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The Role of Law in Sustainable Biosafety - A Study of Namibia's Drive Towards a Sustainable Biosafety Regulation

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This thesis is dedicated to my precious children, Terence, Benedict, Gabriel and Shalom.

TABLE OF CONTENTS

ABSTRACT

Namibia is a country rich in natural resources and in order to better utilise those resources, it is seeking to move towards a knowledge-based economy (KBE) by 2030, while ensuring sustainable development. This thesis seeks to examine how law can be harnessed to promote the objective of KBE through the sustainable use of plant biotechnology. It considers the legal challenges faced by Namibia in integrating and reconciling contextual social, economic and environmental objectives in tandem with its international obligations – namely the 2004 Cartagena Protocol on Biosafety (CPB) and with a specific focus on its convergence with WTO law. By analysing the emerging normative tensions in the integration of the CPB, this thesis concludes that Namibia has adopted an all-encompassing biosafety framework, addressing a broad range of social, economic and environmental issues, over and above its obligations under the CPB and deviating from its trade obligations under the WTO. While this might be justified from the perspective of its socio-economic and environmental context, it portrays foreseeable legal challenges, relating to the difficulties of reconciling conflicting biosafety and trade obligations in a manner that promotes sustainable biosafety.

The main argument is that international law transposes conflicting biosafety and trade obligations into domestic legal systems without proper guidance on how best to reconcile them and this constrains domestically instigated sustainable biosafety efforts and this is contrary to the overall national development objectives, namely those of ensuring sustainable development in the context of KBE. What further complicates the matter is that there is no normative guidance for the appropriate type and orientation of biosafety law needed to aid sustainable biosafety. While international law could well serve as the normative basis for sustainable biosafety in Namibia, the courts rarely make use of it, which is indicative of the existence of weaknesses in Namibian environmental governance. Therefore, by using a normative framework from the perspective of law and development theory, critically assessed through the perspective of the Third World Approaches to International Law (TWAIL), this thesis aims to find a legal solution for sustainable biosafety within the parameters of the applicable international law – specifically those of the CPB and WTO. This thesis concludes that the integration of the CPB, with the aim of

supporting biosafety, should rest in a model of sustainable biosafety, which allows for the co-existence of the CPB and the WTO and specifically adherence to both sets of obligations through mutual supportiveness. Nevertheless, while the principle of mutual supportiveness has utility and applicability in Namibia, its effectiveness is compromised by the weaknesses in its environmental governance. Therefore, this thesis makes a case for the establishment of an independent specialised Environmental Court (EC), in order to enhance sustainable biosafety and so support KBE efforts. To this effect, this thesis contributes to Namibia's pursuit of normative solutions aimed at aligning its KBE objectives with those of sustainable biosafety and by so doing contribute to addressing prevailing socio-economic ills, such as high poverty and inequality levels, while pursuing, at the same time, economic growth and environmental management.

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LIST OF ACRONYMS

AIA	Advance Informed Agreement
Bt	Bacillus Thuringiensis
CBD	Convention on Biological Diversity
COP	Conference of Parties
CITES	Convention on International Trade and Endangered Species
CPB	Cartagena Protocol on Biosafety
CSD	Commission on Sustainable Development
CTE	Committee on Trade and Environment
DSU	Dispute Settlement Understanding
EC	Environmental Court
GATT	General Agreement on Trade and Tariffs
GMO	Genetically Modified Organism
ICCPR	International Covenant on Civil and Political Rights
ISI	Import Substitution Industrialization
ICJ	International Court of Justice
ITO	International Trade Organization
IMF	International Monetary Fund
IPR	Intellectual Property Rights
KBE	Knowledge-based Economy
LMO	Living Modified Organism
MOP	Meeting of Parties
MEA	Multilateral Environmental Agreements
NABA	Namibian Biotechnology Alliance

NCRST	National Commission on Research, Science and Technology
SDGs	Sustainable Development Goals
SADC	Southern African Development Community
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
TWAIL	Third World Approaches to International Law
R&D	Research and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNEP	United Nations Environment Program
UNCED	United Nations Conference on Environment and Development
VCLT	Vienna Convention on the Law of Treaties
WTO	World Trade Organization

CHAPTER 1: NAMIBIA'S IMPETUS FOR SUSTAINABLE BIOSAFETY

1.1 Introduction

Namibia is a Southern African country with barely over two million people and a vast landmass of around 825 615 km². Even though the country is endowed with a wealth of natural resources and has experienced relatively steady economic growth over the years, it is characterised by high inequality and poverty levels. The book entitled *A Rich Country with Poor People: Inequality in Namibia*[1] by Jauch and others portrays the extent of inequality amongst the Namibian population. While the government is committed to addressing the inequality gap, its adoption of a knowledge-based economy (KBE), according to its 'Vision 2030',[2] might actually undermine such efforts, if the social, economic and environmental risks are not appropriately mitigated.

A KBE aims to foster transition from a commodity-based economy to a knowledge-based economy. Although the growth emanating from such knowledge-oriented economic growth will potentially increase the overall national economic growth, it also has the potential to widen the already profound inequality gap, as well as having negative impacts on the environment. While Namibia's inequality and poverty levels are troubling, the potential environmental impacts have equally far-reaching implications. This is because Namibia is one of the few African countries with 'biodiversity hotspots' with unique biological diversity[3] that remains relatively under-utilised. One concern with a KBE, particularly with reference to the use of plant biotechnology, is that it is a predominantly economic growth-oriented development strategy and rarely considers issues of social and economic injustice and environmental management. Therefore, from a legal perspective, a KBE must be

[1] Herbert Jauch, Lucy Edward and Braam Cupido, *A Rich Country with Poor People: Inequality in Namibia* (Labour Resource and Research Institute, Namibia 2009).
[2] Government of Namibia, 'Vision 2030 Overview' (*Government of Namibia*, June 2004) < http://www.gov.na/vision-2030> accessed 29 August 2017.
[3] Ministry of Environment, Biodiversity and Development in Namibia: Ten-Year Strategic Plan of Action for Sustainable Development through Biodiversity Conservation (2001–2010).

supported by enabling laws that address the social, economic and environmental issues emanating from the use of biotechnology, through biosafety laws that encompass regulatory measures of biotechnology - in this case plant biotechnology. This is the main premise of sustainable biosafety, which is also supported by Namibia's long-term development objectives as set out in 'Vision 2030'.

'Vision 2030', similar to the call for a KBE, advances sustainable development as the underlying imperative for all developmental activities. In this regard, sustainable development is considered the underlying guiding normative framework for remedying the side effects of economic growth-oriented development, such as inequality and environmental degradation, including the prevention of the exploitation of biodiversity. However, what weakens this proposition is that there is no normative framework to support the best type of orientation of sustainable development in a KBE in the specific socio-economic context of Namibia. Moreover, sustainable development has been difficult to achieve in practice and international law still grapples with it principles. While this issue remains, overcoming the challenge of achieving it is particularly imperative in the absence of superior development approaches to safeguard the social, economic and environmental objectives of development. There is a need, therefore, to understand how law, in this case relating to biosafety, could be used to advance sustainable biosafety. This is why this thesis explores the role of biosafety law in ensuring sustainable biosafety using Namibia's integration of the 2004 Cartagena Protocol on Biosafety (CPB) with specific regard to the tensions at its interface with WTO law as a case study.

The CPB is the main international legal instrument, which deals with the regulation of biotechnology. It is worth noting here that biotechnology in the context of the CPB mainly refers to agricultural biotechnology and does not include, for instance, medical biotechnology as is clarified further below. The CPB, as such, presents

important insights into technology regulation when it is considered from the perspective of the framework of sustainable biosafety, which are particularly relevant to Namibia's knowledge-based development approach.

However, while Namibia ratified the CPB in 2005 and enacted the Biosafety Act in 2006 (Act No.7 of 2006) in order to implement its international obligations imposed by the CPB, the Act is still not enforced and it is evident that this will not happen any time soon. While there are several reasons for this, mainly relating to capacity and resource constraints, the CPB, as well as general international law, do not provide clear guidelines for the pursuit of sustainable biosafety as they involve the imposition of conflicting norms. This, and the fact that Namibia still grapples with issues of environmental governance, is indicative that sustainable biosafety might be an elusive goal. This is disturbing, especially when considered in the context of Namibia's socio-economic situation, which is one that includes high inequality levels that might well be intensified by the adoption of a predominantly economic growth-oriented KBE strategy while there is an absence of appropriate technology laws, including those relating to biotechnology. These laws, from the perspective of law and development theory, could be used to remedy the extreme orientation of economic growth promotion and its disparate socio-economic considerations, as well as the environmental concerns emanating from the pursuit of economic growth under the framework of sustainable biosafety. However, promoting the proposition, that sustainable biosafety is the solution to inequality and environmental concerns emanating from biotechnology is not easy, as is demonstrated throughout this thesis.

What is worth mentioning here, though, is that the Namibian Biosafety Act, as per the obligations under the CPB, establishes a kind of international legal trading system for biotechnology and its products based on the principle of an advance informed agreement (AIA). This empowers Namibia to institute a permit system to regulate any importation or exportation of biotechnological products. However, devising the permit system in a

manner that promotes sustainable biosafety proves very difficult. This is, for instance, because the fact that import permits are granted based on scientific risk assessments, when the science in this area is still inconclusive and there is uncertainty about its benefits and risks, alongside its need to take into account the varied legal, social, economic and environmental contexts, introduces regulatory complexities that could well compromise sustainable biosafety. Remedial principles such as the precautionary principle have important interlinking elements to sustainable biosafety and could potentially provide a legal basis for countering this sole dependency on scientific information. In addition, sustainable biosafety that is derived from the notion of sustainable development provides an important framework for the simultaneous integration of the varied social, economic and environmental objectives. However, their utility is limited by vague conceptions and an uncertainty about their legal status in Namibian environmental governance, which is under-developed.

Moreover, what further complicates Namibia's case for sustainable biosafety is the fact that the scope of the Act includes the regulation of processed products emanating from biotechnology. This has complications for enforcement, for instance, because this kind of regulation needs highly technical scientific processes when the country has major scientific, technical, human and institutional capacity constraints. The fact that the WTO requires a substantial equivalence test of the products emanating from biotechnology and its conventional counterparts, introduces the possibility of violations of WTO obligations. Moreover, biosafety norms are largely oriented towards environmental conservation and are protectionist and prohibitive in nature, while trade law is predominantly promotional and fundamentally aims at removing trade barriers.[4] For instance, Article XI, subparagraph (1), of the General Agreement on Tariffs and Trade (GATT), which is the core agreement of the WTO system, prohibits bans and restrictions, other than duties, taxes or other charges, whether made effective

[4] Phillippe Sands, *Principles of International Environmental Law* (2nd edn, Cambridge University Press 2003) 41.

through quotas, import or export permits or other measures, on the importation of any product of the territory of any other Contracting Party or on the exportation or sale for export of any product destined for the territory of any other Contracting Party.[5] On the contrary, Article 2 (4) of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD) specifically obligates Parties to take protective measures, including bans, as long as they are consistent with its objectives. Certainly then, a ban or a no answer to a permit application, which could be legal under the CPB, could potentially violate the stated WTO provision. More so, considering that the WTO requires that such answers be scientifically justified, while there are persistent epistemic gaps in scientific knowledge.

It is evident, therefore, that international environmental and trade laws set obligations that lead to conflicting policy objectives, which need to be settled in a Member State. While this remains, the WTO require the unification of environmental regulations across trading States to allow open market access.[6] This again presents a possible avenue for normative tensions, especially when States adopt unilateral environmental measures without obtaining multilateral consensus at WTO level. These could take the form of national conservation measures with some implications on international trade, as in the *Shrimp-Turtle Case*,[7] discussed in this thesis. In this case, the United States instituted an import ban on shrimps and shrimp products from India, Malaysia, Pakistan and Thailand under its national conservation laws. Even though the ban was a matter of national conservation laws, since it had implications for international trade, it created tension with the United States' WTO obligations and is indicative of the difficulties involved in the pursuit of sustainable biosafety.

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[5] World Trade Organization, General Agreement on Trade and Tariffs, (concluded 30 October 1947) (GATT 1947).
[6] WTO, *United States – Import Prohibition of Certain Shrimp and Shrimp Products (Shrimp-Turtle Case): Report of Appellate Body* (12 October 1998) WT/DS58/AB/R.
[7] Ilona Cheyne, 'Trade and the Environment: The Future of Extraterritorial Unilateral Measures after the Shrimp Appellate Body' (2000) 5 Web JCLI <http://webjcli.ncl.ac.uk/2000/issue5/cheyne5.html/> accessed 21 July 2014.

