

According to Sarason and Sarason (1987), the parameters which determine the specific features of a stressful event (such as disasters) are duration, severity, predictability, degree of loss of control or perceived control (also Paulhus, 1983), survivors' level of self-confidence (also Spielberger and Sarason, 1985), and the suddenness of the onset of the event. It is also confirmed that the degree to which a disaster affects its victims is based on the particular characteristics of the disaster, the community and the victims in each case (Perry and Lindell, 1978).

For our purposes, at this stage and for reasons that will be made clear, the word 'disaster' is being used interchangeably to mean both natural and 'man-made' or war as a disaster. War and violent behaviour have and unfortunately will continue to be a very common feature of our everyday lives (Fantino and Reynold, 1975) with over 50% of all nations taking part in at least one war since the turn of the century (Lefrancois, 1980). According to Kidron and Smith (1983), 'There have been about three hundred wars since 1945. There has been no single day free of war and few islands of tranquillity (Part One:

War since 1945)'. The most obvious consequences of war are the human and property losses suffered by the survivors. However, it is increasingly being recognised that the survivors may be subject to lifelong adverse psychological and somatic problems (Lefrancois, 1980; Sarason and Sarason, 1987).

The prolonged side-effects experienced by people have only received serious academic and scientific attention since the 1960s (Drabek, 1986). For example, the psychological after effects of survivors of Hiroshima and Nagasaki were first investigated 17 years after the event. There is some evidence to suggest that about half a million of the Vietnam Veterans still suffer from some post-disaster symptoms (Orner, 1988). Moreover, the psychological effects of such disasters are not limited to the victims and survivors, but may also extend to the rescue staff and workers involved in the relief operations (Orner, 1988), not to mention the families of those involved.

It seems surprising, given the magnitude of the lives affected that no well-established and generally acceptable method of psychological intervention is available (Baisden and Quarantelli, 1981). Indeed, Kinston and Rosser (1974), who provide comprehensive coverage of human reactions to disasters, believe that the lack of information may be in part due to the reluctance of scientists to fully investigate post-disaster psychological reactions. War can be said to be a multiple disaster, that generates 'multiple stressors'. Some of these stressors occur simultaneously (i.e., concurrent stressors), and some develop in the aftermath (i.e., sequential stressors), when victims are struggling for survival and eventual recovery (Sarason and

Sarason, 1987 for a review of literature on multiple stressors).

It is claimed, not unreasonably, given the lack of research, that human reactions to man-made disasters may be viewed as more or less similar to those manifest when natural disasters occur (Warheit, 1976). It is highly likely, certainly in early stages that for those who lose members of their family in a war, the negative impact could be much worse than for those who only lose property or lands (Drabek, 1986). However, on the other hand it is claimed that psychological reactions to natural disasters may differ from those to man-made disasters (e.g., through, for instance being able to attribute blame and negligence). This latter difference may be expressed in the anger that survivors feel towards those responsible for the disaster, and their inability to find meaning in what has happened to them as a family and community. Feelings of dehumanisation (Sarason and Sarason, 1987) can also play havoc with the survivors inclination to participate in their recovery.

b- Psychological profile of survivors- It is safe to assume that traumatic events, whether self induced, 'man-made' or natural will to some degree cause clinical psychological symptoms (Schwarzwald et al., 1987). Research shows that the survivors ability to adjust to disaster-induced changes involves both perceptual and behavioural aspects (Drabek, 1986).

In general, the more intense the disaster the more serious are the psychological reactions of survivors to it (Sarason and Sarason, 1987). The factors that determine the extent to which survivors would emotionally react to a disaster are said to include: the number of non-fatal casualties, the number of survivors in public shelters or

homes damaged during an attack, the number of families in which a fatality has occurred, the number of homeless people, and the number of visible casualties seen by survivors (Janis, 1974). And presumably the visual expression of all this damage. The victims' continuous struggle to survive is claimed to be mediated by factors such as home attachments, group affiliations, psychological attempts to overcome the situation by means of cognitive control, temporary denial defence technique and a persistent sense of hope for the better times to come (Raphael, 1977; Drabek, 1986).

It is claimed by (Kinston and Rosser, 1974) that 75% of the people exposed to disasters, irrespective of the type and intensity of the event, may show the 'disaster syndrome'[2] and about 12% to 25% may manifest serious psychological reactions. The psychological responses that humans show to disasters may include apathy, passivity, or just pottering around aimlessly, extreme suggestibility, altruism, euphoric identification with the damaged community, enthusiastic participation in the clearing up operation (Wallace, 1956; also Mileti et al., 1975; Thompson, 1985; UNDRO, 1986; Stewart,1988).

Even though the long-term psychological effects of disasters are less clear and well known than the immediate and short-term ones (Drabek, 1986), there is no doubt that for many years the side-effects are likely to persist. For example, two years after the event survivors of a disaster in USA still show some anxiety, depression, social isolation, hostility, belligerence, disruption of daily routine and somatic complaints (Gleser et al., 1978). Five years after a flood

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2.Disaster syndrome in fact refers to so called Post-traumatic Stress Disord and the syndrome related to it.

in USA, 30% of the survivors still showed symptoms of post-disaster syndrome, signs of being phobic to cues related to the flood (Schwarzwald,et al. 1987; also Popovic and Petrovic, 1964). Ploeger (1974) indicates that 10 years after the occurrence of a disaster in Germany, its survivors still show symptoms that are aggravated by even mild provocation, such as talking about the event or the season of the disaster.

8-2- Associations between physical reconstruction and psychological recovery

This section is aimed at illustrating the close associations between the physical reconstruction and the psychological well-being of the survivor in the post-war reconstruction period. To this end, the relevant literature as well as some of the observations by the author will be presented. A brief review, of the conditions of the temporary accommodation provided for the survivors is necessary for further discussions on important issues, such as time to return to the old sites and participation of the survivors in the recovery processes as well as policies concerned with design, material and technical.

Emergency shelter period- According to Maslow's theory (1954), refugees may be regarded as having been forced to regress down to the lower levels of their hierarchy of needs (e.g., physiological and safety needs). This abrupt and intense change in the life of survivors along with the adverse conditions, such as over crowd of the temporary shelters (Loizos, 1977) can be added to their previously disaster-induced problems. In other words, the problems which victims, now refugees face during their temporary stay at camps (e.g., unemployment), may act as the 'second disaster' and push them to complete demoralisation and nervous-breakdown (Rossi et al., 1983). Orner (1988) very nicely and briefly describes conditions of the survivors in this period as 'living in utter limbo'.

Kinston and Rosser (1974), hold that refugees usually develop a particular mentality, the 'camp mentality', which can take the form of a set of personality and behavioural characteristics, such as 'selfishness', 'compassionlessness' and 'egotistical behaviour'. This

syndrome perhaps applies to war 'concentration' camps for prisoners as well as other disaster-related temporary shelters, because, it is claimed, that the negative consequences of life in emergency shelters are likely to develop, even in the most sophisticated and advanced camps (Kinston and Rosser, 1974; Orner, 1988). Due to these negative side-effects, authorities should do their best to make this temporary settlement as short as possible, in fact, one way to assess the success of any settlement reconstruction plan may be the brevity of its emergency shelter period (Orner, 1988).

It should be noted that in some circumstances survivors may be quite capable of building emergency shelters for themselves using indigenous techniques and salvaged materials from the ruins. These kind of shelters are likely to be more efficient and comfortable to survivors, than the commonly used tents. In fact, most Iranian refugees preferred to live near the ruins of their demolished houses, than to be moved to the temporary shelters provided by the government. This attitude seems to be unrelated to the sophistication of the camps and the quality of life in them. The survivors try to insist on remaining in their villages, in order to return to 'normalcy' as soon as possible. In earlier circumstances, these survivors have demonstrated remarkable ingenuity and skill in constructing suitable and cost-effective temporary shelters, while continuing their normal and routine occupational responsibilities and tasks. It is recommended to avoid military style designs of camp layout and to give the refugees an opportunity to establish some form of community similar to their original homeland (UNDRO, 1977?; Davis, 1978; UNHCR, 1982; MacAdam, 1987).

Design policy

a- **Site selection-** Post-disaster housing is one of the main priorities for all disaster victims (Drabek, 1986). However, selection of a location for the survivors may be a very painstaking, complex and delicate process (Davis, 1975; 1977). Even though disaster victims may resort to different means of recovery from the homelessness, such as autonomous kinship or institutional approaches (Bolin and Trainer, 1978), the main issue revolves around whether or not they should return to their original site. According to Drabek (1986), decisions regarding site selection must be made with respect to the cultural, ethnic, personal and social needs and interests of the survivors (also Perry and Mushkatel, 1984).

It is generally noteworthy that survivors are very willing and persistent in residing in the same site and repairing their own damaged homes (Nehnevajsa and Wong, 1977; Geipel, 1982). There is strong evidence that survivors decline to sell their lands to the government after being moved to safety, even when there is a further potential threat (Cochrane et al., 1979). Interestingly, in some cases when the authorities have insisted on disaster victims moving to new sites, they have ignored official warnings and moved back after a short while (Mitchel, 1976b; Mitchel, 1977). Relocation can, if too far, change the surrounding environment of their homes, along with some important aspects of their social and familial lives (Orner, 1988).

The overwhelming enthusiasm of the survivors to return to their old locations, their strong resistance to any sort of change and their insistence upon the 'sameness' of various aspects of their lives after the disaster, may be beneficial to their psychological well-being.

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Thompson (1985), suggests that 'over-learned familiar routines', something which results from living in the same or similar environment, may be regarded as a therapeutically effective means of assisting people under stress. It is reported that if survivors have an opportunity to decide about the site of their new homes, they usually prefer the original site and even the same spots. In fact, they show considerable resistance to suggestions for doing otherwise (Quarantelli, 1982).

It is claimed that the victims' site-selection tendency may be associated with their age, sex and occupation (Boileau et al., 1978). For example, older survivors are more adaptable to new locations, and generally show better adjustment to relocations and post-disaster effects than younger victims (Schiff, 1977). Obviously, if there is a probability of future threats to the old site, it may be sensible to disregard other factors and attempt to locate survivors elsewhere (Oliver-Smith, 1977; Boileau et al., 1978). The decision of survivors regarding the location of their homes, at the original sites, will be drastically affected by the continuous recurrence of threatening events (Drabek, 1986). However, White (1974), maintains that reasons, such as unavailability of any acceptable and satisfactory alternative, may persuade the disaster victims to reside even in areas where there is a high risk of recurrent disasters. It is claimed that the probability of a disaster to reoccur, as one determinant of the intensity of the disaster (Leik et al., 1982), has to be considered for the site selection (Goldsteen and Schorr, 1982).

In many cases, unsuitability of land is one of the main contributors to the occurrence of some disasters. Especially in the

major cities of developing countries, Mexico City for example, most squatter settlers are vulnerable to mud slide, fire and earthquakes. Also, many villages located in flat areas, close to fertile land for agriculture, might be at risk from floods. Though it may be necessary to relocate survivors to lands where risk of future disasters is low, this change can cause some disruption in the economy of the community. (UNDRO, 1977?; Davis, 1981a; 1987a).