Nonetheless, there is already a biosafety/ WTO specific dispute namely the *EC-Biotech Case*[8], also discussed in this thesis, which demonstrates that biosafety and trade normative conflicts are inevitable.

What is worth noting here is that the traditional techniques of conflict resolution such as the *lex posterior* and *lex specialis derogat legi*, have provided little solace to resolve these conflicts in a manner that promotes sustainable biosafety. There is, therefore, a need to consider alternative tools in order to innovate legal solutions in pursuit of sustainable biosafety. One such possibility is presented by the currently underused principle of mutual supportiveness. But more so, Namibia needs to improve its environmental governance through appropriate legal and institutional reforms.

In sum, this thesis considers the role of the principle of mutual supportiveness in the pursuit of sustainable biosafety in the framework of KBE – using Namibia's integration of the CPB, which is a subsidiary protocol under the Convention on Biological Diversity (CBD), as a case study. It considers the conceptual, normative, institutional and legal challenges that Namibia faces in the implementation and integration of the CPB with the aim of fostering sustainable biosafety. In this respect, questions are explored regarding the extent to which integration difficulties relating to the CPB have arisen because of the conflicting trade and biosafety obligations of international law and how they influence sustainable biosafety efforts. By examining international law through the lens of the law and development theory reflected through the critical perspective of Third World Approaches to International Law (TWAIL), this thesis proposes the use of the principle of mutual supportiveness[9] to reconcile the problem of divergent trade and biosafety obligations. By so doing, this thesis clarifies the complexities

[8] See WTO, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products: Final Panel Report (EC-Biotech Case)* (29 September 2006) WT/DS291/R, WT/DS292/R, WT/DS293/R.
[9] The principle of mutual supportiveness is an underused principle of international law, which promotes coherence and coexistence via the specialised sub-systems of international law.

surrounding the reconciliation of conflicting trade and biosafety international obligations in a manner that promotes sustainable biosafety and so considers them from the Namibian perspective. It argues that Namibia needs to establish an independent Environmental Court in order to enhance the pursuit of sustainable biosafety through the principle of mutual supportiveness.

Thus, the main contribution of this research lies in its consideration of Namibian biosafety law in conjunction with the issues surrounding the integration of the CPB, in a manner that promotes sustainable biosafety, informed by the theory of law and development, which will be critically assessed from the TWAIL perspective. It concludes that the integration of the CPB, with the aim of supporting sustainable biosafety, should rest upon a model of co-existence and coherence in terms of biosafety and trade norms through fostering mutual supportiveness and so sustainable biosafety.

It is worth noting here that the imperative for sustainable biosafety, in addition to the socio-economic contextual justifications set out above, is related to biotechnology itself as a regulatory area, as was also alluded to by de Chazournes and Mbengue who stated that:

> '… [b]iotechnology is an interesting area for the assessment of the applicability of criteria of coexistence and coherence; indeed, biotechnology is at the crossroads of trade and the environment and that rules and principles governing biotechnology have to take into account both trade and environmental concerns.'[10]

[10] Laurence Boisson de Chazournes and Makane Mbengue, 'Trade, Environment and Biotechnology: On Coexistence and Coherence' in Daniel Wüger and Thomas Cottier (eds), *Genetic Engineering and the World Trade System: World Trade Forum* (Cambridge University Press 2008) 205.

While this is true to a greater extent, de Chazournes and Mbengue exclude the need to integrate human and social dimensions, which is at the heart of sustainable biosafety. This limited view of sustainable biosafety is also inherent in the design of international law, which enacts specific normative instruments for trade and environmental norms, while human and social issues are considered peripheral. This is one of the fundamental weaknesses of international law when it comes to promoting sustainable biosafety comprehensively and this thesis draws from Sen's normative framework of development as human freedom in order to devise an approach for the simultaneous integration of social and human objectives of sustainable biosafety in addition to the economic and environmental ones.

1.2 Research Context

As mentioned above, Namibia is under international obligations to implement the CPB in a manner that promotes sustainable development. As enshrined in Namibia's 'Vision 2030', a KBE is one of its development strategies, aimed at increasing technological innovation. In this regard, a KBE is meant to focus on the use of knowledge,[11] generating technologies, including biotechnology, for value addition to natural resources.[12] This involves a transition towards a knowledge-based economy to address domestic policy issues, such as poverty and slow economic growth. In the same vein, 'Vision 2030' requires that all development strategies be underpinned by the principles of sustainable development as a higher development goal and an obligation of international law. How does sustainable development and biosafety, as set out in the frameworks of this KBE, relate to and support each other? Or are their objectives divisive?

[11] The emphasis here is on scientific knowledge.
[12] Government of Namibia, 'Vision 2030 Overview' (n 2).

Biosafety refers to the sum total of biotechnology regulations and risks management measures (as expounded in Chapter Three). The CBD in its preamble defined biotechnology as '… any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.'[13] Based on this definition, biotechnology entails any technological modification of living organisms through the alteration of genetic material in ways other than conventional sexual reproduction.[14] Therefore, biotechnology has the potential to reproduce any organisms, including humans, in a laboratory test tube. It has the potential to transfer genetic traits of unrelated organisms and produce superorganisms. The CPB refers to a living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology and which is biologically capable of transferring or replicating genetic material as a living modified organism (LMO).[15] While in some instances, such as in the case of the Namibian Biosafety Act, products of biotechnology, whether living and capable of biological reproduction or not, are referred to as genetically modified organisms (GMO). This all-encompassing conception of the products of biotechnology includes all genetically modified organisms, including LMOs, as defined above, as well as those that are processed products that are not capable of biological replication. What is also worth clarifying here is that, even though the CPB does not explicitly exclude medical biotechnology from its scope, it states in Article 5 that it excludes the regulation of pharmaceuticals for human use as that is addressed by other relevant international agreements or organisations.[16] Therefore, even though biotechnology can be broadly conceived, here it is limited to animal and plant biotechnology as it pertains to issues such as therapeutic cloning. The rationale for biosafety comes from the fact that biotechnology has benefits, as well as risks. Its potential benefits are enormous, ranging from improving productivity and efficiency in agriculture, increased food quality and developments in human and

[13] Secretariat of the Convention on Biological Diversity, 'History of the Convention' (Convention on Biological Diversity, 2016) <https://www.cbd.int/history/> accessed 14 August 2016.
[14] Asif Qureshi, 'The Cartagena Protocol on Biosafety and the WTO – Co-Existence or Incoherence?' (2000) 49 ICLQ 835.
[15] Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman, *An Explanatory Guide to the Cartagena Protocol on Biosafety* (IUCN 2003).
[16] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (adopted 29 January 2000 entered into force 11 September 2003) 2226 UNTS 208.

veterinary medicine, as well as in the area of environmental management. While its benefits are laudable, it also presents environmental, social and economic risks. There are still considerable concerns regarding its safety, while the efficacy of its benefits remains heavily contested. Indeed, its risks might not yet be fully understood because natural systems are complex, and this technology is relatively young. The unknown risks, therefore, remain speculative until the point of manifestation. In addition, the economic related risks are amplified by the blind pursuit of scientific curiosity aimed at financial gain.[17] There is, therefore, a need to mitigate all of these risks, while taking advantage of the benefits. In view of this imperative, the quest for countries should be to harness biosafety laws in support of the pursuit of biotechnological innovations within a KBE framework and in harmony with sustainable development. Therefore, biosafety refers to the efforts and interventions undertaken to reduce and/or eliminate the risks relating to modern biotechnology. Qureshi defines biosafety as:

'…encompassing reference to safety measures relating to potential or adverse effects on the conservation and sustainable use of biological diversity, including risks to human health arising because of the application of the modern science of biotechnology.'[18]

Such measures range from giving advance notification prior to importation, risk assessments, management and monitoring, bans, labelling and surveillance. Sustainable development is thus guiding the standards of how risks and benefits are to be balanced in order to address broader contextual developmental needs. It is, after all, prudent that the use of the technology be conducted in a cautiously regulated manner to ensure social, economic and environmental safety, while taking full advantage of its benefits.[19] As Collier and Moitui stated '… carefully

[17] Engelhardt Tristram, 'Morality, Universality, and Particularity: Rethinking the Role of Community in the Foundations of Bioethics' in Julia Tao Lai Po-Wah (ed), *Cross-Cultural Perspectives on the (Im)Possibility of Global Bioethics* (Springer 2002).
[18] Asif Qureshi (n 14).
[19] Jane Morris, 'Modern Biotechnology – Potential Contribution and Challenges for Sustainable Food Production in Sub-Saharan Africa' (2011) 3(6) Sustainability 809.

derived and fully implemented principles for biosafety will substantially increase the likelihood that use of genetically modified organisms (GMO) will promote, and not jeopardize, sustainable development.'[20] Therefore, biosafety measures are not intended to be protective or restrictive, but rather are aimed at ensuring sustainable development. In this regard, biosafety, like sustainable development, deals with issues at the intersection of environmental, social and economic benefit and risk[21] and this is the premise of sustainable biosafety, as promoted by the CPB.

The CPB is the main international instrument dealing with biosafety. Although its focus is the environment, it considers its broad economic, human and social aspects. Due to the tradable nature of biotechnology and its products, rules on biosafety also overlap with trade rules under the WTO, particularly with the Sanitary and Phytosanitary (SPS) Agreement.[22] As explained above, the CPB provisions might be seen to be prohibitive and cause direct conflicts with the trade promotion-oriented WTO objectives. These two legal frameworks have already collided head-on in the *EC-Biotech Case*,[23] which among other issues, challenges several legal areas of international law, such as the jurisdictional basis of the CPB and related WTO laws and, importantly, the ability of international law to deal with complex norms at their interface.[24] Although international law promotes sustainable biosafety as the unifying objective of environmental objectives, such as biosafety with

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[20] Debbie Collier and Charles Moitui, 'Africa's Regulatory Approach to Biotechnology in Agriculture: An Opportunity to Seize Socio-Economic Concerns' (2009) 17 AJICL 29. <http://heinonline.org/HOL/Page?handle=hein.journals/afjincol17&id=29&div=&collection=> accessed on 12 November 2015.

[21] Centre for International Sustainable Development Law, 'Innovations in Biosafety Law' (*Centre for International Sustainable Development Law*, June 2005) <http://cisdl.org/biodiversity-biosafety/public/docs/Biosafety_WP.pdf> accessed 23 June 2015.

[22] This also refers to the WTO agreement on the Application of Sanitary and Phytosanitary Measures, which was established with the purpose of removing trade barriers and ensuring non-discriminatory and unrestricted international trade.

[23] WTO, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products: Final Panel Report (EC-Biotech Case)* (29 September 2006) WT/DS291/R, WT/DS292/R, WT/DS293/R.

[24] Richard Higgott and Eva Erman, 'Deliberative Global Governance and the Question of Legitimacy: What Can We Learn from the WTO?' (2010) 36 RIS 449; David Henderson, 'WTO 2002: Imaginary Crisis, Real Problems' (2002) 1 World T R 277.

those of the WTO, the extent of this utility is blurred and disputed,[25] as examined in Chapter Three of this thesis. While these conflicts remain, at a national level the design of the sustainable biosafety law should importantly consider the broader developmental strategies and the political, social, economic and environmental context in which the use of biotechnology is to be promoted. For instance, in the case of Namibia, the adoption of a KBE and thus biotechnology, which are by default economic growth-oriented, might defy sustainable biosafety and this could further aggravate Namibia's high levels of inequality and poverty and thus sustainable biosafety. Following is a closer look at KBE and how its orientation might undermine sustainable biosafety efforts.

The term 'knowledge-based economy' has broad applications and has been observed by scholars to be at the leading edge of economies in developed states which have become driven by technologies based upon knowledge application.[26] A KBE covers a wide array of activities and interpretations. Powell and Snellman defined a knowledge economy as 'production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance.'[27] The OECD 2005 describes a KBE as: '… an expression coined to describe trends in advanced economies towards greater dependence on knowledge, information and high skill levels, and the increasing need for ready access to all of these by the business and public sectors.'[28] It is, therefore, a structurally broad-based economic framework, which promotes innovations, such as biotechnology, in the national economy. In this respect, the role of biosafety, as described above, is to

[25] See Alhaji BM Marong, 'From Rio to Johannesburg: Reflections on the Role of International Legal Norms in Sustainable Development' (2003) 16 Geo.Int'l Envtl L Rev. 21; Duncan French, 'The Regulation of Genetically Modified Organisms and International Law: A Call for Generality' in Luc Bodiguel and Michael Cardwell (eds), *The Regulation of Genetically Modified Organisms: Comparative Approaches* (Oxford University Press 2010).
[26] ibid.
[27] ibid.
[28] OECD, 'Knowledge-Based Economy' (*OECD Glossary of Statistical Terms*, 2005) <https://stats.oecd.org/glossary/detail.asp?ID=6864> accessed 4 September 2015.

mitigate the emanating social, economic and environmental concerns inherent in the pursuit of biotechnology for economic growth.