In reality, transferring survivors to other sites (i.e., complete relocation) is rarely practised (Drabek, 1986). The authorities should therefore be aware that the decisions regarding location, even to temporary settlements must be well planned, as the greater the number of post-disaster residential moves, the less chance the survivors have to recuperate and overcome their emotional and familial problems induced by the disaster itself (Bolin, 1982). Any sort of transition, such as, moving to a new place of residence, even under normal conditions, may be a source of stress for people (Sarason and Sarason, 1987). Perhaps the ultimate stress occurs when survivors become refugees in other countries far away from their homeland.

Bolin (1976), indicates that 'residential dislocation' could give rise to some additional adverse effects for the victims. On the whole, it appears that returning survivors to their original homes would be considered less 'transitional' and more 'normal'. Since victims usually assess and compare their losses relative to those of other victims (Barton, 1969), authorities must act consistently to avoid discrimination in their dealings with the victims. In this respect it is well known that survivors usually compare their fate with that of other victims to assess their conditions (Kilijanek and Drabek,

1979).

The survivors' preference to return to their original homes may
be related to their desire to 'regain normalcy' and enjoy 'a sense of
closure regarding the dead' (Hershier and Quarantelli, 1976; Drabek,
1986; Orner 1988). However, on the other hand, it is worth mentioning
that environmental stimuli, associated with the catastrophic event, may
trigger the 'original trauma' in some victims when they return home
(Amen, 1985).

b- Population integration- My observation from Khuzestan
strongly supports the proposal that maintaining the pre-disaster
population configuration for each village is welcomed by the survivors.
It seems that survivors prefer the same old community and resent having
to live with 'strangers' in their 'reconstructed villages'. It appears
that they do not want to deal with additional social and inter-personal
relationships and demands. It is not surprising that sticking to 'good
old friends', such as, kin and established neighbours help victims with
their struggle to maintain a normal life after disaster (Drabek, 1986).

In respond to the question ' whether or not they prefer to be
living with other villagers in a new settlement?", majority of the
respondents expressed their dissatisfaction with the idea of
integration with other communities in their reconstructed villages. It
may be noted that due to provisional considerations and size of the
villages in Khuzestan, the Iranian authorities had decided, in some
circumstances, to build clusters of villages, where each cluster
consisted of a few small villages built close to one another in a
particular area.

The residences of these close-by villages apparently are doing

their best to maintain their 'territorial privacy' and to avoid routine and frequent interactions and communications with the other nearby villages. It is suggested that the psychological recovery of survivors may be accelerated under conditions, where they live with people whom they know and relate to well (Demerath and Wallace, 1957; Warrick et al., 1981; Golec, 1983; Drabek and Key, 1984). There are reported cases where simple events, such as finding an 'incompatible' neighbour, have forced the survivors to abandon their homes and resort to a more familiar and "friendly site" (see Ciborowski, 1967; Hogg, 1980). There are also cases where the whole community has evacuated their reconstructed homes at a new site and moved back to the original site, because they had been forced to live in a community which they did not like (Davis, 1977a).

c- **Site layout and house design-** It appears that more similarity in the design of the houses would result in less disturbance and stress for the inhabitants. However, due to the vulnerability of the old villages and houses, use of new designs may be necessary. When these are introduced, 'an appropriate design', something not too far from the previous one may be favoured. Failing to select a proper design may result in some difficulties in the suitability and maintenance of the new houses. It is suggested that whenever some technological changes are to be implemented, the designers and builders must try to come up with plans which are consistent with the traditional aspects of the houses (Davis, 1975; Aysan and Oliver 1987). The greater the similarity between the pre- and post- disaster social and physical aspects, the fewer are the adaptations required (Mileti et al., 1975).

One advantage of keeping the technology the same (or very

similar) is that it gives the people a sense of control over their houses, in terms of understanding and being able to manipulate their design and structure if necessary (Spielberger and Sarason, 1985). The need to have actual or perceived control over various aspects of housing may explain why Morris (1974), claims that humans tend to 'resist change', and that they become 'disoriented' when changes occur. Furthermore, it is suggested that disaster victims may show less interest in the materialistic aspects of life after the disasters and become more spiritual and fate believers (Bolion, 1982; Drabek and Key, 1984). They may feel that the situation could be much worse for them by being killed or receiving more serious damage.

It seems that in rural areas of Khuzestan a considerable number of families have experienced dramatic emotional and social upsets as a result of changes in the design of their houses. For example, due to significant alteration in some buildings, where a significantly different design from the original was imposed the occupants frequently altered the building; the same has been observed with the layout of villages.

d- Material and technology policy- It is argued that appropriate material and technology policies of reconstruction may be the final by-product of the inter-relationships among a number of factors including stability of the site, the local building patterns, improvement to buildings aimed at lowering their liability to future disasters (Bates et al., 1979; Tonkinson, 1979). It is well documented, that people will do all they can to alter those aspects of their reconstructed villages, which they do not find consistent with their needs and taste. This tendency to modify their new homes would

subside only when victims again felt secure in a 'balanced place' (Baron et al., 1974; Spielberger and Sarason, 1985).

Snarr and Brown (1978), and Bjorklund (1981), indicate that victims, in general, receive a more or less improved quality of housing after disasters. This improvement may be partly because some believe that post-disaster conditions are good opportunities for introducing substantial improvements in social systems anyway (Fritz, 1961; Quarantelli and Dynes, 1972). However, it may be noted that some of these changes in the design and structure of the original villages may be based upon the pre-disaster pattern and plans (Bates et al., 1963; see also Prince, 1920; Lessa, 1964; Oliver-Smith 1979).

Furthermore, some improvements in the technological aspects may increase survivors' vulnerability by making them more dependent (Perrow, 1984; Davis, 1981a). Orr (1979), claims that technological changes (i.e., improvements) may bring about extensive adverse side-effects and some social disruption (see also Lewis et al., 1977; Long, 1978). Moreover, using new designs and new materials may impose additional psychological stress (i.e., pressure), as they may not know how to use and repair them. It is claimed that homes using new technology and designs may make the survivors more dependent on external help, and as a result feel considerable loss of control (UNDRO, 1977?; Cuny, 1981; Rubin et al., 1985).

Implementation and construction policy

a- Timing of return home- For families the importance of returning to their homes becomes evident, when one considers the unfortunate conditions of life in the emergency shelters. There may also be the negative effects of losing family members. It is claimed that survivors may become frustrated and aggressive from long periods in temporary shelters while waiting to return home, that they may become hostile towards the very people trying to help them (Lacey, 1972; Milet et al., 1975; Krell, 1978). In general, the decision regarding the time to return the survivors home may be decided against four main factors, namely, the completion of the new buildings, conditions in the emergency shelters, the potential risk of similar disaster and the psychological recovery of the victims.

b- Completion of the buildings- Since victims could return to their homes only when the physical reconstruction is completed, the process of rebuilding damaged homes should be kept as simple and short as possible. However, it has been found that survivors prefer to return home even before the completion of the their homes (Drabek, 1986). Our findings are in complete agreement with the latter claim. More specifically, most Iranian refugees indicated their unequivocal preference for returning to the ruins of their houses to living in the confined environment of emergency shelters. The rural people are usually more familiar with indigenous material and methods of construction than would be urban survivors who are therefore likely to be more dependent on 'external' aid.

c- Conditions of the emergency shelter- As mentioned earlier, the period of temporary shelter should be as short as possible

(Birnbaum et al., 1973). In fact, the slower the process of reconstruction and the longer the emergency period, the worse will be the long-term effects of the disaster on the victims (Erikson, 1976b). This deteriorating psychological state may be due to a reduction in the level of the victims' optimism and hopes for betterment as the emergency shelter period prolongs (Birnbaum et al., 1973).

Drabek (1986) indicates that refugees are usually aware that they cannot return to their homes overnight and it may take them time and effort to return in the future. It is suggested that having family and friends in the same temporary shelter increases the victims' chances of successfully coping with the stressors (Drabek, 1986). Regarding the adverse effects of long stays in temporary shelters, Milne (1979) indicates that some of the survivors may adapt to the new style of life and become so satisfied that they refuse to return when the time comes. Interestingly, he adds that remaining in the 'disaster community' may produce more positive consequences for survivors than leaving the area after the disaster.

d- Potential threats- The likelihood of the occurrence of similar disasters in the future over-shadows the original site and the survivors' perception of post-disaster life. It is best to evaluate the probability of such future threats before the people are advised to return home. The validity of the latter proposal may be appreciated by reminding ourselves of the primary causes of the evacuation after the impact or perceived threat (Hultaker, 1977). Although some steps are taken to predict the occurrence of natural disasters, it seems that in the case of man-made disasters this prediction and risk assessment is more difficult. In case of war, for example, the front lines may

change drastically overnight.

e- Psychological recovery of survivors- The timing of the return
to the home may also be influenced by the psychological consequences,
for example, a number of survivors may develop some form of phobic
reaction (Sarason and Sarason, 1987), that keeps them from readily
returning to their original places (i.e., the site of the disaster).
However, the instance just noted seems to be the exception rather than
the rule. After a while, most survivors may be expected to be
psychologically fit and more prepared for this, in fact, they usually
insist on returning to their homes, or at least to have the problems
regarding the site of their new homes settled as soon as possible
(Drabek, 1986). Interestingly, it has been reported that in some cases
survivors of an earthquake may return to their damaged homes within
minutes following the impact (Takuma, 1972; UNDRO, 1986). It is
worth mentioning that different communities show different rates of
recovery. It is claimed that this rate is related to the
characteristics of the society and the type and scale of the impact
(Drabek, 1986). However, it is important to note that the survivors
may undergo some psychological changes during the temporary shelter
period. For example, it is claimed that the altruistic behaviour of
the victims, shown immediately after the disaster, gradually decreases
and returns to the pre-disaster period level, usually within six months
(Fritz, 1961; Barton, 1962, 1969). It is also reported that they may
become very cautious several months after the disaster and seek all
sorts of legal and insurance policies to protect themselves in the
future (Drabek and Key, 1984; Drabek, 1986).

Obviously, the authorities cannot always wait until every member

of the community has resumed his or her normal psychological state

before advising them to return home, some may still suffer from

severe psycho-pathological problems more than a year after the disaster

(Taylor, 1977). Thompson (1985) suggests that a year may pass before

survivors can integrate into the social system effectively, for those

who have lost family members, this period may even be extended to two

years. On the other hand, Wallace (1956) indicates that the

post-disaster syndrome may only last a few weeks.

Another important issue is the 'time of year' when victims may

be more vulnerable and susceptible to the emotional consequences of a

disaster. Sarason and Sarason (1987) describe a syndrome, known as

'the anniversary syndrome', when displays of depression and anxiety on

the anniversary of the experienced catastrophe. Thus, authorities

should select a time to return that does not coincide with bad memories

of the disaster. Finally, it must be remembered that, decisions about

when to return should also take account of the season and any new

circumstances prevailing on the original site.

f- Participation in the reconstruction

Participation in the decision-making- It is important to note

that victims of war not only mourn for the deceased, but they may also

lose their orientation to life and the sense of meaning and purpose for

continuing to live (Thompson, 1985). Even though survivors require

some time to recuperate (Orner, 1988), they need to be regarded as the

best potential helpers in every step of the reconstruction. Giving the

survivors a chance to have a say about their current and future life

may alleviate their negative attitudes towards the authorities. Horigo

and Qura (1979), report that a significant rise (a major shift) in the

negative attitudes of the victims, consisting of 'blame assignation' may prevail in the recovery period.