This is very important because biotechnology in the framework of a KBE has an inherent tendency to gravitate towards market-oriented economic growth at the expense of social justice and equality as well as environmental management. For instance, its reliance on highly technical scientific knowledge as capital results in an elite class of a few experts with economic power owning most intellectual property. Thus, Jasanoff argued that scientific knowledge aligns with economic and political power, producing new scientific elites.[29] It is, therefore, evident that in the framework of a KBE, biosafety and sustainable development are not necessarily compatible and such an alignment in the pursuit of sustainable biosafety requires carefully designed biosafety laws. Sustainable biosafety should, therefore, be crafted in a manner that safeguards sustainable development objectives in an integrated manner.

This also indicates, as is suggested by the law and development theory, that biosafety as a legal instrument, could be used as a tool to coerce desired outcomes of sustainable biosafety. This is not a straightforward proposition, considering the complexities of biosafety as a regulatory area, as well as the intricacies of the social, economic and environmental contextual issues, which are involved in the realm of sustainable development.

What is particularly challenging in designing appropriate biosafety legal and regulatory systems that will ensure sustainable biosafety, is the contextual social, economic and environmental complexities, including the broad and highly technical biotechnology as the regulatory area, which is also plagued by scientific

[29] Sheila Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton University Press 2007).

inconclusiveness and uncertainties. For instance, the process of technological development up to market entry involves various stages, which each require a distinct set of regulations, ranging from research and development (R & D) activities, such as ensuring laboratory safety, technology transfer, knowledge management, access and benefit sharing, intellectual property rights (IPRs), risk management of products of technologies (human, animal and environmental) and the socio-economic considerations resulting from technology uptake and use, as well as liability and redress and so on.

In addition, the increased production and use of technologies involves greater international market integration with distinctive cross-border related trade and environmental dimensions and thus laws. This is indicative of the distinct connections of biosafety with trade law. Therefore, it is evident that sustainable biosafety addresses multiple concerns at the interface of trade, environmental and social objectives similar to sustainable development. This creates a strong impetus for sustainable biosafety for Namibia, more so considering its high inequality and poverty levels. It also reinforces the importance of the role of biosafety law in supporting and ensuring the simultaneous integration of social, economic and environmental objectives in the pursuit of sustainable biosafety.

1.3 Research Questions and the Scope of this Thesis

The main research question involves exploring to what extent the principle of mutual supportiveness is useful in the promotion of sustainable biosafety in Namibia. In order to examine the utility of mutual supportiveness in sustainable biosafety in Namibia, the following sub-questions are considered:

1. What is the role and function of law in sustainable biosafety?
2. What is sustainable biosafety?

3. How does the Cartagena Protocol on Biosafety progress the notion of sustainable biosafety, when considered in the context of the related WTO Agreements?

4. How can the principle of mutual supportiveness ensure sustainable biosafety?

5. What are the difficulties (conceptual, normative and institutional) that Namibia has encountered in the integration of the CPB and what are the emerging tensions with its WTO obligations?

6. Is there scope for the principle of mutual supportiveness in the pursuit of sustainable biosafety in the Namibian legal system?

Due to the comprehensive nature of the biosafety regulatory subject area, the actual analysis of the CPB and the Act will be limited to the provisions and the principles that have direct relevance in influencing sustainable biosafety outcomes, such as the principle of advance informed agreement (AIA), the precautionary principle, public participation and socio-economic considerations. Specific emphasis will be on the precautionary principle as the basis of regulatory divergence and thus conflicting norms of the CPB and WTO.

1.4 Contribution to Knowledge

This thesis' original contribution to knowledge is threefold. Firstly, it offers an original analysis of Namibia's regulatory approach to sustainable biosafety in its unique social, economic and environmental context, examining it from the theoretical perspective of the law and development theory. In doing so, it analyses the Namibian Biosafety Act specifically how it integrates the CPB in conjunction with the associated WTO obligations and demonstrates how the principle of mutual supportiveness is useful in reconciling conflicting biosafety and trade norms, in the pursuit of sustainable biosafety.

Secondly, this thesis considers the reconciliation of competing trade and biosafety obligations of international law with specific regard to Namibia's approach to sustainable biosafety. The negative impact of international law on sustainable biosafety efforts of Namibia is amplified by critically considering the conclusions of the law and development theory from a TWAIL perspective. In this regard, TWAIL illuminates how international law undermines its positive role in sustainable biosafety from a developing country's perspective. By so doing, the thesis provides a unique insight on how the Namibian biosafety law has endeavoured to navigate the hindrances presented by international law in the pursuit of sustainable biosafety and then how the law deviates from its WTO obligations.

Lastly, the thesis considers the usefulness of the principle of mutual supportiveness in the assessment of the Namibian biosafety law via a broader consideration of the Namibian environmental governance, mainly through case law.

Even though there are many studies in a variety of related areas,[30] none of them has considered the problems of conflicting biosafety and trade obligations from the perspective of their impact on the Namibian legal system. Wüger and Cottier, for example, edited a book that considered various issues relating to biotechnology, trade, human rights, food safety and security. However, this work does not focus on the specific approach of Namibia's biosafety law and neither does it consider this from the theoretical perspective of law and development theory criticised from a TWAIL perspective.[31] Mus, however, has focused on the conflicts of treaties in public

[30] See, for example, Tomer Broude and Yuval Shany, *Multi-Sourced Equivalent Norms in International Law* (Hart Publishing 2011); Jan Mus, 'Conflicts between Treaties in International Law' (2009) 45 NILR 208; Daniel Wüger and Thomas Cottier, *Genetic Engineering and the WTO: World Trade Forum* (Cambridge University Press 2013).
[31] Daniel Wüger and Thomas Cottier (eds), *Genetic Engineering and the WTO: World Trade Forum* (Cambridge University Press 2013).

international law, without a special focus on biosafety.[32] Broude and Shany have explored fragmentation of and conflicting norms within international law,[33] but, again, without specific analysis on Namibia or its biosafety law, neither from the perspectives of law and development theory considered from the critical principles of TWAIL. In addition, Pauwelyn's work on fragmentation examines how WTO law relates to other rules of international law and how this regime endeavours to bridge conflicting rules.[34] Again, it does not consider them in a national context, neither with regard to the Namibian Biosafety Act, nor via the aforementioned theoretical frameworks. Nevertheless, their work constitutes an important insight into how conflicting international law obligations are imposed on States and so might negatively impact efforts aimed at sustainable biosafety.

Lastly, since the Namibian Biosafety Act was passed in 2006, there has been no analysis of this kind, more so from the theoretical perspectives and approach adopted by this thesis. Neither has the impact of conflicting international CPB and WTO obligations and their impact on the Namibian Biosafety Act been considered.

1.5 Research Methods

The thesis studies Namibian biosafety law in the framework of sustainable development through statutory provisions and international law cases. It is a doctrinal study, focusing on primary legal sources, including the 1992 Convention on Biological Diversity, the 2000 Cartagena Protocol on Biosafety and the 2006 Namibian Biosafety Act. To evaluate and understand these primary sources, the investigation of secondary sources, including peer reviewed journal articles, academic texts and authoritative online sources has been undertaken.

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[32] Jan Mus (n 30).
[33] Tomer Broude and Yuval Shany, *Multi-Sourced Equivalent Norms in International Law* (Hart Publishing 2011).
[34] Joost Pauwelyn, *Conflict of Norms in Public International Law: How WTO Law Relates to Other Rules of International Law* (Cambridge University Press 2003); Joost Pauwelyn, 'Bridging Fragmentation and Unity: International Law as a Universe of Inter-connected Islands' (2004) Mich.J.Int'l L. 25, 903.

This approach enables the examination of a broad range of views from within existing academic scholarship and places this research within the context of the existing literature.

Importantly, this thesis draws from the theoretical perspective of the law and development theory informed through TWAIL critical practice to identify and deconstruct the international, historical, political, social and economic factors that influenced and shaped the outcomes of biosafety law in Namibia in order to understand the extent to which these provisions support and/or undermine sustainable biosafety. Having established the fundamental weaknesses and challenges presented by current Namibian environmental governance, this thesis then makes a case for the principle of mutual supportiveness in resolving biosafety and trade conflicts and calls for the establishment of an Environmental Court in order to enhance sustainable biosafety in Namibia.

The law and development theory constitute a starting point for understanding the role of the biosafety law in sustainable biosafety because they provide a structured context for the ideologies, role and function of law in sustainable development, which this thesis uses to define sustainable biosafety. The changing developmental models and related legal reforms expose important lessons for what exactly constitutes the role and function of law in development in order to deduce how biosafety law can be employed to advance sustainable biosafety. It, therefore, illuminates what the perspective, design and focus of biosafety law ought to be, in order to fulfil this function. Importantly, these changing developmental models also indicate the path that Namibia has undertaken to get to its current socio-economic state and so assist in the justification of sustainable biosafety as a development goal for the use of biotechnology.

It is worth mentioning here that, as much as the theory of law and technology could be useful for the study, its focus on national laws does not provide the international perspective needed for the questions explored in the thesis. The international perspective here is important, more so because the Namibian legal system has not engaged substantially with sustainable development, nor biosafety, in order to provide the necessary normative insights. In addition, the theory of law and technology has several limitations, including that it is a relatively new field[35] and that there is not yet a widely agreed upon body of knowledge. For instance, the term 'technology' is too broad and general and thus conceptually abstract,[36] while the momentous differences in technologies defies the coining of an all-encompassing definition.[37] The research questions, as stated above, require some benchmarks to aid the assessment of the extent to which biosafety norms/rules might enable the simultaneous attainment of social, economic and environmental objectives. In this regard, law and development theory provide an important basis for defining sustainable development, while providing important ideological insights into law and development, as discussed above. Nevertheless, while law and development theory clarifies some important ideologies that are relevant to this thesis, it has several shortcomings. For instance, it does not provide a conception of what ought to constitute development. Importantly, it does not account for the negative impacts of international law on sustainable development in developing countries, which is contrary to its main tenet, which is that law has a much-needed function to positively advance development. Thus, TWAIL whose main tenets uniquely illuminate the challenges that Namibia, as a developing country, encounters in the pursuit of sustainable biosafety, is used to highlight the difficulties in this regard. Thus, through the theoretical lens of TWAIL, this thesis demonstrates and amplifies the extent to which the CPB and WTO contribute to the meaning of sustainable biosafety from the perspective of ordinary people in developing countries. The TWAIL perspective also accounts

[35] Gaia Bernstein, 'Accommodating Technological Innovation: Identity, Genetic Testing and the Internet' (2004) 57 VLR 965; Arthur Cockfield, 'Towards a Theory of Law and Technology' (2004) 30 MLJ 383; David Friedman, 'Does Technology Require New Law?' (2001) 25 HJLPP 71; Colin Picker, 'A View from 40,000 Feet: International Law and the Invisible Hand of Technology' (2001) 23 CLR 149.

[36] Larry Hickman, *Philosophical Tools for Technological Culture Putting Pragmatism to Work* (Indiana University Press 2001).

[37] Lyria Moses, 'Towards a General Theory of Law and Technology: Why Have a Theory of Law and Technological Change?' (2007) 8 MJLST 589.

for the extent to which the problem of normative conflicts is rooted in and is amplified by the design and judicial practice of international law, making a case for the pursuit of sustainable biosafety through greater reliance on the principle of mutual supportiveness. Consequently, even though TWAIL does not directly contribute to answering the research questions examined in this thesis, it provides an important critical perspective of how international law actually undermines the argument of law and development theory, which is that law, has a positive coercive role to play in development. This approach gives a realistic situation about the real time impacts and influences of international law in Namibia's endeavors of sustainable biosafety.