Therefore, authorities who work with the survivors should be aware of the possibility that victims may begin to distrust them for what has happened to them (i.e., the disaster), or for what they have gone through since the impact (Schorr et al., 1982). One way to deal with this negative attitude is to avoid 'impersonal' and 'bureaucratic' approaches to the victims and their affairs and resolve their problems as urgently and promptly as possible (Taylor et al., 1970; Bolin, 1982) The way to do this is to give them a chance to take part in decision-making. However, a reduction of trust in the officials may not occur at all after some disasters (Rossi et al., 1983).

The question which may be asked at this stage is, when could the authorities start to count on victims' mental and physical help since mourners are known to show symptoms such as grief, phobic reactions, anxiety, depression and lack of concentration (Mawson et al., 1981). Even though the answer is not clear, it is suggested that within two weeks the survivors usually come to terms with their conditions (Drabek, 1986). One activity which may help survivors, is to encourage them to visit the places associated with the disaster and let them express their emotional feelings freely and openly (Mawson et al., 1981, for general information on guided mourning).

According to Mawson et al. (1981), this gradual and selected approach to the 'avoidance cues' would be psychologically beneficial to the survivors. However, victims' grief symptoms may temporarily increase when they are first exposed to the cues associated with the traumatic event (Sarason and Sarason, 1987). Lack of evidence on this

topic is not surprising as there appears to be only one study reported in the literature, that has investigated grief caused by loss of the home (Fried,1962).

Providing the survivors with social support may play a crucial role in helping them face their unfortunate ordeal. It has been demonstrated that vulnerability to physical and psychological breakdown increases as social support decreases (Thompson, 1985; Sarason and Sarason, 1987). One way to help survivors is to give them a chance to partly contribute to events which will effect them in the future, namely, issues such as the site of the new villages, the time of return and the type of housing. Obviously, allowing survivors to participate in major decision-making, increases the probability that they will like their newly built homes after they move into them (Perry and Mushkatel, 1984).

It is claimed that the ultimate means of assessing the quality of settlement reconstruction programmes should be based on the degree to which dwellers after a suitable time, are satisfied with their homes (Drabek, 1986). The experience of reconstruction in Khuzestan clearly shows that those villages whose residents were consulted about the issues regarding their new houses, such as their siting and design, were more satisfied. Based on what has already been discussed, the idea of at least, informing the survivors about the progress of the construction of their new villages seems recommendable. In fact, it appears that their direct involvement in the construction process is a useful measure.

People usually cope better when they have plenty of information and are made aware of the alternatives (Drabek, 1986; Sarason and

Sarason, 1987). After a disaster authorities may assume it would better if they keep the survivors away from the area and when houses reconstruction if completed then ask the people to come back and to 'surprise' them by the new houses and to make them happy and relieved. However, It may be noted that 'surprise' and 'novelty' appear to be two elements of 'collative variables' which, according to Berlyne (1971), elicit excitement and enjoyment in observers. Clearly enjoyment is unlikely to be the case for distressed people in refugee camps. Likewise the authorities should not 'surprise' the survivors with the news that their homes are ready. It is essential to keep the survivors well informed at all times and to let them take part in every step of planning and construction. In addition, such an approach may well stop the adverse effects of rumours which arise about their conditions and future. It is suggested that victims' suggestibility increases in the recovery period and they typically accept the rumours that they hear, a tendency which is regarded as a means of decreasing uncertainty about their fate (see Thompson, 1985).

Participation in the physical work- The long period of temporary settlement may be substantially eased shortened if the survivors are given a chance to take part in some sort of training which could help them cope with their existing distress and their future responsibilities (Leslie, 1980). Even under normal conditions, people need some mastery over their surroundings in order to produce effective changes in their environment (White, 1959). Cox (1978), indicates that training and educating people, who are under stress, is a beneficial psychological technique for helping them. Obviously, the type of skills needed are specific issues that have to be resolved in each

particular case (Sarason and Sarason, 1987).

Therefore, available skills of the disaster stricken villagers may be used in respect of their post-disaster contribution to reconstruction. Intervenors should discuss with the survivors how they can undertake some effective part and play a valuable role in the recovery process (Hewitt and Burton, 1971; McComb, 1980; Syren, 1981). Since social support is meant to increase the chance of psychological recovery in the pre-settlement period (Fields, 1980; Henderson, 1977), So it would seem an equally good tactic to enable survivors to organise themselves to make the most appropriate contribution to reconstruction of their settlement.

Moreover, damage to ones house by an enemy will cause great anxiety and this reduces the perceived degree of control over our environment (Thompson, 1985). Therefore, to mitigate these feelings by official encouragement to join in the work of reconstruction will hopefully give a sense of regained control over events. By giving the survivors a chance to establish social and personal bonds , through working together helps to keep the victims from being constantly preoccupied with memories of the past and change in the level of aspiration. (see Sarason and Sarason, 1987).

The changes in the level of aspiration of the survivors after they had returned home, was expressed by many of them who thought the government should rebuild their houses if the disaster occurred again. But the most people said that they were prepared to co-operate with the government and take part in rebuilding their houses. This change of attitude is important because these villagers are quite capable of rebuilding their houses. It can be suggested that their attitude to

reconstruction, if they had taken part, might encourage them to take an even greater part in the physical work.

Conclusion- The following tentative conclusions may be derived from the foregoing discussions:

1-Post-disaster physical reconstruction can contribute to or negatively affect, the psychological recovery of the survivors. At each stage of the post-disaster period, the different physical reconstruction activities should be co-ordinated and harmonised with the survivors' psychological recovery (e.g., mood) to ensure a speedy recovery to normalcy.

2-Since survivors long to return to their homes, authorities should do their best to make the emergency shelter period as short as possible. The shorter the period of post-disaster temporary settlement, the faster and more successful the victims' psychological recovery and the restoration of their means of livelihood the more effective their ability to cope with their ordeal. In many cases temporary settlement on the original site is better than the distant refugee camps.

3-The new settlement site layout, housing design, technology and use of materials should be as similar to the old ones as possible. When changes are inevitable, however, alterations should be consistent with the survivors' expressed needs and priorities. Such an approach should better ensure that survivors will be better content with their rebuilt homes and so not feel the need to undertake major alterations to them, or even to abandon them after a short while. It is crucial that the survivors be able to repair and maintain the new houses themselves.

4-Survivors should be given every chance to take part in the decision-making processes concerning life in the emergency shelter and their future well being in their prospective homes. This 'procedure of involvement' should be institute to them during the early stages of the emergency shelter period, to help overcome their misery and to encourage them to look forward to the future.

5-Survivors' participation in the actual process of the physical reconstruction appears to be psychologically helpful to them as well as possibly economically beneficial to the authorities. To achieve this objective, however, the agencies involved should organise training and employment programmes. This claim contradicts the allegation that surprising the survivors by giving them a prepared building would help them with their psychological recovery.

CHAPTER NINE.

CHAPTER IX

WAR AS A DISASTER

Introduction: The aim of this chapter is to explore the notion
of 'war as a disaster' and to sketch out some of the major
characteristics of war. Comparison between war and natural disasters
is helpful and for the time being the conventional themes and phases of
natural disasters will be employed as a framework. The general
characteristics of war as a hazard, mechanisms of destruction, civil
defence and the particular circumstances of post-war relief will be
discussed. Since our emphasis is on 'reconstruction after war', that
issue will be discussed in a separate Chapter.

9-1- General characteristics of war as a disaster

a- The origin- Warheit (1972 and 1976) has studied the
similarities and differences between natural disasters and civil
disturbances. He argues that in many respects such as; 'origin,
warning, duration, community context, organisational response' there
are significant differences between the two. He also suggests that
another category of disasters, such as, explosions and transport
accidents are by their very nature different from the two previous
groups. However, it seems that civil disturbances are significantly
different in their characteristics from classical warfare.

Natural disasters, it was argued, occur when a natural hazard
strikes a vulnerable human settlement. Most man-made disasters,
although they share man as their agent, transport crashes for instance,
are somehow unintended, accidental events. (with exception of

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hijacking)[1] In the case of war on the other hand, the event is initiated, continued and finished by man's' decision; an intentional action. War is therefore a totally man-made phenomenon. <u>Thus man himself is the source of hazard</u>. Is it jealousy, superiority, development or betterment, survival, defence and many other forces that cause conflicts? Blackaby (1987), for instance, has attempted to analyse the causes of war in the narrow context of NATO and the WARSAW Pact. (pp. 13-18)

b- History and magnitude- The history of war is as old as the human race. War became associated with human society as it developed towards civilised urban settlements and with progress so the means and scale have escalated accordingly. From recent history we refer to a few examples. Lefrancois (1980), claims that over 50% of all nations have taken part in at least one war since the turn of the century and Kirdon and Smith (1983), say there have been about three hundred wars since 1945. Urban Edge (December 1988) writes; '...33 nations have been affected [by war] since the Algerian War, which ended in 1960'. United Nations (1988), has said that; 'More wars (22) were being fought in 1987 than in any previous year. ...In the 1960s, civilians accounted for 52 per cent of the deaths; in the 1980s, for 85 per cent' (p. 2). In brief, war does not belong only to history, rather, it is a miserable reality of our present era.

United Nations (1988), reveals that; 'Research on AIDS is to

1.The driver of a train which crashes is likely to have made a mistake since the accident endangers his own life. There is a very little chance that the man attempting is suicide.

receive $344m in US public funds in 1988, about 9 per cent of the amount to be spent on Star Wars research.... the destructive forces of today's nuclear stockpile 'provides the equivalent of 3.2 tons of TNT for every person on the earth' (p. 2). [3.2 grams of TNT inside a bullet is enough to kill one person] The same reference also reads; 'Saudi Arabia, for example, spends $434,038 per soldier, which ranks it first. The country ranks 122nd in literacy, with only a third of the population able to read' (p. 2).

According to the 'World Development Report 1986', all nations of the world spend at least 10 per cent of their expenditures on defence. This percentage is higher in developing countries. The percentage of defence in the total expenditures of the United Arab Emirate in 1983, for example, was 43.3 percent. The same country's expenditures on education and health were 9.8 and 7.7 percent respectively. (p. 223)

Arms production is a large business for the industrialised countries. As Turner (1985), claims; ' One out of every four specialists in the world are working on military matters'. As the United Nations in 1988 concluded; 'The world may be moving towards disarmament, but crossing the frontier does pose hazards' (p. 8). In other words the industrial nations have to lose part of their economic interests and gradually replace them with other civilised productions. (see also Thee 1987, pp. 1-11)

c- **Hope of stalemate?** For whatever reasons, most likely economic, some signs of a decline in wars were observed during the year 1988, and are continuing now. During the year 1988, of the 26 wars in progress '12 have stopped, or stand a good chance of stopping'. The

criteria for these wars are those where more than 1,000 people have been killed. (Economist, December 1988). Signs of hope appeared with the ceasefire in the Gulf, the withdrawal of the Russians from Afghanistan[2], the Cubans from Angola and the promises South Africa have made to pull their forces out of Namibia. However, a glance at the map reveals that the world, particularly the developing world, is everywhere still distracted by violence.

Despite the continuation of so much loss of life since the Second World War when some 40 million died, there seems to be a deliberate and conscious reluctance on the part of international agencies and national governments to accept this situation as inevitable. There are indisputably more lobbyists involved in the prosecution of war, than there are those concerned with the aftermath of recovery. And they appear to be increasingly effective in spreading their products. The other difference between war and natural disasters is this fact, that nobody looks to create more earthquakes or floods, or even transport accidents, but in the heart of Developed countries, specialists work to discover how more destructive wars can be perpetrated. Their institutions of course have misused misnomer of being concerned with 'defence' or 'Strategic Studies'. Vast sums of public money for research and political manoeuvring made available to create and support in effect more and more serious wars (disasters).

d- Ignoring the aftermath - Every day the media report some casualties from countries engaged in conflict and the situation looks

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2.The war with Russians ended, civil war started and is still continuing.

likely to continue in one way or another. But at the same time disaster concerned agencies and scholars are reluctant to include *war* in the 'list of disasters'. It is surprising that, for instance, the The United Nations Disaster Relief Co-ordinator in his 'Disaster News in Brief 1987', while recording losses of so called natural disasters, writes without any explanation '...losses arising from armed conflict are excluded.' This is in spite of the fact that UNDRO itself, during the year, has been involved in providing relief to many war victims. From UNDRO NEWS (September/October 1988), we learn that they have been involved in providing relief and aid in Algeria to persons displaced by war from Mali and Niger, in Ethiopia to Somali refugees, in Lebanon for relief and reconstruction during its '...continuous war', in Mozambique to '...some 273,000 people, displaced as a result of guerrilla attacks', in Rwanda to refugees from Burundi and in Sudan to an 'estimated two million' displaced persons most due to the civil war.

Reviewing the losses of some recent natural disasters, the Sudan flood of 1988 for example, reveals that many of those affected were war refugees. The report says that, 'Most of the homeless ...had fled from civil strife in the south ...and settled in a series of shanty towns ringing the capital.' (UNDRO News. Sep/Oct 1988)

As the much trumpeted news of cease fires in some countries, is overshadowed by the reality of so many still engaged in war of one kind or another, so the politics of suing for peace, seems to dominate the worlds leaders, as against the far more prolonged and complex task of reconstruction. In brief reconstruction after war unlike natural disasters is often undermined or ignored by politicians, agencies and scholars.

e- Variety of wars- Several kinds are identified; World war,

civil war, cold war, chemical war, conventional war, guerrilla war,...

and now world wide terrorism. A variety of definitions is used,

depending on the following five factors;

1- who are the two or more sides in the conflict?
2- where (geographically) is the conflict going on?
3- what are the goals of the war?
4- how serious is the fight?
5- what kind of armaments and or weapons are used?

It is obvious that each kind of war leads to some general and specific

effects and destruction in the communities. We attempt to outline

those that are more or less general in conventional wars between

nations.

9-2- Damage- Like other disasters the consequences of war can be classified under superficial groups of;

1- economic,
2- medical and psychological,
3- physical and environmental, and
4- social and cultural.

In comparison with all other disasters, war seems to be more destructive in that it is perpetrated by the State and thus affects the very way of life of most communities. Most natural and man-made disasters are selective in their damage. Earthquakes for example, destroy or damage buildings and infrastructure but have no direct effect on agriculture. Floods on the other hand, may destroy crops and cause food shortages, but do not necessarily destroy the social system. (see Cuny 1983, pp. 48-49) It is war alone that can cause such a combination of death and destruction; to people, to buildings, to communications and the whole way of life of a community or even a nation. Kreimer (1988), for instance points out that, '... after prolonged wars, there is greater disruption to the entire society, and institutions are apt to function poorly. ...so along with physical reconstruction, you have to deal with the rebuilding of various agencies.' (Urban Edge, December, 1988).

a- Casualty- Human fatalities can be considered as a good indicator for comparison between damage from natural disasters and war. A study by Shah (1983) revealed that the occurrence of natural disasters were almost regular in the period 1947-1980. (p. 205) In this respect, war casualties are usually concentrated in certain years. For instance we know that most casualties of the Iraq-Iran war were the

result of operations conducted in the first two years. Shah also reports that for the period mentioned earlier, a total of 1,222,298 lives were lost due to natural disasters. (p. 207) This figure is still smaller than the 1,300,000 claimed in Warsaw during World War II alone. (see Lewis, 1988).

Davis (1978), also summarises the major disasters since 1923 among them the 40 million casualties of the Second World War and the 1,800,000 of Vietnam with the 1,100,000 of the Biafran war, can well illustrate that human fatality from war is several times greater than all natural and other man-made disasters together.

b- Psychological effects- Physicians can tell us whether the medical consequences of war are much different to natural disasters. (see Cuny, 1983, p. 47)[3] However, we understand from psychologists that one of the major consequences of war are the psychological effects on people, both combatants and civilians. As we argued in our Chapter on Psychological aspects of disasters, it seems that in comparison with natural disasters war may create more severe and long-term symptoms. Raphael (1986), argues that, 'Much of our understanding of psychological response to disaster has evolved from the need to understand and manage the response to war' (p. 18). The same author then writes; ' There can be little doubt that war is a disaster on a large scale..... The Vietnam veterans have been considered one of the major disaster victims of war in recent years..' (p. 218). It is

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3.In Vietnam, cancer is common and deformed and mentally and physically disabled children are borne, which are the consequence of toxics the Americans violently used during the war against the civilians. [The Four Horses, Channel 4 TV Britain, 1985]

claimed that half a million American Vietnam veterans struggle with psychological symptoms in general terms. It is said that some 60,000[4] of them committed suicide so far, more than the number of Americans killed in Vietnam. This is the price they pay for killing 1,800,000 people. (see also, Perry, 1982; Amen, 1985) In brief, concerning psychological consequences there is evidence that war, in comparison with natural disasters, can create more serious and prolonged mental disorders. The socio-psychological consequences of nuclear attack as part of the general research on the subject is currently on the agenda of European studies. (see for example Thompson, 1985)

c- **Mechanism of physical destruction-** In the First Chapter it was mentioned that the war damage in Khuzestan had several agents and unlike what might be thought initially, it is not only the use of artillery that damages. The natural environment, deliberate flooding, looting, levelling by machinery are some other examples of destruction caused by war. In the same Chapter a classification of weapons was also provided and a partial discussion of the effects of different weapons was undertaken. In this section, we explore the effects of different weapons in more depth. It should be remembered again that with the exception of incendiary weapons[5] chemical and biological weapons usually have no direct effect on buildings or settlements. However, protection against them is much more difficult to achieve than against conventional blasting weapons.

4.This figure was announced in a TV programme, 'Every Man', on BBC 1, in the last week of March 1989.

5.See for example, 'Incendiary Weapons', A SIPRI publication, 1975.

Conventional weapons- A knowledge of the principals of damage by conventional weapons is necessary for an understanding of the strategy, design and construction of civilian shelter policies practised in a war situation. There are three means of damage; first, by direct strike of the projectile that acts like a thrown stone. Secondly, the explosion which could release two other destructive processes; air pressure (blast) and flying fragments. The flight of hot, sharp, twisting fragments is lethal for man but has little impact on buildings. (e.g. masonry wall) In this cases the main cause of damage is the explosion and the consequent tremor created by the sharp change of air pressure. Incendiary weapons of course create extreme heat, with less powerful blast. The third action comes from the collapse of buildings not able to resist the effects of explosion and this kills, injures and buries the inhabitants under rubble.

Most projectiles are designed to explode on impact with the target, like the roofs or walls of a building or other structure. However, there are bombs particularly designed for killing people, they explode before touching the ground and let fly thousands of small metal fragments over a vast area, each of which can kill.

One major factor in identifying the possible damage of a bomb or mortar is to know where it hits the building. In this respect three groups can be identified; First, bombs dropped by aeroplanes hit the roofs or surrounding ground (coming down almost vertically, with some angle). Mortars or bombs launched by artillery or mortar launchers fall on almost vertically. And third, there are the flat-trajectories (e.g. the 106 mm rifle and tank mounted guns trying over a in short

distance[6]) which shoots horizontally and will most likely strike the walls. Rocket launchers directed at the target hit either roof or facade. The long range missiles also fall almost vertically. The important point is that in conventional war the weapons are trained against buildings civilians use for shelter and these it seems mostly strike the roofs or upper parts of the structure.

The implication of these details was observed in Khuzestan. Since the earth roofs offered little or no resistance, the bomb or mortar penetrated the building before exploding and thus created even more damage. It is obvious that if a bomb or mortar explodes in the air or above the roof the damage will be much less than if it does so inside the building. The observation was that when the roof was strong, particularly with a tough finish such as cement tiles, the small mortars (60 mm for instance) hardly penetrated the roof, so the explosion happened mainly *on* the roof with only minor damage.

Another interesting observation was that usually the horizontal projectiles are less destructive over a short distance. There was a case in a village near Susangerd, where a small horizontal missile from a tank was shot, but because of the *high speed and short distance, it* passed straight through four mud walls before it exploded beyond the building. In another case a bullet fired by a tank at short range passed through the brick wall, and the corrugated iron sheet roof and left the building before it exploded.

In brief, conventional weapons can be fatal for man in several ways; direct strike, explosion and shock, flying fragments, throwing

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6.Tank guns can fire both horizontal shots for short distances and vertical shots like mortars for long distances.

the person around and building collapse.

Nuclear weapons- Nuclear bombs have three basic effects on people and shelters; first, the blast and shock waves such as with a conventional weapon which creates a sudden change of air pressure that causes a vacuum. The explosion also creates a tremor in the ground, which shakes like an earthquake. Thus far, the buildings that are not strong enough will collapse due to the strong wind created or the tremor in the ground. The magnitude of these and the possible damage is determined by the size of the device as well as the strength of the structure concerned. (see, The Nuclear Advisory Group, 1983, p. 79)

Secondly, 'the explosion is accompanied by the emission of extremely intense heat and light, lasting a second or so and the primary nuclear radiation begins immediately.' (ibid, p. 79) From this primary radiation particularly, the two 'gamma and the neutron rays' are dangerous for people. They propagate in a similar fashion to light. In addition there is the risk from fire due to the very high temperature.

Thirdly, nuclear radiation (fall-out) follows the first one[7]. A cloud of dust contaminated by radioactivity spreads over a large area and may penetrate into houses. This contaminated dust has no direct effect on the structures. In summary if a structure is intended to protect people in the case of nuclear explosion, it should withstand the hurricane-like air pressure, earthquake-like tremors, should be be fire proof and obstruct the penetration of radiation and fall-out.

7.If the bomb explodes in the air there would be little fall out.

(see for example, 'The Effects of Nuclear War', Congress of The United

States p. 16)   It seems useful to refer to a 'Home Office Guide,

Domestic Nuclear Shelters' (1982), which reads;

> "Injuries or death from air blast can be caused in
> four ways:
> By direct effect of pressure on the body; lung
> rupture would be the determining injury.
> Indirectly, by the body being thrown against hard
> objects.
> Indirectly, by the body being hit by pieces of
> flying debris.
> Indirectly, by the collapse of buildings on to the
> occupants" (p. 8).