1.6 Overview of the Structure of the Thesis

Chapter 2: A Survey of Law and Development Theory

Chapter Two aims to position the thesis in the context of law and development theory and in doing so provide a solid vision of this thesis' theoretical basis. It seeks to set out the key themes that explain the overall roles and functions of law in promoting development. It then considers these themes from the critical perspective of TWAIL as to how international law negatively affects and thus diminishes the positive role of law in development from a developing country's perspective. One of the main conclusions is that the positive role of international law in sustainable biosafety largely depends on the conception of sustainable biosafety as the ultimate legal objective in biosafety. This creates the imperative of determining what sustainable biosafety essentially is before assigning any meaningful role for law.

Law and development theory does not set out what development ought to be, even though, in its critical practice, it deals with what it is not supposed to be. To this end, it asserts that traditionally development has narrowly focused on economic growth and, of late, calls for the inclusion of wider social parameters in the quest

to address widespread developmental failures, such as extreme poverty. This chapter explains the importance of these issues, their significance for this study as well as how they will assist in answering the research questions.

Chapter 3: An Analysis of Sustainable Biosafety

Considering the conclusion of Chapter Two that the positive role and function of law requires an appropriate conception of what development ought to be, this chapter establishes that a comprehensive conception of development as sustainable development should be the preferred objective and principle of international law. It clarifies why development ought to be sustainable development and not narrowly economic growth. By so doing, this chapter examines elements that will inform the conception of sustainable biosafety. In order to do this comprehensively, this chapter also explores the benefits and risks of biotechnology that need to be mitigated through sustainable biosafety. It concludes that, similar to sustainable development, sustainable biosafety deals with balancing the social, economic and environmental benefits and risks of biotechnology, while its intensive highly scientific knowledge creates additional needs in terms of balancing private vs public interests in the mist of remaining scientific uncertainty.

It argues that, similar to the difficulties involved in achieving sustainable development, sustainable biosafety is also imbued with the challenge of balancing diverse and often diverging objectives. This is mainly with regard to the legal complexities emanating from the environmental/biosafety and trade objectives. These issues are reinforced by the abstract nature of sustainable development, as well as its different orientations and the importance given to it in the various sub-systems of international law. In order to demonstrate this, this chapter analyses the *Gabcikovo-Nagymaros*, *Pulp Mills* and the *Shrimp-Turtle* cases under the jurisdiction of the International Court of Justice (ICJ) and World Trade Organization (WTO), respectively.

Chapter 4: The Cartagena Protocol on Biosafety: Incongruence with WTO Law

This chapter is devoted to the CPB and situates its provisions in the framework of sustainable biosafety as established in Chapter Three. The underlying question here is to what extent sustainable biosafety is compatible with the CPB and how the trade regime affects this compatibility. It highlights the regulatory complexities of the CPB through the assessment of its main provisions and principles, starting with its scope, objectives and provisions, such as the principle of AIA, public participation and socio-economic considerations. It then narrows in on the tensions in the application of the precautionary principle and scientific knowledge. It specifically focuses on how scientific uncertainty compounded by the different regulatory approaches of the CPB and the WTO reinforce normative tensions in biosafety and trade. This analysis serves as a prelude to the following chapter on mutual supportiveness. In doing so, it draws upon the debates during the negotiation of the CPB in order to clarify how the controversial issues at the interface of biosafety and trade eventually shaped the provisions of the CPB.

Chapter 5: The Role of the Principle of Mutual Supportiveness in the Pursuit of Sustainable Biosafety

After exposing the complexities of sustainable biosafety as well as how normative conflicts between the norms of the CPB and the WTO are inevitable, this chapter proposes the under-utilised principle of mutual supportiveness as one of the solutions to sustainable biosafety. Among other things, the chapter establishes the utility, legality and applicability of the principle in international law, specifically as it relates to sustainable biosafety. Starting with its origins and utility, this chapter demonstrates its usefulness as a law making and interpretative tool in order to strengthen coherence and co-existence in pursuing sustainable biosafety. It then considers in detail how biosafety and trade norms are in conflict and how the traditional conflict resolution tools are increasingly proved ineffective in the pursuit of sustainable biosafety. It acknowledges the role of the structural weaknesses in international law in reinforcing the problem of normative conflicts.

Lastly, this chapter demonstrates the applicability of mutual supportiveness through the lens of the *EC-Biotech Case*. It argues that the WTO court could reach better-informed decisions, by also considering the non-WTO applicable law, as obligated by mutual supportiveness. The chapter ends with an exposition of how the application of mutual supportiveness could help in surmounting conflict in a manner that supports sustainable biosafety, while respecting the integrity of both regimes.

Chapter 6: Sustainable Biosafety in Namibia

This chapter introduces the Namibian Biosafety Act and aims to establish the extent to which it addressed Namibian concerns and interests or whether it represents an automatic replication of the CPB. It assesses whether its main provisions promote the simultaneous integration of environmental, trade and socio-economic objectives, especially when considered in the context of Namibia's obligations under the WTO. The essential question then is whether the provisions of the Act contribute to sustainable biosafety. The main objective is to examine how the domestic and the international influences played off in the debates that led to the development of the law and how they eventually influenced the outcome. This is important in order to deduce whether similar challenges that exist between the CPB and the WTO are evident in the case of Namibian biosafety law.

Although the Namibian law is broad, going far beyond the scope of the CPB, it largely aligns with the regulatory approach and principles of the CPB and thus it contains conflicts similar to those between the CPB and the WTO and thus such divisions are inevitable between the Namibian biosafety law and the WTO. This then justifies the need for the pursuit of mutual supportiveness in Namibian biosafety as a means to promote sustainable biosafety. This is especially important given Namibia's need for balancing economic objectives with its pressing social imperatives of addressing high levels of poverty and inequality at the same time.

Chapter 7: The Principle of Mutual Supportiveness in Namibia and a Call for the Establishment of a Specialised Environmental Court

Having established the utility of this principle from an international law perspective, this section considers such claims within the Namibian legal system and specifically as it relates to the Namibian biosafety law or broader environmental law. It provides an in-depth analysis of the conflicts between the Act and Namibia's obligations imposed by the WTO and, by so doing, further substantiates the utility of mutual supportiveness. It concludes that even though the principle of mutual supportiveness has utility and applicability in Namibia, the prevailing weaknesses in the broader Namibian environmental governance regime compromise the usefulness of the principle and overall compromise sustainable biosafety. Therefore, in order to augment the effective use of the principle of mutual supportiveness, the overall Namibian environmental governance system needs urgent overhaul.

It is in this regard that the chapter then proposes the establishment of a decisionally independent specialised environmental court within the Namibian High Court structure as one of its specialised divisions. It makes a case for the type of authority, jurisdiction, standing etc. that the court ought to have in order to address the identified impediments in the pursuit of sustainable biosafety through the use of the principle of mutual supportiveness.

Chapter 8: Conclusion

This part of the thesis discusses the main findings, assesses the shortcomings of this study and makes recommendations for Namibia's way forward in the pursuit of sustainable biosafety. It also provides recommendations for future research based on the findings of this project.

CHAPTER 2: A SURVEY OF THE LAW AND DEVELOPMENT THEORY

2.1 Introduction

This chapter considers different theoretical approaches to the role and function of law in sustainable development through the theoretical lens of law and development theory. Law and development theory explains the relationship between law and development and constitutes the backbone of any analysis of the role of law in sustainable biosafety. Indeed, it presents an important starting point for any study of legal phenomenon as it relates to development (in this case sustainable biosafety) as long as it is considered within a specific socio-economic context.

Importantly, this theory sets out the instrumental and deontological role of law in development. However, international law imposes conflicting norms that undermine sustainable biosafety and thus subverts this theory's proposition that law has both an instrumental and deontological role in development. TWAIL, on the other hand, is largely concerned with the negative impact of international law on developing countries and thus illuminates the problem of normative conflicts and their impact on the sustainable biosafety efforts of Namibia.

The CPB is already very much an expression of the dominant views and perspectives of developed countries and thus it advances their interests in line with their domestic policies at the expense of developing countries. Hence, this chapter considers the theoretical approaches to the role and function of law in development through a critical assessment of law and development theory in order to deduct the actual role of law is in the pursuit of sustainable biosafety, while drawing upon critical insights from TWAIL. By so doing, the thesis establishes a realistic view of the role and function of international law in sustainable biosafety efforts of Namibia. It commences with an overview of law and development theory, explaining its origin and highlighting the three emerging dominant ideologies. It then provides a critical analysis, of the conclusions reached following an

analysis of the theory of law and development about the negative impacts of international law on developing countries, based on TWAIL perspectives.

2.2 Law and Development Theory

Law and development theory asserts that a country's legal systems have critical implications for its economic and social prospects[38] and calls for legal development, as well as the instrumental use of law to aid such growth.[39] It is a multifaceted and integrated theory, cutting across many disciplinary boundaries, ranging from development studies and law to social sciences and political studies and so on.[40] Although law and development theory constitutes a substantial body of knowledge, as a theory, it has a number of 'modes of thought', which mark stages of development,[41] and, as such, it remains possible to include further states of development into this overall theory. Three distinct modes of thinking emerged from this theory, namely the concept that while law can foster development, it is itself part of development. There is also the idea that law can be a barrier to development and is increasingly affected by global forces. Below is a brief background of law and development theory aimed at situating the current modes of thinking on the role and function of law in a historical context.

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[38] Robert Seidman, 'Law and Development: A General Model' (1972) 6 LSR 311.
[39] David Trubek, 'Law and Development in the Twenty-First Century' in McAlinn and Pejovic (eds), *Law and Development in Asia* (University of Wisconsin, Legal Studies Research Paper No. 1178, Routledge 2011) <https://ssrn.com/abstract=1949740> accessed 7 July 2015.
[40] Burg Eliot, 'Law and Development: A Review of the Literature and a Critique of Scholarship of Scholars in Self-Estrangement' (1977) 25 AJCL 492; Amanda Perry-Kessaris (ed), *Law in Pursuit of Development: Principles to Practice?* (Routledge 2011).
[41] David Trubek and Alvaro Santos (eds) *The New Law and Economic Development: A Critical Appraisal* (Cambridge University Press 2006).

Leading scholars in the field of law and development, Trubek and Santos, explain that the theory 'orients and explains the current practices of those who seek to change the legal system in the name of development'.[42] Similarly, Burg defines it as 'a theory that seeks to describe the relationship(s) between law and development in the context of developing countries' and how this brings together the funding practices and policies of those who seek to advance development.[43] Although the study of the role of law in development dates back to the nineteenth century, focused and organised studies in the field only emerged after World War II. Legal practitioners and scholars in the US began a scholarly movement in the 1960s in order to study the use and the functions of law in development. This was specifically with regard to the development assistance provided to developing countries, which then led to the formation of law and development as a scholarly field and a practical tool for development agencies. However, it has not yet crystallised into a widely accepted theory because of the persisting dynamic evolution of new ideas and hence the aforementioned diverse 'modes of thought'.

Thus, since its conception, scholars have differentiated three distinctive 'mode of thought' in the progression of ideas and perspectives of law and development.[44] The first is a nationalist or State-led development model; the second is the neoliberal/market-based school and the third is a mixed model.[45] These 'modes of thought' offer some analytical utility for this thesis as they, for instance, '… situate the new paradigm in the history of changing development models and related legal reform strategies since World War II'.[46] Thus, they assist in the clarification of the elements that point to what sustainable biosafety is or ought to be, informed by lessons learned through development failures and successes over time and space in the sphere of law and development. In this respect, they describe the course of development that Namibia has undertaken in order to

[42] ibid.
[43] Burg Eliot (40).
[44] ibid.
[45] David Trubek and Alvaro Santos (n 41).
[46] ibid.

reach the position it is in now. While pursuing a KBE supported by neoliberal economic policies, Namibia is faced by conflicting social, economic and environmental objectives in terms of integrating and implementing the CPB in a manner that promotes sustainable biosafety. These challenges are also attributable to the pursuit of two inconsistent international legal norms based upon trade and economic development, amplified by its socio-economic and political context, which have major implications for sustainable biosafety.

Hence, analysing the three 'modes of thought' is also important for this thesis because questions about different States' and the market's roles in development, which underpins these precepts, also surface in terms of sustainable biosafety, as introduced below and explored in Chapters Six and Seven. Thus, these modes illuminate and establish the theoretical dimensions of the analytical discussions in Chapter Four. Hence, they constitute an important starting point for this analysis, in as much as they give a structured context to the ideologies of the third and the current 'modes of thought' with which this thesis is primarily concerned. Before introducing a discussion of the three 'modes of thought' though, it is important to explore how law and development theory came into being, what it actually purports, and what the situation was before its emergence.

Prior to the appearance of the concept of these three distinct modes of thought in law and development theory, economic growth and, thus, development was premised on the classical capitalist orientation where the market was the dominant player in economic affairs. This was the era of *laissez-faire* policies, whose failures had manifested international and national macroeconomic instability and inequality.[47] It was also blamed for the

[47] Seeraj Mohamed, 'Economic Policy, Globalization and the Labour Movement: Changes in the Golden Age to the Neoliberal Era' (2008) Global Labour University Working Papers <https://www.econstor.eu/handle/10419/96380> accessed on the 20 September 2018.

economic depression of the 1930s.[48] In this economic policy, the market is key in economic affairs while the State has a minimal role. Due to the failures of this kind of capitalism and *laissez-faire* policies, the 1944 Bretton Woods Conference was held, which was attended by over 750 delegates, with the aim of redefining capitalist or *laissez-faire* policies.[49] The significance of the outcomes of the Bretton Wood Conference for this thesis are twofold. Firstly, they signify the emergence of the first 'mode of thought' in law and development theory, which became known as the State-led nationalist approach. This is because the Bretton Wood Conference proposed similar roles for the State and the market in economic issues, unlike the prior capitalist or *laissez-faire* approaches.[50] It assigned defined State responsibility in areas such as balancing trade deficits, rural and urban growth and income distribution and proposed the use of the State as an actor for change and this was referred to as neoliberalism.[51] It is this redefining of greater State roles in economic affairs that gave rise to the ideologies of the first 'mode of thought' in law and development theory, which will be introduced shortly.

Secondly, the significance of the Bretton Woods Conference (1944) is also marked by its establishment of the international 'development' institutions, including the World Bank and the International Monetary Fund (IMF),[52] the WTO being of major significance for this thesis. Overall, these institutions have certain mandates aimed at economic development and poverty reduction, where the need exists, along with specific social projects in the furtherance of, *inter alia*, health, education projects or protection of the environment,[53] even as they are blamed for their disparate advancement of economic/trade objectives at the expense of social and environmental ones.[54] Specifically, the WTO, with its current membership of 149, prioritises trade liberation because its main

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[48] Bjorn Hettne, *Development Theory and the Three Worlds* (John Wiley & Sons 1990) 27.
[49]Seeraj Mohamed (n 47).
[50] Bjorn Hettne (n 48).
[51] David Trubek and Alvaro Santos (n 41).
[52] The Bretton Woods Project: Critical Voices of the World Bank and IMF, 'What are the Bretton Woods Institutions' (*The Bretton Woods Project*, 23 August 2005) <http://www.brettonwoodsproject.org/2005/08/art-320747/> accessed 7 July 2015.
[53] International Monetary Fund, 'The IMF and the World Bank' (*International Monetary Fund*, 8 March 2018) <*http://www.imf.org/external/np/exr/facts/imfwb.htm*> accessed 3 April 2012.
[54] Pascal Lamy, 'The Place of the WTO and its Law in the International Legal Order' (2006) 17 EJIL 969.

mandate is to regulate trade in goods and services. To date, the WTO has evolved into a strong sub-system of international law with one of the few effective and mandatory dispute settlement bodies in international law. Its implications for sustainable biosafety are introduced in Chapter Three.

2.2.1 The State-Led Nationalist 'Mode of Thought' in Law and Development Theory

As stated above, the State-led nationalist 'mode of thought' of law and development came about as result of the redefinition of classical capitalism as defined by the Bretton Woods Conference. In this model, the State has direct and greater responsibilities for the promotion and advancement of economic growth. The State is also considered to be an actor for change, for instance, through providing the initial funds for business start-ups, making sure that new industries are developed and that local markets are protected from external competition, unlike in classical liberalism.[55] Ironically, this model resulted in the unintended outcome of the State assuming dominance in economic affairs, especially in developing countries, contrary to the Bretton Woods modification, which did not aim to establish absolute State control, but rather to assign specific defined roles to the State.

For developing countries, State dominance was imposed by structural market weaknesses, such as the absence of individuals with capital. Additionally, greater State involvement in these countries was justified by the socially oriented developmental goals of the then welfare state, aimed at improving the social wellbeing of its citizens as a collective whole.[56] This State-centric social welfare focus of development policy implied that it was to be informed and based on the social, economic and political conditions within each country.

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[55] David Trubek and Alvaro Santos (n 41).
[56] Duncan Kennedy, 'The Three Globalizations of Law and Legal Thought: 1850—2000' in David Trubek and Alvaro Santos (eds) *The New Law and Economic Development: A Critical Appraisal* (Cambridge University Press 2006).

For legal reforms, as stated by Trubek and Santos, the 'objective was to position development policy within the social context of its jurisdiction'.[57] To this end, the importance of context in legal reforms was recognised and this practice led to the emergence of classical, social and legal approaches in developing countries – specifically, the political theory of liberal legalism, which proposes that:[58]

> 'the building blocks of society are individuals, groups and state; that the state rule and control is by means of laws to upheld societal values; that the state uses law independent and rationally; and that society eventually conforms its behaviour in line with the norms advanced by the law.'[59]

In this view, law is '… a force which could be moulded and manipulated to alter human behaviour and so achieve development'.[60] It was a tool for State policy, targeted at creating economic growth and transforming a traditional society through industrialisation-based modernisation.[61] It was regarded as a purposive activity to facilitate the improvement of collective social wellbeing, based on collective values. This instrumentalist conception of law regards law as a normative tool, being both prescriptive and authoritarian, which can alter social relations and economic behaviours. Therefore, legal reforms focused on public laws, such as labour, administrative and family laws to govern the relationships between the State and society.[62] Even if private law was reformed, such reforms were aimed at weakening it in order to subordinate the market to the advancement of public social goals.[63] During the 1950s and 1960s, developing countries adopted the US-conceived import

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[57] David Trubek and Alvaro Santos (n 41).
[58] Duncan Kennedy (n 56).
[59] David Trubek and Marc Galanter, 'Scholars in Self-Estrangement: Some Reflections on the Crises in Law and Development Studies in the United States' (1974) 4 WLR 1062.
[60] Burg Eliot (n 40).
[61] David Trubek and Alvaro Santos (n 41).
[62] David Trubek, 'Developmental States and the Legal Order: Towards a New Political Economy of Development and Law' (University of Wisconsin, Legal Studies Research Paper No. 1075, 2008) <http://ssrn.com/abstract=1349163> accessed 26 June 2011.
[63] ibid.

substitution industrialisation model (ISI).[64] Below is a brief discussion of the ISI to assess the conclusions of the State-led 'mode of thought' of law and development theory that are crucial for this thesis.

The ISI policy was inwardly focused, concentrating on the locally initiated production of goods and services in a national economic system created by the restriction of international trade.[65] Import restrictions, such as taxes, tariffs, quota content regulations and quality control, were used to achieve this purpose.[66] This strategy was utilised to increase local production and, accordingly, limit the exporting of primary resources and the importing of processed goods.[67] To this effect, in the 1960s, many developing countries, such as Brazil adopted ISI and the process of modernisation.[68] Even though the main goal of local industrialisation was economic development, socially, it aimed at shifting the traditional societies of developing countries into modernity. For this to happen, it was thought that the same laws that led to industrialisation in the West (which was informed by the liberal legalism that advances the instrumentalist use of law to transform society)[69] could eventually do the same for the developing countries, though this was misguided. Legal reforms in support of these activities were supported through the international, financial and technical assistance offered, mainly by the US bilateral aid organisations, such as the Ford Foundation, and resulted in the transplantation of foreign legal codes.[70]

Therefore, not only was the ISI policy US-conceived and thus foreign to developing countries, the supporting laws were foreign and had less regard for the local legal, socio-economic and political context within

[64] David Trubek and Marc Galanter (n 59).
[65] Silvia Maxfield and James Nolt, 'Protectionism and the Internationalization of Capital: U.S. Sponsorship of Import Substitution Industrialization in the Philippines, Turkey and Argentina' (1990) 34 ISQ 49.
[66] David Trubek and Alvaro Santos (n 41).
[67] ibid.
[68] ibid.
[69] David Trubek and Marc Galanter (n 59).
[70] ibid.

which they were to be pursued. This also contradicted the very tenet of the ISI policy that was to focus on local industrialisation, arguably, based on contextual issues. Nevertheless, the ISI policy failed to yield significant improvements and this was then framed as the failure of the State-led nationalist 'mode of thought' in law and development theory. Several factors might be blamed for these failures, most importantly, the weaknesses of the State as the dominant market player, the mismatch between specific development goals and the instrumental use of law to pursue it, as well as a lack of contextual considerations and the failure of legal transplants.

The critics of this approach argued that the State and its agencies had limited capacity to ensure the best possible investment paths for their countries.[71] They claimed that State agencies are generally corrupt and cannot ensure maximum national financial outcomes.[72] However, it is also arguable that the conception of this State-centric approach was blurred by various practices. As mentioned above, it was not the aim of this 'mode of thought' to assign to the State absolute control in economic affairs. However, by default it gravitated towards such absolutism in developing countries. In that event, when blame was apportioned, the notion of whether neoliberal ideologies had failed or whether they were simply failed by practice was overlooked. Moreover, there was a mismatch between specific developmental goals and the instrumental use of law to advance aims that were doomed – in this case, nationalist ISI policy supported by public law.

Furthermore, the ISI was believed to be inappropriate for developing countries. Dam notes that 'the protectionist isolation of developing countries from international trade' resulted in high inflation levels that, in

[71] David Trubek (n 62).
[72] ibid.

turn, affected the exchange controls and resulted in a further reduction of international trade.[73] The result was economic stagnation because being cut off from international trade implied that developing countries could only derive limited benefits from advantages such as access to bigger markets, investment flow and the attraction of new technologies, as well as having a wider choice of products and services and hence price reductions.[74]

In addition, contrary to their aim to unhook from international trade and focus on local industrialisation, many of the economic interventions in developing countries were not truly national. Primarily, the ISI policy itself was based on an American conception of industrialisation, as well as foreign-based international development aid and legal reforms due to the primacy of external funding and the involvement of foreign experts. This led to copying not only the concept of the developmental ISI policy and practices of international aid institutions, but it also resulted in the transplantation of foreign legal codes.[75] Although the focus of this State-centric approach was the inclusion of context-specific social, economic and political issues in developmental policy, the lack of context-specific issues inherent to the phenomenon of legal transplantation was blamed for many economic failures.[76]

Evidently, the transplantation of foreign legal codes was doomed for failure because such frameworks did not consider the unique social, economic, political and even legal context in developing countries. Context matters, as Tamanaha states:

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[73] Kenneth Dam, *The Law-Growth Nexus: The Rule-of-Law in Economic Development* (Brookings Institution Press 2006) 4.
[74] WTO, 'Understanding the WTO: Basics, The Case for Open Trade' <http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact3_e.htm> accessed 25 July 2011.
[75] David Trubek and Marc Galanter (n 59).
[76] David Trubek (n 62).

'… legal context in every society involves a unique constellation of forces and factors, there can be no standard formula for law; a good law in one location may be ineffective or dysfunctional elsewhere; unanticipated consequences are to be expected.'[77]

The mismatched laws in this case were mainly based on different values because the transplanted laws advanced through foreign legal codes were underpinned by values, such as 'individual freedom, expansion of citizen participation in decision making, enhance[d] social equality, and [an] increase[d] … capacity of all citizens to rationally control events and shape social life'.[78] There was thus an unreasonable ambition in terms of transforming traditional societies in developing countries by using foreign laws. For instance, from a community-oriented developing country perspective, the focus on liberal values, such as individual freedom, disregarded the collective social values customary to these countries and upon which their legal systems, which were still under-developed, were based. Moreover, if the aim of law is to uphold the social good of any given society based on the values and the interests that shape its social and economic behaviours, then such values should be the basis of any law.[79] After all, law is connected to everything else in society, whether legal or non-legal.

Arguably, one way of determining what is practical and of value in a particular society is to involve people in the creation and adoption of such values from the start. This is the premise of the constructive role of law in creating and moulding common societal values through provisions that ensure, for instance, legal empowerment through public participation in decision-making. This imperative is even more important in terms of sustainable biosafety where people have to participate in the decision-making process that affects their social, economic and

[77] Brian Tamanaha, 'The Primacy of Society and the Failures of Law and Development' (2011) 44 (1) IJL. <http://scholarship.law.cornell.edu/cilj/vol44/iss2/1> accessed 7 July 2015.
[78] David Trubek and Marc Galanter, (n 59).
[79] ibid.

environmental wellbeing. This approach also creates a platform for interaction and information sharing because, when people have a say from the start, they are inclined to perceive the risks and benefits of technologies, such as biotechnology, from an informed position. Not only is this initial involvement informative, but it also shows respect and collective consideration, both of which are highly important in terms of regulations such as those involved with modern biotechnology. Thus, it might not just have been a question of content (what values were enshrined in law), but rather the fault of the approach that was taken to integrate these values and this is where sustainable development is a valuable guide, as is discussed in the following chapter.