9-3- <u>Civil Defence (precautionary measures)</u>- The main preventive measure which can be taken by politicians is to avoid any conflict. If that fails, the second measure is to stop the bombers or other enemy groups from penetrating and shelling the civilian areas. This of course is not easy, and is hard to guarantee. If the risk is serious, then there remain two main approaches; construction of shelters and evacuation.

a- <u>Specific character of war</u>- One of the differences between natural disaster and war concerns the dissemination of information. Civil defence requires the data and analyses of the enemy and home army equipment and capabilities, to assess the severity and magnitude of the threat. Obviously the general public must be trained and educated for such situations. This requires disclosing secret information. <u>These data and analyses are mainly possessed by armies and governments and are confidential</u>. Furthermore as Perry (1982), in relation to nuclear attacks argues, the more the military generals feel confident about the safety of their own civilians in the case of attack, the more likely they are to become involved in a conflict. (p. 1) The same reasoning has also been made in Britain by supporters of the Campaign for Nuclear Disarmament. <u>It is peculiar to war that mitigation measures can increase the risk of hazard</u>. To penetrate the defence of one side, the other side must use the preventive strike and more destructive weapons. Thus leading to escalation of the arms race.

An extra difficulty is the ever-changing military capacity of the enemy. The phenomenon of the 'arms race' is common everywhere and those who do not produce the weapons purchase them. In a few days

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with the arrival of new fighters for instance, the range of access for bombardment will change. During the recent Gulf War, in 1988 Iraq received long range missiles, which could be launched from inside their own territory to hit Tehran and Isfahan, cities, which until then could only be raided by bombers. This brought a new dimension to the Civil Defence. Tens of missiles a day during a few weeks in March 1988, created a situation whereby millions of people fled from Tehran. This is another difference between natural hazards and war. The source of natural hazards seems more or less static, while in case of war it is always progressing and moreover, its magnitude can change overnight.

b- Defence and architecture- The defence of settlement has a long history. As Davis (1983), claims; ' Throughout history, castles, fortifications, and entire towns and cities have been sited to serve military purposes. These have normally been defensive but they have also been built to aid attacking troops' (p. 300). He then introduces some examples in history.

As far as our experience in Iran is concerned, settlement defence had different priorities in different regions of the country. Often settlements located at the periphery of the desert, where nomads lived were more at risk from looting. This was common behaviour in the past and the nomads often attacked villages for grain and other commodities.

In urban areas, which were also at risk from external enemy, not local looters, the fortifications were stronger. Many of the old cities like Kashan, were surrounded by strong walls and bastions. Inside the city the governor's residence or other important buildings

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were also surrounded by extra walls. One of the most spectacular examples is the 'Ark-e[8] Bam', in Kerman Province, an abandoned city with seven fortress all made with mud, as was the city itself. The design of this Ark is very important, because it is built on a hill with the governor's building at the heart and on top of the hill. Furthermore a secret well was dug, with an escape tunnel going to the desert.

In the villages, defence considerations affected the architecture by several means. First was the location, it was necessary to build on the top of a hill or on the edge of rock cliffs to reduce the chance of being invaded. After that the construction of high walls and bastions were necessary. The weak points were often the gateways. That was cured by making them very small, covering them with metal sheets to protect them from enemy fire and more than that; installing holes above the doors to enable the inhabitants to throw boiling water on the enemy, to extinguish fires and also to shoot from. Another major consideration was to have access to drinking water from inside the castle in case of siege[9]. The defence of each house was also considered. One necessary measure was to store grain inside secret stores, in the wall or very often between two vaults in the roof and covering the entrance.

The same concept in recent history has been undertaken in different ways. Davis (1983), for instance argues that the construction of the 'autobahn network' in Germany in the 1930s, was

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8.The word Ark in Farsi means fortress, castle etc.

9.The village 'Hanjan', near the city 'Natanz', Iran is an illustrative example for all what discussed.

partly 'to aid the rapid deployment of troops. This is clear from the location of the initial network and the road thickness, clearly designed to take the weight of tanks.' (p. 301) Davis then argues that the building of 'Interstate Expressways' in 1950 in the USA, was partially promoted to evacuate the population in case of nuclear attack[10]. Another similar measure taken in Switzerland is the consideration of temporary runways on the ordinary roads, in case airports and airfields were damaged. (see, Defence of Japan 1982, pp. 62-63) Davis also argues that advocating 'urban decentralisation' after bombing and the spread of 'Garden Cities' in Britain, was also another example. One of the major factors of vulnerability in war-time is population density. In contrast to natural hazards small villages are often more secure than large urban population centres. (p. 301)

Civilian defence in war time is more than an engineering task. From our experience during the recent war with Iraq we can remember how people's responses substantially changed after repeated air raids. During the first few days, the families were alert and therefore responding actively to the warning signals. Gradually the warnings became routine and you could often observe normal life continuing, without any interruption during the warning phase. The same notion must be also considered in case of nuclear attack. It is not enough to have the shelters but to convince people to use and stay in them.

In summary, the location and design of settlements and their shelters can all contribute to increasing the protection of civilians should war occur. Factories, power stations, fuel storages, government

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10. See also, The Effects of Nuclear War, Congress of The United States, pp. 51-53

headquarters and barracks are most at risk and therefore it is better to avoid to locate them in highly populated areas. Two basic measures which can be taken are evacuation and shelters.

c- Protection against conventional weapons- In this section some observations from Iran will be described and a review of the shelter approaches implemented in Britain during World War II will be made. Despite the 40 years which elapsed between the two wars (i.e. WW II and the Gulf war) in many respects the concept of shelter and the problems faced by the civilian population are similar.

First it must be remembered that the ultimate goal of bombing and shelling is not necessarily damage to buildings or even killing people. It is not these damages and casualties, but **the havoc of the strike,** and the consequential psychological impact on the people, which may lead to **disruption of routine** life that seems to be the 'object of these attacks'. This will create more **internal pressure, both economic and political chaos and pressure on the** State. That is why sometimes fighter planes invade enemy's territory without dropping any bombs, just crossing the sound barrier and making a great noise to terrify the people.

Second, the defence against conventional explosives is not to protect ordinary civic buildings, but lives. Only particular buildings and equipment, such as military and government headquarters or ammunition stores, might be protected against the direct strike of weapons.

Third, in theory if we assume each person to be staying in a very strong shelter, or if all civilians are evacuated there would be

few casualties. The major problem is how to sustain normal active life during the war. The major difficulty of shelter provision is that it is impossible to have both normal life and protection simultaneously.

Fourth, one difficulty with bombing is that its occurrence is often not known in advance. But the worst time can be used for the maximum disruption and mental pressure. For instance, we could remember that one year during Ramahdan[11] the Iraqis bombed Tehran every night, right at the time when families were awake for their early morning breakfast at the start of their fasting.

Fifth, another major difficulty with protecting civilians is convincing them to continually take refuge in shelters when the warning is issued. Psychologically after some time they will get used to the warning and start to take more risks and be more careless about their lives. (see our chapter on Psychology)

Sixth, the technical guidelines based on engineering calculations for building shelters against the blitz, that were done at the time of WW II might still be useful. One of the main difficulties is to produce shelters in large enough numbers and close at hand to be effective and at a cost affordable by the people and the government. One extreme dilemma is to convert cement, sand and steel into 'blitz shelters' for poor families, when they would prefer to make another 'permanent room' for their houses out of those materials.

Seventh, nowadays, unlike the time of World War II, when bombs were dropped from the air with varying degrees of accuracy, there are much more sophisticated weapons, that can be directed to hit the target

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11.The month when Muslims go on fast from dawn until sunset.

with a great accuracy. In addition, there are missiles that move so fast that do not allow a warning to be issued beforehand. At least every country may not have such technically advanced warning systems installed.

Eighth, the protection a shelter needs to give is relative. The damage from bombs, at various distances from the building, are quite different. For instance, constructing any shelter, which could resist the heavy long range missiles the Iranians experienced late on in the war, seems unrealistic. The missiles were so devastating that from a distance of 40 to 50 metres around the strike point, nothing would be left and everything would disintegrate. Buildings fall to pieces, but in the same situation the inhabitants of houses 50 metres away could survive if they could be protected from;

1- direct air pressures, (blast)

2- flying fragments,

3- collapse of their building, fire, etc...,

4- burial under rubble.

d- Shelter in Iran- During the recent war in Iran at a very early stage graphic guidelines were published by the Government for the construction of shelters. This has been repeated since. People's reaction however, was of little concern and few families took any serious steps towards building shelters themselves.

With the continuation of attacks on cities which intensified in the last three years of the conflict, the use of shelter was taken more seriously. One major step was to convert and prepare the basements of public buildings, such as those of the ministries, for accommodating

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people in case of bombing. Another kind of shelter was built with pre-cast reinforced concrete in the form of an arch. Often these were surface shelters. It was recommended to schools however, as well as for households, to dig a trench and to cover it. The real performance of this type of approach remains one of the important subjects to be studied.

Basically two kinds of shelters are necessary; private and public. The first for those members of the family staying at home and at night time and the second for the daytime in crowded public places. There were families, whose houses were so crowded or old and weak that there was no possibility of strengthening any part as a shelter. In that case the government had to constructed public shelters, the first were down town, where these families lived. In a country like Iran, the long term use of public shelters is a complex matter. In an Islamic community, where family privacy is so significant, living in a public shelter is very difficult.

In addition, if shelters are quickly provided by people themselves the quality of construction might be dubious. Perhaps shelters provide more psychological support than physical protection against a blitz. These constructions may add to environmental problems because eventually they become garbage pits and latrines. There is a dilemma that if they are locked, in the emergency period opening them might be impossible since the key holder might be away. If they are left open nobody has the management and control of them. They might even become dangerous in terms of hygiene, not to speak of unsightly structures created around the city.

There are in any case moments in Iran when protection in

shelters becomes impossible. The Friday sermon is one of them. Often half a million people attend the congregation. Where can they be sheltered? In fact the Iraqis often raided Tehran during Friday prayer time. Demonstrations are another case, on a few occasions Iraqis bombed public demonstrations apparently killing hundreds[12].

Whenever the bombing intensified people from some cities went to the surrounding villages. The government also set up temporary camps for a few nights. The trouble with this arrangement is that large temporary population need servicing.

e- Civil defence in Britain- We know of at least three outstanding references studying the history of civil defence and more specifically shelter design and construction in Britain, they are: 'Civil Defence' by O'Brien, (1955);'Enterprise Versus Bureaucracy', by Baker, (1978) and 'Architecture of Aggression' by Mallory and Ottar (1973). Beside these references the technical journals, such as 'The Architects' Journal' (AJ), were all published during the war and closely linked to shelter and camps and later reconstruction matters. For instance we understand that the AJ had an 'Information Centre' to advise the public on their shelter problems, as well as other technical services. (see for example, AJ, November 9, 1939, p. 570)

Mallory and Ottar (1973), write; 'The bombing of London in 1915 had established that war no longer had boundaries. Post- 1918 Europe was consequently air-raid conscious' (p. 215). Baker (1978), writes;

12.The worst case when this occurred was in one of the cities in West Iran
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"Britain was first bombed from the air during the
1914-18 War. No attempt was made to provide
anything more than emergency shelters then but the
attacks were sharp enough to be remembered and as
early as May 1924 an Air Raid Precautions Committee
was set up by the Government" (p. 1).