Here, however, it is worth also mentioning that even though the failures of legal transplants are well-known from this 'mode of thought' in law and development, the transplantation of legal norms is still rampant in the modern era. The only difference is its indirect means of imposition, mainly through international law. For instance, as is also argued by the TWAIL as discussed below, the dominant views and perspectives of the developed countries greatly shape the outcomes of global instruments in line with their own domestic instruments.[80] This is also indicative of the persistent north-south dividing issues during the formation of the international biosafety law enshrined in the CPB. The negotiations of the CPB took place over five years, through intensive meetings, which almost ended in a deadlock.[81] During these debates, developing countries fiercely negotiated in light of their socio-economic, political and legal strengths and weaknesses. However, to what extent they succeeded in avoiding another legal transplant in biosafety is discussed in Chapters Five and Six.

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[80] Bhupinder Chimni, 'Third World Approaches to International Law: A Manifesto' in Antony Anghie et al (eds), *The Third World and International Order: Law, Politics and Globalization* (Leiden, The Netherlands: Brill Nijhoff 2003) 47.
[81] Ezra Ricci, 'Geneva International Academy, Biosafety Regulation: The Cartagena Protocol' (2004) <http://www.ruig-gian.org/ressources/Brochure3Cartagenaprotoc.pdf> accessed 20 September 2018.

It is worth noting here that Namibia's reaction to the ISI policy in the 1950s and 1960s is not documented. However, some African countries, such as Tanzania, Zambia and Nigeria, had adopted ISI policies in the 1960s, *albeit* with failures.[82] For Namibia, what is evident is that the current Industrial Policy, entitled: 'Growth at Home', seems to be cautiously attempting to strike a delicate balance in terms of the promotion of local economic growth and international trade. For instance, it focusses on economic diversification premised on local value addition to its raw natural resources, e.g. through greater reliance on a KBE's imperatives, while it equally aims at opening up international trade.[83] This is indicative of attempts to avoid the failures of the ISI policy, while at the same time promoting local growth. To what extent this policy will succeed will partly be discernible through the successes and/or failures of this remedial approach, which signifies the second mode of thought of the law and development theory, known as the neoliberal/market approach, which was aimed at remedying the weaknesses of extreme State involvement and regulation in developmental affairs.

2.2.2 The Neoliberal/Market Approach

The neoliberal 'mode of thought', which also became known as the market approach, is significant for this thesis because it coincides with the emergence of biotechnology and its regulations in the 1970s. Neoliberal ideologies represented one of the dominant views that exacerbated the polarisation of the biotechnology debate and shaped the outcomes of the CPB, as will be demonstrated in the coming chapters. It is, thus, important to explain the neoliberal/market 'mode of thought' of the law and development theory.

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[82] Ana Paula Mendes, Mario Bertella and Rudolph Teixeira, 'Industrialization in Sub-Saharan Africa and the Import Substitution Policy' (2014) Rev. Econ. Polit. 34,120.

[83] Ministry of Trade and Industry, Government of Namibia, *'Growth at Home: Namibia's Execution Strategy for Industrialization'* <http://www.mti.gov.na/downloads/GrowthinNamibia.pdf> accessed 4 September 2018.

The failures of the State-led nationalist development approach justified, once again, the exclusive positioning of the market in economic affairs as the top priority of development.[84] These ideologies were greatly shaped by the ten economic principles that famously became known as the1989 Washington Consensus. These were ideas shared by the International Monetary Fund, the World Bank and the US Treasury Department about the then economic reforms and they outlined ten neoliberal economic principles. These were trade liberation, privatisation and the deregulation of the markets in order to advance economic growth through cutting prices, promoting financial discipline, removing distortions created by the State and encouraging foreign investment.[85] The overall aim was to open up international markets and so increase international trade, while minimising State intervention in economic affairs. Deregulation became the norm and, from the instrumentalist view, these activities required different types of laws and legal reforms. [86] The role of law was primarily regarded as being that of fostering private transactions[87] and the protectionist laws that were intended to restrain the market in the previous 'mode of thought' needed to be amended in favour of notions of market dominance.

Therefore, they would be in line with the classical liberal theory in which reforms were directed towards the promotion of private laws, such as those involving property and contracts. The focus of legal reforms were also on the separation of powers or judicial independence. The independence of the judiciary was seen as a way to restrain the State from interfering in market affairs, based on the premise that judges are objective and rational and can hold back the political, and at times arbitrary, State and its legislators.[88] Thus, by relying on legal formalism, the judiciary could ensure the trustworthiness and predictability of the law[89] on which the market could then rely to control State power.

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[84] David Trubek and Alvaro Santos (n 41).
[85] Centre for International Development, 'Washington Consensus' (*Global Trade Negotiations Home Page)* <http://www.cid.harvard.edu/cidtrade/issues/washington.html> accessed 15 June 2011.
[86] David Trubek and Alvaro Santos (n 41).
[87] ibid.
[88] Duncan Kennedy, *The Integration of Classical Legal Thought in the Rise and fall of Classical Legal Thought* (Beard Books 2006).
[89] David Trubek and Alvaro Santos (n 41).

In this approach, the issue was one of degree and orientation, considering what role the State should play versus the market in development. This is a critical premise for biosafety in which national approaches to biotechnology regulations also hinge on the orientation and the degree of state versus market involvement. Moreover, in advancing biotechnology regulations for development purposes, States do not have the appropriate technical capacity even to regulate such knowledge intensive technologies that is often found within industry. On the contrary, industries might well be prejudiced as they are laden with scientific curiosity and financial interest, which, in turn, can lead to them pushing for the use of untested and unsafe technologies. This has been stated by Somsen who argues that self-regulation '... might be highly implausible regulatory approaches for biotechnology companies given the gap between the self-interest of those companies in rapid commercialisation of their products and the public interest in minimising the potentially catastrophic consequences'.[90] Indeed, markets cannot regulate themselves in terms of ensuring health and environmental protection.

For biotechnology then, while markets play an important role in economic affairs, biosafety regulations should be driven by the State. Those who are influenced by neoliberal ideologies oppose this proposition, using the failures of the State-led 'mode of thought' to justify deregulation or minimal State involvement in biosafety. They simply view biotechnology and its products as ordinary tradeable commodities and argue that trade liberation should be the norm.[91] Nevertheless, it is not a question of the extent and degree of State or market involvement in biosafety, but one of framing the risks and benefits in a manner that enables who is best suited to regulate biotechnology and at what level. This is equally a contextual issue because if deregulation and neoliberal policies worked for the US, it does not mean they will do so everywhere, as indicated by the failures of ISI policies and the associated legal transplants into developing countries, as discussed above.

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[90] Han Somsen, 'Schuttingtaal in het Milieurecht?' in Ybo Buruma (ed), *Liber Amicorum Peter Tak* (Wolf Legal Publishing 2009).
[91] See, for example, Melinda Cooper, *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era* (University of Washington Press 2008) and Mizanur Rahaman, 'Biotechnology, Neoliberal Politics of Life and the Spirit of Biocapital' (2011) SAGE, 41, 759.

However, developing countries have to surmount additional contextual difficulties other than the issue of the degree and extent of market/State involvement. For instance, the consequences of limited governance are a contributing factor in terms of low administrative capacity and corruption, which inhibits progress in many developing countries,[92] including Namibia. The resulting impact of corruption in particular is that the benefits of growth often accrue to dishonest politicians, Western business managers and wealthy elites, as opposed to the general population. This undermines development since it adds to the ever-growing inequality and poverty levels and so diminishes the potential for sustainable biosafety.

Moreover, Namibia has a notable absence of biotechnology industries and that forces the State to assume a greater regulatory role in biosafety. This is because Namibia was once a protectorate of SA and was considered the ninth province of that country. This resulted in industrial development mainly being promoted in either Johannesburg or Cape Town.[93] Thus, major mother companies were centrally located in these towns and only the smaller spin-off companies were established in the provinces, such as Namibia. [94] This situation, at least as far as biotechnology industries are concerned, persisted even after Namibia's independence in 1990. It should also be said, however, that restrictive State-driven laws would also inhibit the full-scale exploitation and use of biotechnology. Nevertheless, this is a component of legal design and how it considers all the possible challenges of attaining sustainable biosafety and so enshrined remedial provisions in law. To this effect, biosafety law designs should consider the balance between the weaknesses and strengths of the degree and extent of the State/civil society versus market involvement.

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[92] Han Somsen (n 90) 112.
[93] Nordiska Afrikainstitutet and Oden B, *Namibia's Economic Links to South Africa* (Reprocentralen HSC 1999).
[94] See the Report of the Regional Trade Facilitation Programme titled '2007 Update Survey of Non-Tariff Barriers to Trade: Namibia', (July 2007) and 'The Global Edge: Namibia: Economy' <https://globaledge.msu.edu/countries/namibia/economy> accessed 23 May 2013.

However, the neoliberal market 'mode of thought' of law and development theory also yielded disappointing results. For instance, it was blamed for the 1997 Asian financial crisis and the 1998 economic crisis experienced by several Latin American countries.[95] This brings to the fore additional factors that determine the role of law in development and not only the degree of State versus the market in economic affairs. This is the premise of the third 'mode of thought' in law and development theory, also referred to as the Mixed Model. This firstly considers what specific issues influence and shape developmental outcomes and how the law could be used to empower individuals, rather than merely focusing on who is at the forefront of development and reforming supporting laws to narrowly support economic growth-oriented objectives. Therefore, while markets and the State are both important for mainstream economic activities and regulations they cannot by themselves bring about development.

2.2.3 The Third 'Mode of Thought' of Law and Development Theory: The Mixed Model

As we have seen, besides the degree and orientation of State versus market roles in development, there are other fundamental issues that need to be addressed to enhance the role of law in development and this involves the third and the current 'mode of thought' which emerged in the 1990s.[96] It is worth emphasising here that, in the prior 'mode of thought,' law is seen to play a role, whether instrumental or otherwise. However, the failures in developmental efforts where law was engaged raises queries as to its effectiveness.

The current thinking in law and development 'mode of thought' significantly clarifies two perspectives about the effective role of law in development that are significant for sustainable biosafety. Firstly, they raise the

[95] David Trubek and Alvaro Santos (n 41).
[96] ibid.

need to balance the extreme orientations regarding State and market roles in development and, secondly, they reveal the requirement to conceptualise development within a specified context. It is only when these issues are corrected that law can be employed to support the specified developmental goals. Therefore, this 'mode of thought' embraces a combination of ideas in order to find a balance between market and State roles based on a context-appropriate development policy and thus it defines their respective roles, as well as what the role of law should be.[97] From a legal perspective, it pursues a pragmatic balance between private law and social legal thought.[98]

Furthermore, this 'mode of thought' also deals expansively with the conceptual analysis of what exactly constitutes development, particularly in terms of the inclusion of aspects of rights - mainly legal empowerment of the poor, distributional issues, the protection of private property and environmental concerns. It considers the degree to which developmental policy should address various factors other than economic growth. Thus, the current phase of law and development challenges the former perspectives that focus on the promotion of good governance, the rule-of-law and the instrumental use of law in support of economic growth-oriented development focus.

The rule-of-law is an important determinant of development and rests upon both instrumental and intrinsic or deontological foundations.[99] Any developmental policy should then primarily clarify these conceptual foundations of development before assigning the nature and design of laws to support the social and human objectives of development, such as addressing inequality, while also using the law instrumentally in pursuing

[97] David Trubek and Alvaro Santos (n 41).
[98] Duncan Kennedy (n 56) 631.
[99] Michael Trebilcock and Ronald Daniels, *Rule of Law Reform and Development: Charting the Fragile Path of Progress* (Edward Elgar Publishing Limited 2008) 6.

other goals, such as economic growth. The instrumental foundations of law mainly foster economic growth because of their emphasis on the protection of private property rights, and the facilitation and enforcement of contracts, which is important in increasing investment levels and rates of financial expansion.

Moreover, there is growing empirical evidence that suggests that economic performance is indeed linked to several governance parameters, such as the existence of the rule-of-law,[100] and does not depend purely on the instrumental use of law. On the other hand, its deontological, or intrinsic foundations, focus on the normative conception of development, which focusses developmental policy on humans as both the principle means and ends of development, rather than developmental policy merely pursuing economic growth. In this regard, Sen, as discussed in the following chapter, asserts that the provision of freedom of various kinds and empowering humans through the rights and opportunities guaranteed by the rule-of-law is central to any developmental policy. This is an important proposition for developing countries which desperately need to reduce their inequality and poverty levels because such provisions aim to ensure that the benefits of economic growth will not only accrue to the elite and corrupt leaders and that the state can be held accountable for addressing corruption and welfare issues.

This is not a straightforward proposition, but it provides an important starting point for reorienting the use of law in development and safeguards its effectiveness. This is also relevant to matters of law in biosafety, which are based on both instrumental and deontological foundations, as will be examined in the coming chapters, especially in terms of the influence of the context within which the said laws are to be implemented and enforced. For instance, the adoption of a KBE in Namibia justifies the instrumental use of law in the pursuit of economic growth, using biotechnology as a means for value addition to the national economy. However, since Namibia's

[100] World Bank, 'Worldwide Governance Indicators' <http://info.worldbank.org/governance/wgi/index.aspx#doc> accessed 30 June 2014.

market structure, as discussed above, currently lacks significant biotechnology industries, its biosafety laws must create opportunities to strengthen the market's weakness for instance by enabling its citizens to take up new economic opportunities to start their own companies in this field. In the interim, Namibia will have to rely on international biotechnology industries, an imperative that makes a case for international trade orientation in their KBE.

Furthermore, in terms of sustainable biosafety, it is not simply a case of getting the balance right between State and market roles or making the instrumental or deontological foundations of law more precise in the conception of development, as there are divisive social, economic and environmental concerns, which further complicate sustainable biosafety. Moreover, as is evident from the above discussions, this mixed 'mode of thought' in law and development theory is not devoid of shortcomings either. This is amplified through the critical perspective of TWAIL specifically highlighting limitations in international law's role in fostering the sustainable biosafety efforts of developing countries.

2.3 Critique of Law and Development Theory

As was argued above, while law and development theory provides an important basis for any analysis of the nexus of law and development studies, it has multiple persisting weaknesses that also account for its failure to coalesce into a widely accepted concept. There are several widely cited failures, which could serve as important safeguards for the role of biosafety law in sustainable biosafety. For instance, the lack of normative content in terms of what exactly constitutes development; questions regarding the effectiveness of the rule-of-law where prior legal reforms in the pursuit of development have failed; the narrow focus on the instrumental conception of development in terms of economic growth and the general disregard for the deontological foundations. As mentioned elsewhere, law and development theory does not engage substantially with the negative impact of

international law on the developmental efforts of developing countries, which thus means it contradicts its positive assertions about the role of law in development. However, the TWAIL perspective provides a basis from which to expand on these matters and this is discussed in the following section as an additional critique of law and development theory.

In terms of both the instrumental and deontological conceptions of the use of law in development, law will only be effective as a tool to advance development when the developmental objectives precisely address the specific needs of a specific country.[101] Yet the theory of law and development does not properly advocate for the inclusion of context-specific economic and social and human issues,[102] and it makes little mention of environmental aspects. Although it advocates for both the instrumental and deontological objectives of development, it does not address the question of what exactly constitutes development. It is for this reason that this thesis has adopted sustainable biosafety as its conception of development more so because it is widely adopted, both nationally and internationally, and provides the basis of the meaning of sustainable biosafety. Although, as discussed in Chapter Three, sustainable development is equally contested and practically difficult to achieve. In addition, the conceptual difficulties of defining development remain while one of the main criticisms of law and development theory to date is the persistence of market orientation in economic affairs.[103]

Development agencies, such as the World Bank, are accused of reinforcing the disparate promotion of economic growth by advancing projects that encourage the creation of legal frameworks in support of the market

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[101] Brian Tamanaha (n 77).
[102] Jonathan Harris, 'Basic Principles of Sustainable Development' (2000) Global Development and Environmental Institute, Tufts University < http://ase.tufts.edu/gdae> accessed 14 March 2010.
[103] David Trubek and Alvaro Santos (n 41) 5.

ideals without considering the other deontological objectives of development.[104] This makes sense because the theory as discussed above does not propose any normative content for what exactly constitutes development. This critique of law and development also aligns with the discussion below that international law has imposed trade norms that mainly promote economic growth without regard to social and environmental objectives. The attempts to remedy this in international law often results in conflicting obligations, as demonstrated in the case of biosafety and the trade norms that have implications for sustainable biosafety.

Furthermore, even though this third 'mode of thought' promotes the rule-of-law in support of the deontological objectives of development,[105] the claim that the rule-of-law will thrive where law and development has failed is thrown into question when countries such as China have achieved substantial economic growth without the rule-of-law, but rather the rule-by-law.[106] This is because, in practice, rule-of-law reforms are no different from law and development activities. Again, this is indicative of the incongruity between intent and practice in the area of law and development. As is stated by Golub, these reforms often focus '… too much on law, lawyers and state institutions, and too little on development, the poor and the civil society".[107] This alludes to the failure to link legal reforms to development efforts as they were carried out as an end in themselves and not a means to an end in order to support development. Moreover, such reforms disregarded the interconnectedness of the various components of the legal system and are carried out in isolation. For instance, reforms dealing with the law are enacted independently of those that look at legal institutions or those that are intended to subordinate the State to the law.[108] This is important for modern-day environmental laws, such as those relating to biosafety,

[104] Duncan Kennedy (n 56) 631.
[105] David Trubek and Alvaro Santos (n 41) 5.
[106] Thomas Carothers, *Promoting the Rule-of-Law Abroad: In Search of Knowledge* (Carnegie Endowment for International Peace 2006).
[107] Stephen Golub, 'Beyond the Rule of Law Orthodoxy The Legal Empowerment Alternative' (Carnegie Endowment for International Peace, Rule of Law Series Number 41, October 2003) <http://carnegieendowment.org/files/wp41.pdf> accessed 4 March 2012.
[108] Thomas Carothers (n 104).

that require associated reforms in the other components of the legal system because, for instance, the traditional practices and existing principles and norms might not align with the implementation and enforcement needs of such laws and could render them ineffective. This is important for this thesis' focus on biosafety in terms of the regulation of nascent technologies that impose further legal reforms in the broader system to accommodate its unique demands. Indeed, this is incredibly pertinent to the case of Namibia, as is explored in Chapter Six.

2.4 Critique of Law and Development Theory from the Perspective of TWAIL

TWAIL is a broad-based theory, encompassing all perspectives and approaches that look at the negative impact of international law on the Third World.[109] Focusing on universality and common humanity, TWAIL argues that no less dignity, security, rights or benefits should be accorded to the people of developing countries.[110] It contends that the equality of lives of the Third World people is of paramount importance and, in this context, considers the meaning of international law from the perspective of the lived experience of the ordinary people of the Third World.[111] Thus, TWAIL scholars enact common ethical and moral commitments in terms of exposing and addressing the generally unequal, unfair and unjust traits of international law as it is imposed on Third World countries.[112] More so the domination and the eventual subordination of developing countries. TWAIL scholars argue that the practices that maintain the status quo are deliberately maintained to promote the interests of developed countries.

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[109] Chinedu Obiora Okafor, 'Newness, Imperialism, and International Legal Reform in our Time: A TWAIL Perspective' (2005) 43 OHLJ 171.
[110] ibid.
[111] Bhupinder Chimni, 'The Past, Present and Future of International Law: A Critical Third World Approach' (2007) MJIL 27, 449.
[112] Chinedu Obiora Okafor (n 107).

According to Benvenisti and Downs, one of the strategies through which subordination of developing countries is achieved is by keeping overlapping jurisdictions and ambiguous boundaries in place, leading to a pluralist and diverse international law, which undermines the status and the normative reliability of international law.[113] Similarly, Chimni states that 'the economic and political independence of the third world is being undermined by policies and laws dictated by the first world and the international institutions they control'.[114] This results in global instruments echoing the policies and laws of developed countries, which are then imposed as international obligations on developing countries. This has put limitations on developing countries in terms of undertaking autonomous and self-reliant legal reforms in aid of locally initiated development because national endeavors often have to be aligned or enacted in accordance with international law, even when values and associated objectives create a clash between the norms of international law and national aspirations.

Moreover, as is demonstrated in the following chapters, tensions between the norms of specialised sub-systems of international law present additional difficulties that have proven hard to resolve and, as a result, international law obligations are often not implemented in national jurisdictions, as is the case with the Namibian Biosafety Act, which integrates the CPB, discussed in Chapter Six. This is because international law has developed independently of other legal or policy objectives. This has led to State parties having disjointed legal obligations to various international legal instruments and these have been hard to reconcile and, thus, they undermine sustainable development. Arguably, these developments in international law have been undertaken without due regard to their implications for developing countries and neither is there a concerted effort to remedy this situation and this is particularly the case with regard to the impact of conflicting international legal obligations

[113] Eyal Benvenisti and George Downs, 'The Empire's New Clothes: Political Economy and the Fragmentation of International Law' (2007) 60 SLR 595.
[114] Bhupinder Chimni, 'Third World Approaches to International Law: A Manifesto' (2006) 8 Int.C.L.Rev. 3.

on sustainable biosafety. This is indicative of the difficulties faced by developing countries in terms of addressing their unique economic, social and environmental objectives in the pursuit of sustainable biosafety.

Similarly, Baumuller argued that the WTO is having a 'chilling effect' on sustainable biosafety in developing countries.[115] Indeed, Chapter Five demonstrates how the developed countries' dominance has greatly shaped the, arguably, watered down provisions of the CPB and that the utility of the CPB is compromised, especially when compared with the WTO's conflicting obligations. By implication, the countries who were not in favour of a separate instrument for biosafety, but rather wanted it integrated into WTO law, got their way because the CPB would then be eventually subordinated to WTO law and this has already been proven to be the case in the *EC-Biotech Case*, as discussed in Chapter Six. Arguably, this aligns with the TWAIL's critique that there are domination and power relations in international law and how law is used as a platform for advancing the interests of dominant voices.[116] Even though no developing country was involved in this dispute, their positions generally gravitated towards EU policies on biosafety and this case was conceived as an indirect way to promote the interests of the US in the biotechnology trade. Indeed, this case could well set a precedent for future biosafety cases in the trade dominated and focussed WTO, thereby serving as a deterrent for the adoption of stricter biosafety laws.

Moreover, in order to adjudicate a clearly biosafety-related case in the WTO when there was the newer and specific CPB to deal with biosafety was a deliberate move to use the WTO as a platform to promote American

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[115] Heike Baumuller, *Domestic Import Regulations for Genetically Modified Organisms and Their Compatibility with WTO Rules* (International Institute for Sustainable Development 2003).

[116] See, for instance, Chinedu Obiora Okafor, 'Newness, Imperialism, and International Legal Reform in our Time: A TWAIL Perspective' (2005) 43 OHLJ 171 and Bhupinder Chimni, 'The Past, Present and Future of International Law: A Critical Third World Approach' (2007) MJIL 27, 449.

interests. After all, *when the elephants fight, the grass suffers*, as goes the African proverb. Besides, the provisions of the CPB are watered down compromises when considered in the context of the WTO agreements, thus giving a kind of priority to WTO, as Chapter Four demonstrates. Moreover, some developed countries, such as the US, were against the creation of a separate legal instrument for biosafety and wanted it to be handled by the US-controlled WTO.[117] This aligns with the TWAIL's theoretical contention that the dominant views and perspectives of the developed countries mold global instruments in support of their own interests and in line with their domestic biosafety policies.