Since then several research groups and committees have been involved in

studying the task of shelter provision. One of the very early

approaches as Baker, (1978) writes was;

"Quite early in the 'phoney-war' period, soon after
the wattle and earth designs were produced,...
attention was turned to providing shelter in the
home. The most effective proposal came from D. C.
Burn. It was a propping system for use in a ground
floor room of a dwelling house, a stout frame made
of timber, with four posts, one in each corner of
the room, supporting four beams just below the
ceiling, to which the posts were braced by diagonal
members, all being bolted rigidly together. ...
Since timber, in short supply, was needed for the
frame they could not be provided in great numbers
but there are records of 1365 rooms being
strengthened in this way, of which 218 were
destroyed mostly by fire" (p. 42).

Baker (1978), also claims;

"The most revolutionary move was the decision to
issue free to each poorer household, to be placed
in its garden, a steel trench shelter, popularly
known as the 'Anderson', or where a suitable
basement existed, steel props for strengthening the
floor above" (p. 4).

Mallory and Ottar, (1973) write;

"Structurally the Anderson shelters had stood up
well to the small, quick raids of the summer of
1940 and thus already justified the public's
confidence in them. Their tensile properties
allowed them to spring back into shape easily and
they had a good impact resistance against blast for
this reason. They proved to be usually undamaged

by 50-kg bombs dropping up to 2 meters away and 250- kg bombs dropping 6 metres away, although unprotected exits in some cases proved lethal" (p. 227).

They also claim that by 1939 when War was declared, 1,500,000 Anderson shelters had been delivered. In 1940 the production of Andersons was suspended due to steel shortages. By then 2,300,000 of them had been produced. The same year the government shifted to production of concrete and brick shelters for domestic use. In 1941 the Government announced 'Morrison' shelters. In the same year some amenities were provided in shelters while also in the same year, the Blitz ended with 40,000 being killed due to bombing. From 1942 Shelter funds were cut almost completely. (p. 215)

Mallory and Ottar (1973), also explain how the surface shelters and trench shelters strengthened with timber or pre-cast concrete lining also proved to be vulnerable. In some vulnerable areas such as ..." Hull, Merseyside, Clydebank... people took to 'trekking' to the surrounding countryside for the night. In London people flocked into the tubes like they had in the First World War, despite Government instructions to the contrary" (p. 229).

In brick and cement shelters in 1940, due to the shortage of cement lime mortar was used which caused several problems. The tensile strength of lime mortar could not resist the horizontal pressure of blast. (see Mallory and Ottar, 1973, p. 227)

One major problem with the public shelters was access to basic amenities. Initially they were safe but the people had no privacy and had to go to their homes for washing etc. As the same authors claim;

> "The authorities had been so preoccupied with the
> primary task of making shelters safe that they had
> paid little attention to amenities.... Not
> surprisingly between 1939 and 1941 there was a 10
> per cent rise in tuberculosis..." (p. 229).

The situation was noticed and the new public shelters that were built included amenities.

The Architects Journal for September 24, 1942 shows a picture of one of the public shelters built in London, saying that eight of them were built, four to the north of the river and four to the south. Each could host 8,000 occupants and all together 64,000 could be accommodated. It also says that 'The shelters will not be open to the public except in the event of heavy raids.' (p. 194 and also pp. 207-208)

Mallory and Ottar write;

> "In January 1941 the Government was able to approve
> a shelter design which fulfilled the requirements,
> the 'Morrison' shelter, and an order for 400,000
> was placed... The Morrison was a steel framework
> with mesh sides, steel mattress base, and 3 mm
> steel plate top. The main variety used was 1.98 m
> long, by 1.22 m wide and 840 mm high, which could
> be conventionally used as a table as well as a
> shelter. A further contract for another million of
> these Morrisons was made later in 1941. but none
> of them were available in any number before the
> Blitz ended." (p. 229)

Heal's shelter bed, is a cheaper version of a Morrison shelter. It is a bed with arch form structure that was partly covered with a metal shield. This could presumably provide protection against debris or collapse of the building. (see Mallory and Ottar, p. 229)

As the same authors claim despite all efforts made to protect

civilians and design and supply various shelters, 'In November 1940, at the height of the London Blitz, it was shown by a shelter census that only 40 per cent of the city's population were using any form of shelter' (p. 229). The same authors also add;

> "Churchill himself said in August 1940, to the cries of 'Hear, hear', that 'Dispersal is the sovereign remedy against heavy casualties'. On October 10th, 1940, when the Blitz was well under way, the Home Secretary put similar faith in the principle: 'Dispersal and smaller domestic shelters are still the best safe-guard against heavy casualties" (p. 237).

The doubt about the usefulness of shelters might be reinforced by the bombardment of Dresden city in Germany. As Mallory and Ottar say; 'Dresden, with ARP measures and shelter provision much better than an equivalent British city, suffered 135,000 deaths in 24 hours of bombing in 1945... twice the total number killed over the entire period of war in Britain, Britain was lucky' (p. 237).

Not only houses and offices but factories also need protection against raiding. This task also was developed during WW II in Britain. Construction of 'protection walls' and dividing the large areas of factories into smaller spaces, could help to avoid large numbers of losses. Baker (1978), for instance explains how the protection of factories was advised during the war. (see Chapter 10, pp. 90-100)

The spurious concept of 'Shelter today- home tomorrow' was brought about during the War. The heart of the matter was that a structure can have temporary functions and passes a transitional phase of adaptation to a new use in future. (see for example, AJ, July 10, 1941, p. 36-37)

Another task in war time is sheltering valuable items such as museums and monuments. Although the first priority must be people's lives, the preservation of unique cultural heritage, buildings and works of art, becomes important. During World War II in Europe, various techniques were practised. Nobelcourt (1958), has a valuable study on this subject. In his book, 'Protection of cultural property in the event of armed conflict', he first attempts to identify the variety of weapons used in the war and the possible damage they may create. Thus he shows the need to know the hazardous forces before planning against them. Particularly his third Chapter deals with Shelter, where he shows a variety of shelters designed and built as well as technical details. His book contains also some photographs showing how temporary structures and sand bags were used to protect facades and statues in the event of war. As an example of an 'Arts Bunker' see Campbell (1983), Plate. 17.

Remark- In Britain several approaches have been implemented to provide shelter for civilians during the war. Among them Anderson and Morrison are the two most famous shelters designed, each with relative degrees of comfort and problems. There were also surface shelters built in bricks and concrete, and designs were proposed for public deep shelters in crowded areas. The tube station became the place for people to stay over-night at the period of intense air raids. The lack of amenities in public shelters created other problems such as spread of disease. At the end of the day despite the availability of technical guidelines for different kinds of shelters, no more than 40 per cent of those at risk had any shelter at all.

f- Protection against nuclear attack- Since World War II, the superpowers have entered the race to produce more and more nuclear bombs. The policy they advocate is intended to deter any real attack. A report from Hiroshima and Nagasaki[13] reads;

> "Those who dropped the first atomic bomb worked thereafter to demonstrate its destructive powers and to justify its use as a way of ending the war quickly so as to limit the number of combat casualties. Nuclear bombs have thus become generally accepted" (p. 3).

During this year (1988), however, the Russians have started to change their policy by reducing their nuclear warheads unilaterally.

Although currently only a few countries[14] in the world hold nuclear bombs or the knowledge to produce them, the targets in the case of a real war would not be limited to those countries with a nuclear capacity, rather hundreds of targets in other countries of the world are at the moment targeted by ballistic missiles with nuclear warheads. What may happen in future is that as in the case of conventional weapons the superpowers select a third party to sharpen their teeth on, somewhere in the developing world far from both of them. This is not all speculation since AJ April 1984, writes that British companies have received orders from some of the middle East countries to build nuclear shelters for them. (p. 30)

Moore (1980), explains that the first atomic bomb dropped on Hiroshima had an explosive force equivalent to 15,000 tons of TNT, and

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13.'Hiroshima and Nagasaki, the physical, Medical, and Social effects of the Atomic bombing', Basic Books, New York, 1981.

14.U.S.A, USSR, U.K., France, China, India. It is also believed that Israel developing or perhaps has already developed a Nuclear bomb.

killed half of the population of 300,000 outright. (p. 35) The second bomb dropped on Nagasaki with a power of 20,000 tons of TNT and killed or seriously injured three quarter of that city's population of 87,000. He also explains that the first hydrogen bomb had a force equivalent to '10 million tons of TNT'. (p. 35) A comparison between the power of these bombs will reveal the magnitude of death and destruction which will be faced.

Ikle' (1958), and Perry (1982), attempted to study the social and psychological implications of bombs. Thompson (1985), in particular focuses on psychological aspects of nuclear war. One major difficulty all these studies confess is the lack of ample and reliable data. Since the only case of using atomic bombs against civilians was in 1945 in Hiroshima and Nagasaki, little data is available. They often have to speculate from human response in other emergencies such as natural and man-made disasters. (see for example, Perry, p. 3)

The intensity and spread of destruction in the case of a nuclear war is so extensive and the opportunity to eliminate it so slight and costly, that currently even countries like Britain are unable to provide adequate civil defence should such an attack occur. Campbell (1983), extensively reviews the present civil defence plans in Britain and reveals how the general public are abandoned, helpless and without any protection. Unlike Switzerland where for the last thirty years every house has had to install a shelter (see, Building Design, February 18, 1983, p. 6), in Britain such activities were highlighted only recently and then faded. Here the plan is to have secure bunkers for the government and some authorities and no specific measures are taken for the general public. That is estimated to involve a figure of

£50 to £80 billion (ibid) which the government is not in a position to provide.

Moore (1980), in relation to this writes; 'In Britain there is probably already adequate provision made for the protection of central and local government, but protection for the public is minimal' (p. 35) He then reviews some of the designs of domestic shelters to be produced by families. Quarmby (1983), claims that; "Besides, they also had their own cosy nuclear shelters to run to: in Britain we have nuclear shelters for the military, the Government, county councils and district councils, with a total capacity for around 60,000 people. (p. 40) (see also, New statesman & Society, 26 May 1989, pp. 10-11)

The only government step so far have been publication of some survival guidelines. Justifying the fact that the government is not in a position to provide enough shelter, they suggest some simple measures which can be taken by the families to protect themselves in case of an attack. The publications, 'Protect and Survive' and 'Domestic Nuclear Shelters 1982, Technical Guidance' are among them. See also Makeshift Shelters 1983.

The debate around nuclear shelters was also extended to the architectural journals. Some architects argue that participating in the design and construction of shelters is supporting, although indirectly, the existence of nuclear weapons and reducing the chance of total disarmament. Others claim that it is better to do something for the people while the campaign against nuclear weapons continues.

Quarmby (1983), reviewing Ormerod's book, 'Nuclear Shelters', writes; '...an attack on the U.K. would result in 34 per cent immediate deaths, rising to 73 per cent (42 million people) killed by

direct or indirect causes' (p. 40). Steadman (1983), argues against the use of any nuclear shelter because they would not help many to survive or help long-term survival, but will only postponed death. He looks at the aftermath of the strike showing that the survivors need food and that very few non-contaminated area would be found. (pp. 24-25) Ormeod in the AJ April 1983, in a letter to the Editor explains that the survivor will need to be fed for a year by food stockpiled beforehand. At the moment he claims that there is only food stored '...for 5 million people at starving level' (p. 42) which is still vulnerable to attack. He also writes that in the aftermath of attack ' The survivor would have to create a low technology agricultural society' (p. 42).

There are reports on the shelters constructed by the government and also on a few of the shelters provided. Quarmby (1981) in AJ 28 January, referring to the Government Published Guide, 'Construction of Domestic nuclear shelters' writes that shelters ....as described by one press man are 'old Bill's trench from World War One, modified Anderson Shelters and a pill box from World War Two.' (p. 142)

Quarmby (1981), in the AJ 18 March 1981. p. 481, reports from his visit to a demonstration site at Heslington near York, of the Home Office approved domestic shelters. He is mainly concerned with the efficiency of shelters without power and heat and says that the people would not really survive. He points to the psychological state of people, who want to know what is happening outside, while the recommendation is to stay indoors. He suggests that it would be possible to add something like a periscope, so as to be able to see what is going on outside.

One of the non-engineering aspects of nuclear shelter which in our view must be very important is what Quarmby (1981) in AJ 18 November 1981, reports; 'A Code of Practice for design and construction of nuclear shelters has recently been issued by the Federation of Master Builders (FMB)' (p. 980). He also writes that 'Item 25' of the Code recommends that the builders should not advertise that they are constructing a shelter because if the neighbours realise this, in the case of a warning people may forcibly attempt take over other people's shelters.

There are several designs for shelters currently available. Pearman (1981), writes; ' The most expensive - a buried concrete box design - could cost up to £10,000. But the types most likely to be used are [believe it or not], based on the Second World War Morrison and Anderson shelters, designed for use in the Blitz' (p. 5).

Building shelters is currently pursued as a business. In Building Design, February 4, 1983, p.3 reads; 'Architects for Peace, the disarmaments campaign, has hit out at plans by Peterborough businessmen to build a £2 million nuclear shelter for 1,000 people'. ... Around 250 families are being sought for the enterprise at a reservation fee of just under £2,000 a head - the company has made it clear it is looking for people with professional skills' (p. 3).

B.D. April 19, 1985, p. 4. reports that ; 'Glanford council in south Humberside is planning to use £1.2 million of its hard-pressed capital receipts budget to build a nuclear bunker and an office extension for itself.' B.D. October 11, 1985, p. 7 reads; ' Carmarthen council is taking legal action against anti-nuclear protesters who have set up a 'peace camp' inside excavations for an extension to the

council's offices' (p. 7).

The defencelessness of the civilian in Britain in the face of nuclear attack has stimulated some artists and became a theme for making fun of government policy. (see for instance, AJ 18 March 1981, p. 482, or the book 'When the Wind Blows' by Briggs, 1982).

Remark- The following important observations can be made;

-The Americans are the only government to have dropped Nuclear bombs, in 1945 in Japan, causing the end of World War II.

-The power of each of the existing nuclear bombs is a thousand times larger than the Hiroshima bomb.

-In Britain it is estimated that with the present civil defence situation more than 70% of the population would perish in a nuclear strike.

-There are hundreds of targets spotted by nuclear warhead missiles in the developing world, countries that have no nuclear weapons at all.

-Having many more acute necessities, nuclear defence in the developing world is irrelevant, but the risk of attack is not. Both superpowers may decide to test their nuclear power in the third world.

-The destruction by Nuclear bombs involves: an effect like ordinary explosive weapons, creating tremors like earthquakes; high winds like hurricanes; plus radiation, and fall-out of contaminated debris.

-Little data is available on the human response and behaviour, social, psychological and physical consequences of nuclear attack. Researchers use data on conventional war and more frequently natural disasters.

-Only a few of the European countries; Switzerland and Sweden, have developed nuclear shelters in every house, over the last thirty years,

even so not every body has one.

-In Britain, the Government has developed special bunkers for controlling authorities, and the military, but the civilians have no protection. It is estimated that some £50 to £80 billion is necessary to provide all with shelters.

-There are two groups arguing for and against nuclear shelter, both hoping for total disarmament. One group assumes that building shelters will not help survival and will only postpone the death of the majority for a relatively short time. The other group think something is better than nothing and this will not discourage the disarmament process.

-It must be one of the peculiar characteristics of war that the mitigation and prevention measures, (i.e. civil defence) may in turn increase the risk of hazard. (the war).

-There are two approaches pursued by the Government for nuclear shelter. Makeshift shelter recommended to the people, and specialist bunkers, usually modified versions of Anderson or Morrison shelters.

g- Evacuation- Often the next option to save lives in a conflict zone is escape. The areas which become the battle zone naturally, must be evacuated or the people will flee anyway. This was the case in the recent war in Iran, with the approach of Iraqi troops, villagers escaped to safer areas. The same has happened in the cities, with the difference that some people remained to protect the city. In other cities, the people often remained while the danger was from shelling, but as the bombing intensified two other approaches were practised; either to move for a few weeks or days to other cities or nearby villages or to leave the city at night for instance and remain in the

suburbs in temporary camps provided.

The problems of evacuation are several. Traffic jams are common features in a mass evacuation. Administration and control of the families becomes a complicated task, often impossible. Immigrants we must remember are not only concerned with their lives. That is apparently the first priority but after that they start worrying about their property and possessions left behind. A vacated region provides a good environment for looters, as was reported from the December 1988 Armenian earthquake in Russia.

However, it is not the evacuation itself, being a matter of a few hours or days, but the temporary accommodation of refugees or immigrants which is of major concern.

h- Camps- In one of our earlier chapters, where the subject of emergency shelter was discussed, some of the themes relating to camps were argued. In this section our aim is to sketch out some of the significant differences between camps after natural disasters and those of armed conflicts. We will also review the subject in the context of WW II.

In case of war one major factor is, that the end of the conflict can not be predicted. In Lebanon it has now been going on for 15 years. In the case of natural disasters, predictions of when to return home can be more reliable. This uncertainty will influence the psychological status of the refugees in terms of their intention to build or permanently settle down. However, in practice the temporary settlements of war refugees may become their home for generations. The following cases are illustrative.

Hirschon and Thakurdesai (1979), write about the Asia Minor refugees who settled in Greece.

"Following the disastrous campaign of the Greek Army in Asia Minor, a flood of destitute persons arrived in Greece in the last months of 1922, followed gradually by thousands of families who left their homes under the term 1923 Exchange of Populations between Greece and Turkey" (p. 247).

They revealed that the prefabricated German buildings provided as temporary accommodation were still occupied after 50 years. In conclusion they write;

"These prefabricated houses, provided in 1928 as temporary shelters, are now inhabited by several generations of the same family, or have been subdivided between unrelated families. Today, over-crowding, a marked decrease in open space and inadequate public facilities characterise the area" (p. 249).

Robert McAdam, an engineer member of REDR (Register of Engineers for Disaster Relief), was seconded for three month in 1986 to a refugee camp in Sudan. Three years before that he went on a mission to Lebanon working in Palestinian refugee camps. From these two missions he has published a few articles.[15]

McAdam (1987), in relation to working in refugee camps writes;

"The engineer is therefore particularly faced with the dilemma of temporary aid v. permanent development. ... most refugee camps last only a year or two. Some, such as in Lebanon, last for decades" (p. 297).

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15. In 'Disasters'/11/2/1987, in 'The Structural Engineer'/Volume/65A/No.8/ August 1987 in the report of the 'First Workshop on Settlement Reconstruction Post-War', IAAS York University, 1988 and the Second York Workshop, IAAS, 1989.

From his experience in Lebanon he writes;

> "Over the years ...the camps had developed into
> small towns, often within a large town. Usually,
> the Palestinians had not integrated with the
> surrounding population. They were determined to
> liberate their country and return to Palestine·in
> due course-an aspiration that had held them apart
> from every one else" (p. 298).

The second difference between refugees after natural disasters and war
can be seen in the Editorial of Disaster Vol. 4 No. 2. (pp. 127-128).
It reads;

> "A natural catastrophe is a better bet than fleeing
> from warfare. You will at least remain on or near
> your home ground, a great advantage for your
> emotional and economic rehabilitation" (p. 127).

The third difference is in the attention of the international and
national bodies. The same article also points to the fact that in the
case of war the political situation is significant in the supply of aid
from donor countries. However, the same article argues that;

> "The chief problem is that there is as yet no basic
> standard which you can expect all relief agencies
> to aim at, whether in camp layout and
> administration, sanitation, general medication,
> nutritional screening and therapeutic or
> supplementary feeding, or for that matter,
> education for your children" (p. 127).

The fourth difference is the risk of military attack for the war
refugee camps and settlements. UNHCR (1982), refers to the security
matter of refugees of armed conflicts, suggesting they should be
settled far from the frontiers to avoid risk of attack. (p. 59)

However, this has not been necessarily practised.   Moodie R., Hagos F. and Trigg P. (1981) report from a refugee camp in Sudan accommodating Eritrean and Tigrean political refugees.   They write; ' In October 1979, fighting broke out between Ethiopia and Sudan ...This left at least 3,000 refugees homeless, many of whom had also lost their possessions' (p. 89).

McAdam (1987), also writes;

> "As a result of harassment over the years, and
> especially once the civil war had started, the
> camps became armed fortresses. The public
> buildings were strengthened, the hospitals were
> extended underground, and the schools, which were
> made of reinforced concrete, were converted into
> tank emplacements. Underground shelters sprang up
> everywhere. The entrances were in streets,
> playgrounds, sides of buildings, and in gardens"
> (p. 298).

McAdam also confesses that in Lebanon '...personal security was a problem'.   He also observed that; 'Mosques had vanished, although the people knew exactly where they had been and how far they had extended. Fortunately for the people, in most places the shelters survived, and so did the population' (p. 298).

Other examples exist of attacks on refugee camps. The Israelis used incendiary weapons against the Palestinians, even their hospitals (see, SIPRI, 1975, p. 63).   Grove-Hills also claims that 'Intensive bombardment of the camps in the south forced a large number of refugees into a small area in the central part of the city, [Beirut] which itself was continually subject to bombing raids' (p. 242).

The fifth difference is the difficulty with war refugees that their numbers, unlike those after natural catastrophes', fluctuate with

periods of peace and war. This can affect decision making about the capacity of the camp and its services.

The types of camps and the space required for families are other areas of difference. Cuny (1977), writes about 'Refugee Camps and Camp Planning'. The article contains reports of visits to several camps. The main theme Cuny is trying to argue is the importance of considering community behaviour and to avoid building regimental and graded pattern type military camps. That he argues, can have a decisively positive effects on other aspects of the refugees' life, such as health.

Visiting Bengali Camps in India where some '...10-12 million Bengalis fled to India for sanctuary from the fighting' (p. 125). Cuny writes; ' Camps in this area ranged in size from a minimum of 3000 persons to several which had a population of over 250,000' (p. 126). Cuny writes;

> "The first conclusion of our study of the Indian camps was the realisation that, where there is a constant influx of refugees, three distinct classes of camps emerge. Each type can be identified or classified according to the stage of crisis during which it was erected, and to the extent of prior planning which was undertaken" (p. 126).

He then describes three identifiable phases. The Phase I camp, Cuny argues, 'Is set up immediately following a disaster or during the initial influx of refugees across a boarder' (p. 126). The Phase II camps are those located relatively near to main transport access points, such as railway stations or air ports. They are semi-planned. And the Phase III are those for which a considerable amount of planning and construction has been done prior to the arrival of refugees and are

for long term use or permanent camps. (pp. 126-127)

Cuny then highlights the concept of layout and design and suggests that the *communities should be settled in similar layouts as their original settlements.* He also compares the refugee camps of natural disaster refugees with those of war. He claims that some significant differences are identified as;

> "First, in the former case there is only one type
> of camp; there are no phases as in the latter.
> Second, the government, for political reasons, must
> respond itself to the needs of the refugees; thus a
> camp will receive more consideration by local
> authorities, and more government resources will be
> available to camp builders. ....A third difference
> relating to camps is that the number of refugees
> following a natural disaster is constant....
> Finally, and significant to the per family space
> allocation in the layout, is that following a
> natural disaster, refugees usually have more
> possessions than do escapees or evacuees from war
> zones..." (p. 129).

For a review on refugee problems see also Disasters/9/4/1985.

i- Camps in WW II.- It appears that camps were familiar notions before WW II started. In fact a variety of camps existed and the issue of layout, size and management of them were subject to argument before the War. For example AJ (July, 13, 1939) reads; 'At present we have Holiday Camps, Evacuation Camps, School Camps and several other main types,..."(p. 43).

The same reference also reads;

> "From the point of view of layout and siting these
> camps appear to fall into four main groups: the
> large closely-grouped seaside holiday camp which
> would not be well suited for any other purpose;
> similar smaller camps, not necessarily at the
> seaside, which could be used both as

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> holiday-with-pay camps and as evacuation camps
> (which could also be used by scouts and similar
> associations); and, lastly, informally planned
> camps of national park type for those families,
> individuals and hikers who like every thing about
> old-style camping except the tents and Primus
> stoves" (p. 43).

The same document also illustrates examples of camps in several countries such as Sweden, USSR, Denmark, USA, Canada and U.K..

Generally since camps are characterised by temporary buildings it seems they can accommodate the war evacuees for a while. It is worth noting that those countries affected by wars often have no acquaintance with refugee camps, that are in fact a common European phenomenon.

AJ, February 22, 1940 reads;

> "At the end of August there were about 1,600,000
> children in the dangerous evacuation areas. Of
> these, only 700,000 were evacuated, of whom about
> 300,000 have since returned. There are thus 1,25
> million school-children in dangerous areas, of whom
> half have had no care or schooling at all for five
> months and the other half cannot have had much of
> the consistent and continuous quiet guidance which
> is the major part of education" (p. 201).

Even then in England, when children separated from their families and moved to the school camps, it was not sure that the parents would like the long separation or the long term consequences this isolation could have for both parents and children.

Many current world refugees are rural people. This is true in Africa and in Afghanistan. The background of refugees has an important role in their temporary settlement. Urban populations are shown not to be so easily able, to adapt to the life of temporary camp sites. On

the contrary villagers seem more easily to adjust to camp conditions.
Often they are more acquainted with the natural environment and know
better how to exploit it for their personal comfort. For the
inhabitants of large urban centres one option was to move temporarily
to villages not far away. They could have access to their homes in a
few hours and enjoy the services without being totally disconnected.
In our view this method should be considered for any long term
situation.

Those who had to emigrate because their area was occupied often
had to live in temporary accommodation, such as hotels or other
buildings converted for this purpose, or alternatively, particularly
rural people, had to live in barrack style camps established for this
purpose. Neldner (1979), in the context of Africa claims there are
differences between rural and urban refugees. He says that ;

> "Generally, rural refugees move in groups as
> compared with urban refugees who are more likely to
> move as individuals... It can therefore be said
> that rural refugees may be dealt with on a group or
> community basis as distinct from urban refugees who
> frequently or in most instances require individual
> processing, counselling and solutions...
> Frequently rural refugee situations have resulted
> in permanent solutions through settlement
> schemes,.... A significant aspect in a number of
> situations is that rural refugees who cross
> boarders to seek asylum find themselves in, or know
> in advance that they will be entering an area
> populated by people with tribal kinship..." (p.
> 393)

Concerning the 'type of settlement', Neldner argues that there are two
options; first; 'Spontaneous settlement where refugees so-to-speak
merge with the rural host community. ....The other possibility,...
was pursue a policy where government designated specific areas for

settlement ...' (p. 394).

That author also identifies three phases of settlement; ' I. Emergency, II. Self-support and III. Integrated settlement phase.' (p. 396) In terms of housing the same author claims that the most convenient approach in his view, is encouraging the construction of shelters by the refugees using local materials and techniques. (p. 398)

Jawad (1985), writes;

> "Within Afghanistan, fighting, heavy bombardment and reprisals against civilians persist. There is no sign of political change in the near future. Therefore the continuation of relief aid is vitally important. The Afghan refugee problem will be long term and therefore long term programmes are necessary for a solution, besides relief assistance on a daily basis" (p. 235).

Christensen (1984), in relation to Afghan refugees writes;

> "The Government of Pakistan has granted refugees status to the massive in-flow of refugees from Afghanistan resulting from conflict and warfare which has been developing in that country from 1978 onwards.... The refugees are physically located in special refugee villages which, in some areas, are directly adjacent to the Pakistan - Afghan frontier,... They are free to find employment, move around,... The refugee have no right to purchase land or other property..." (p. 2).

McAdam (1987), writes about the Palestinian camp that the families refused to accept tents as their accommodation and burnt them, claiming 'we are not Bedouin'. The agencies were forced to supply building materials only to those families who would accept a free tent, in order to use the store of tents. (p. 299) However, although initially the Israelis were against construction of any permanent buildings, after a few weeks they changed their minds, suggesting the use of their

expensive prefabricated houses. (p. 299)

McAdam (1987), also discusses his experience in Sudan, where he worked in a camp of refugees from Chad, mainly tribesmen and nomads. In this case materials were scarce and had to come from a great distance. The place was '...politically a short-lived camp.' In terms of design and housing, he writes that the site has been divided to large squares and each family or group was permitted to settle in one of them. The construction of houses was left up to the refugees, using traditional or local materials and techniques. (pp. 299-302)

Remark- So far some of the major differences between war refugees and those of natural disasters have been explored. It was found that during WW II in Europe, camps in several shapes and functions already existed; School camps, Holiday camps, Evacuation camps etc. Generally because camps are designed as 'temporary' settlements, they could suit an emergency situation like that of refugees. However it is common that in many cases the camps for war refugees camps lasted too long, even for generations, some becoming small towns.

Unlike most natural disasters, refugees from war are uncertain about when they are likely to return home. Their camps are often at risk from military attack. It is necessary for them to be located away from the war zones. These camps may take at least three forms depending on the extent of the original design and the time they have been established. Furthermore war refugees often require less space than those from natural disasters. Camps need not necessarily be barrack like cities, the Afghan refugees, for instance have recreated

camps like their villages. This policy is one way to help to mitigate
the stresses of camps life and refugee status. Finally it was argued
that often rural refugees are more able to exploit the environment of
camps than urban refugees.

9-4- **Relief for war victims-** One of the characters of the immediate period after disasters is the existence of a utopian community. The rescue and relief of casualties, it is observed, often in the early stages creates friendly and humanitarian relationship between all members of the community. This often does not last long and gradually, in some cases, measures must be taken to prevent looting. However, natural catastrophes often provide an atmosphere for co-operation within the international community. The case of war must be different since aid would serve as support for the recipients. This has political consequences for the donor country as well. During the recent war in Iran, Arab countries particularly wealthy Oil-Exporters gave their unlimited economic support to Iraq, while not being directly involved in the conflict. Jordan for instance provided port facilities at Aghaba.

The next difference between relief in a war situation and in that of a natural disaster, is the risk of casualties and loss of life. An UNDRO News Editorial, (1987, Nov/Dec) reveals that 'The attack, on 23 October, destroyed a 23-truck convoy, transporting 450 tones of food aid from Asmara to drought victims in Tigray province, where over half a million people are in need of urgent relief assistance.... One relief worker died in the attack and thousands of people were deprived of the sorely-needed food' (p. 2). In Lebanon also Peter Colleridge, Co-ordinator of the Middle East Department of Oxfam U.K. was kidnapped in 1988 and then shortly released. Generally in the case of war firstly relief is a political matter and secondly there is risk to workers of kidnapping or death. (see also McAdam, 1987).

The other difference is the duration for which relief may be

needed. Unlike with natural disasters this is much less easy to predict and it can change at short notice. For example, UNDRO (1985 Nov/Dec), reports on a mission to Lebanon, where half a million Lebanese are displaced, to assess the situation for reconstruction. They admit it is virtually impossible to foresee the end of the war. (pp. 14-15) (see also Jawad, 1985)

An additional difference is that 'relief of the deprived' may strengthen a brutal regime or the regime may take advantage of the relief items. For instance, The Reconstruction and Rehabilitation Fund, Canadian Council for International Co-operation, (1986) reads ;

> "The first and most fundamental point that most Salvadorians made about the earthquake was that it was by no means the main problem facing the Salvadorian people. They defined the most serious problem as the unjust socio-economic system which is at the root of the seven year civil war" (p. 1).

The same report also reads;

> "UTR has major implications for funding organisations. In July 1986, General Blandon of the Salvadorian army invited national and international NGOs to join the programme and implied that agencies working outside UTR would be suspected of aiding the guerrillas" (p. 2).

In post-war reconstruction the risk of fatalities also exists. In Iran for instance, some volunteers were killed during reconstruction by Iraqi bombs. Undetected artillery, mines and ammunition are also other damages jeopardising the lives of the people. No such risk exists after natural disasters.

Finally, war damage seems to be more complicated and confused than the scene after a natural catastrophe. The following example

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illustrates this point.   UNDRO News   (1985 Nov/Dec) reads; ' Drought

and   civil   strife   have seriously   affected Mozambique's   agricultural

output   and have disrupted   the   lives of many of   its people' (p. 16).

UNDRO NEWS (1987, March/April) reads;

> "An international donors Conference, attended* by
> representatives of over 40 governments, discussed
> an   effective   programme   of emergency   relief
> assistance   to an estimated 4.5   million victims of
> externally induced armed insurgency in the People's
> Republic of Mozambique, on 31 March" (p. 4).

The same report reveals that;

> "...damage   to the economy totalled more than US $5
> billion.   'Attacks on the civilian population, the
> forced   exodus from South Africa of thousands of
> workers,   the   large   scale   destruction   of major
> economic and social infrastructure in villages and
> towns, economic sabotage and cruel and inhuman acts
> of terrorism by externally-supported armed groups -
> the   cumulative   effects   of all   these   had   been
> devastating', the message said" (p. 4).

In brief relief and recovery from , war is different from natural

disasters because of the political dimension of donations, the risks of

to officials, ambush of aid convoys.

Conclusion- In this chapter several aspects of war as a disaster

were   explored.   It   was   revealed that although   in some respects   the

consequences of war show similarities with natural catastrophes,

nevertheless significant differences also exist.   For instance   the

source of war is unlimited.   The tools of destruction   are constantly

being   improved to increase   their destructive impact.   Precautionary

measures for civilians are too costly and difficult to manage. In this

sense even European civilians are exposed to similar risks as their counterparts in the Third World. It was also argued that relief in war-time has political implications. Generally it was found that war situations requires a much more sophisticated approach in terms of the means and purposes of intervention.