This thesis demonstrates in Chapter Four that the highly compromised and weakened provisions of the CPB, when considered against WTO law, are, in fact, the result of the power dominance that was at play during its negotiations. Thus, in respect of this current research, TWAIL theory challenges whether Western-centred international legal initiatives that largely focus on neoliberal economic development can really serve the needs of developing states. This is particularly the case when States such as Namibia aim to improve their sustainable biosafety efforts. The imposition of global instruments that are not in tune with the values of developing countries amounts to what Chimni calls the 'alienation of international law … which denotes an aspect of estranged relationship between individuals, societies and nature regulated by international law …'.[118]

What is also troubling is the fact that the state of affairs in international law denies its normative reliability and so inhibits the sustainable biosafety efforts of developing countries. For instance, the WTO has been accused of stifling biosafety efforts in developing countries because of the possibility of expensive disputes if these

[117] Aarti Gupta, 'Framing "Biosafety" in an International Context' (ENRP Discussion Paper E-99-10, Kennedy School of Government, Harvard University, September 1999); Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman (n 14).
[118] Bhupinder Chimni (n 114).

countries adopt the stricter unilateral biosafety measures due to their unique social and environmental concerns. This is because the WTO (which the US preferred in the *EC-Biotech Case*, disregarding *lex posterior* and *lex specialis derogat legi generali* rules) has a very effective and mandatory dispute settlement body and enforces its objectives mainly through its legally binding agreements, contrary to the 'soft law' instruments of the environmental regime. Thus, States may well choose to prioritise trade law at the domestic level at the expense of biosafety out of fear of possible trade disputes. This has a coercive influence on sustainable biosafety efforts in developing countries and supports the TWAIL perspective that international law impacts negatively on such efforts. Therefore, it is evident that developing countries' international trade obligations have a stifling effect on national-initiated biosafety and thus a 'chilling effect' on sustainable biosafety efforts. Perhaps this also explains why countries such as Namibia have not yet enacted their biosafety laws. The fundamental question from a sustainable biosafety perspective, then, is how to surmount these difficulties in a manner that promotes its objectives, and the following chapters will address these concerns.

2.5 Conclusion

The theory of law and development denotes two roles or functions for law in development, which are also relevant for sustainable development, as is clarified in the following chapter. This theory concludes that law has an instrumental role, which is reinforced by its purposive nature. In its instrumental conception, the role of law is to promote specified development objectives, whether they be social, economic and/or environmental. Secondly, it asserts that law creates an enabling and supportive environment within which developmental activities can take place by creating a kind of operating system that supports the realisation of development objectives. This could be achieved through reliance on certain legal instruments, such as economic laws, e.g. contract law and IPR. Importantly, the enabling orientation of law is also the basis of the enforceable legal provisions that promote rights and opportunities, thus safeguarding the social objectives of development.

While this is important in terms of addressing the inequality and injustice inherent in specifically economic growth-oriented development activities, it is not a straightforward proposition, specifically for developing countries, because those who stand to benefit the most from these rights tend to be largely ignorant of them due to low levels of awareness and education. Also, weaknesses in the existing governance frameworks, such as those related to enforcement, amplify this problem. Therefore, the effectiveness of law in this regard is dependent on its alignment with local social, economic and political contexts. Such contextual considerations account for the human and social dimensions of development, involving inequality and poverty levels. This indicates that the effectiveness of law in these situations depends on its design and orientation, this being based on specified development objectives and the context within which it is to be pursued.

Moreover, it is clear that while law can aid development, legal reforms themselves are a necessary part of development in order for it to be relevant and effective in line with the changing conceptions and orientations of development. This is because the meaning assigned to development determines the nature and orientation of the laws needed to support the defined objectives. Indeed, it is also so that the broad-based development objectives are difficult to reconcile. This is specifically true for sustainable development, which this thesis has adopted as its conceptual framework of development in order to guide sustainable biosafety, as is demonstrated in the following chapter.

Additionally, it is also evident that the effectiveness of law in development requires progressive legal reforms as the notion of development shifts over time. Development is fundamentally about change and any alteration in the constitutive elements of development must similarly be considered through the adjustment of appropriate legal reforms in order to maintain and enhance the appropriateness and thus effectiveness of law. Importantly, specific elements of legal reforms, such as the development of new laws, should not be considered

in isolation, but must be assessed in relation to the internal diversity of legal and judicial rules and practices within which it must function.

Furthermore, TWAIL scholars conclude that international law is a platform for the unequal participation of States, whereby the dominant voices of developed countries have shaped the outcomes of legal instruments. This results in, firstly, the imposition of a kind of *legal transplantation*, which is not aligned with the socio-economic and political context of developing countries. The second difficulty is that international law often confers conflicting obligations.

Moreover, international law does not provide definitive guidance for how to resolve these clashes in a manner that promotes sustainable biosafety. This compromises the importance of international law, while negatively affecting the local development efforts of developing countries, in this case in terms of sustainable biosafety. These conclusions are important for this thesis because of its focus on biosafety, when, at national level in developing countries, biosafety laws are derived from the CPB whose negotiations were undermined by north/south dividing issues and which is, arguably, then a replica of the policies and laws of those nations with dominant voices. Chapter Four of this thesis considers these issues, while Chapter Three adopts the developmental framework of sustainable development to mould a definition for sustainable biosafety which will form the basis of the analysis of the Namibian biosafety law in Chapter Six.

CHAPTER 3: AN ANALYSIS OF SUSTAINABLE BIOSAFETY

3.1 Introduction

Law and development theory concerns the essence as well as the role that law could play in ensuring development, but it does not account for what constitutes development, more so sustainable development. This chapter argues that sustainable development is a legal principle of international law as well as the most widely preferred development framework and so provides the foundation for what should constitute sustainable biosafety. This conception of sustainable biosafety will be used as a benchmark for the analysis of the CPB and Namibian biosafety law as well as to what extent they deviate from WTO law. Therefore, the chapter firstly traces the origins, importance and orientation of sustainable development in international environmental law. Secondly, it considers the integration of sustainable development in the WTO, with the aim also to explore its orientation and meaning. Overall, these two sections are aimed at highlighting the differential importance and perspective of sustainable development in the environmental and trade sub-systems. The third section will expound on challenges that emanate from these different fragmented efforts of sustainable development in international law sub-systems and this will be emphasised through the analysis of the *Gabčíkovo-Nagymaros, Pulp Mill* and *US Shrimp-Turtle* cases[119] of the ICJ and the WTO. These cases are considered the most significant ones for environmental development and trade-related disputes in international law[120] and are indicative of how conflicting trade and environmental norms have proven increasingly difficult to reconcile, similar to one of the main arguments of this thesis. Fourthly, the chapter will outline the imperative for a comprehensive conception of sustainable biosafety before considering a possible approach to the inclusion of social objectives considered through the theoretical lens of the normative framework of 'development as human freedom'.[121] This is because

[119] *Shrimp-Turtle Case* (n 6); ICJ, *Case Concerning the Gabĉikovo-Nagymaros Project (Hungary/Slovakia)* (Judgment) ICJ General List No 92 [25 September 1997] ICJ Reports 1997, p. 7; ICJ, *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)* (Judgment) ICJ Reports 2010, p. 14.
[120] Phillippe Sands (n 4).
[121] Amartya Sen, *Development as Freedom* (Oxford University Press 2001).

international law does not have a specific normative instrument neither a sub-system that promotes these objectives. Lastly, the chapter draws from all of the above and proposes a definition of sustainable biosafety, for the purposes of this thesis.

3.2 Sustainable Development in International Law

Sustainable development has its roots in the environmental law sub-system of international law. The aim of this section is to trace its origin and by so doing highlight its orientation and importance in this regime. This chapter will also consider the integration of sustainable development with trade norms, while revealing that there is no specific normative instrument in international law that promotes the social and human objectives of sustainable development. Neither is there a specific approach to incorporate the social and human dimensions in the existing environment and trade regimes. This notwithstanding, sustainable development specifically calls for the simultaneous integration of these three broad objectives. What is particularly worrisome is the fact that international law does not have a separate sub-system, similar to trade and environment, to integrate the social and human issues, which is indicative of the additional weaknesses of international law in ensuring sustainable development.

By examining these weaknesses in order to substantiate at least a procedural approach for the integration of the social objectives, this thesis has adopted Sen's normative framework concerning development as human freedom. This normative perspective, as noted by Tungodden, addresses the central problems of injustice and augments the agenda of welfare economics.[122] This is particularly vital because the fundamental problems of development in terms of human and social perspectives pivot around injustice and inequality and this is

[122] Bertil Tungodden, 'A Balanced View of Development as Freedom', CMI Working Paper 14, 2001 < https://www.cmi.no/publications/953-a-balanced-view-of-development-as-freedom> accessed 4 August 2018.

particularly relevant for Namibian biosafety efforts, as discussed in Chapter Five. These are components under the social objectives of sustainable development of which there is no specific normative instrument and/or sub-system of international law similar to the environment and trade ones. It is for this reason that this thesis uses Sen's normative framework of 'Development as Human Freedom' to consider an approach for the inclusion of social objectives to guide the conception of sustainable biosafety. Before that, however, I will explore how the environment and trade sub-systems of international law have developed and promoted the notion of sustainable development followed by a synthesis of an approach to the inclusion of social objectives of sustainable development based on Sen's normative framework.

3.2.1 Sustainable Development in International Environmental Law

The 1972 United Nations Conference on the Human Environment in Stockholm, Sweden, was hailed as the beginning of the formal conceptual integration of the human and the social dimensions of development in the framework of environmental law.[123] Thus, it signified the emergence of development as a comprehensive integrated framework known as sustainable development.[124] Its aim was 'to create a basis for comprehensive consideration within the United Nations of the problems of the human environment' and to 'focus the attention of Governments and public opinion in various countries on the importance of the problem'.[125] This resulted in the Stockholm Declaration and a detailed resolution on institutional and financial arrangements, which included 109 recommendations. Significantly, it marked the emergence of certain principles such as the sovereign right of

[123] Alhaji Marong (n 25).
[124] Nico Schrijver, 'The Evolution of Sustainable Development in International Law: Inception, Meaning and Status', *Pocketbooks of The Hague Academy of International Law* (BRILL 2008); Robert Munro and Johan Lammers, *Environmental Protection and Sustainable Development, Legal Principles and Recommendations* (1987) adopted by the Experts Group on Environmental Law of the World Commission on Environment and Development.
[125] United Nations Economic and Social Council, Proceedings and Documents of the 44th Regular Session, Annexes, Agenda Item 12 (22 May 1968), UN Doc. E/4466/Add1.

States to exploit their own resources pursuant to their own environmental policies.[126] The Stockholm Conference was hence the first to appeal against the imposition of limitations on the right of States to use their resources[127] thus aligning environmental regulations with practices that promoted sustainable development.[128] However, although the conference gave international recognition and popularity to sustainable development, [129] its outcomes were also received with skepticism by developing countries.

For developing countries, the emerging global emphasis on environmental concerns raised fears that their chances of further development would be compromised[130] and that it '…was a neo-imperialist ploy from the west'.[131] They argued that their developmental efforts were already delayed compared to the developed world.[132] Thus, they advocated that environmental policies should be considered in the economic and social contexts of those who need development most.[133] Evidently, one of the major challenges of the Stockholm Conference was how to strike a balance between the need to conserve the environment and natural resources, while considering the unequal development status.

Furthermore, the conference considered issues of the intergenerational concerns that pertain to the equitable distribution of social and economic goods within one generation, both internationally and nationally.[134]

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[126] United Nations, 'Stockholm Declaration on the Human Environment' (June 1972), UN Doc. A/CONF 48/141 Rev.1, principles 2 and 3.
[127] Priscilla Schwarz, 'Sustainable Development in International Law' (2005) 5 NSAIL 127.
[128] Louis Sohn, 'The Stockholm Declaration on the Human Environment' (1973) 14 HILJ 423.
[129] Patricia Birnie and Alan Boyle, *International Law and the Environment* (2nd edn, Oxford University Press 2002) 41.
[130] Louis Sohn (n 128).
[131] Alhaji Marong (n 25).
[132] Louis Sohn (n 128).
[133] Nico Schrijver (n 124).
[134] Alhaji Marong (n 25); Duncan French, 'International Environmental Law and the Achievement of Intragenerational Equity' (2001) 31 ELR 469.

It implied that States must be cognisant of the development needs of other States, as well as of future generations. Therefore, one of the outcomes of the conference was the twenty-six environmental principles known as the Stockholm Declaration.[135] In particular, these principles in their totality aim to ensure a balance between meeting developmental needs and conservation.[136]

Following the Stockholm Conference, many international environmental institutions emerged which were aimed at institutionalising and implementing the environmental aspirations of the international community. For instance, the United Nations Environment Programme (UNEP) was established in 1972 [137] and the United Nations General Assembly (UNGA) established the World Commission on Environment and Development in 1983, known as the Brundtland Commission. The aim of this commission was to work towards creating long-term strategies to achieve sustainable development.[138] It was specifically tasked with ensuring greater cooperation in the pursuit of development between the developing and developed countries and among the developing countries.[139] Thus, pursuant to these objectives, the Brundtland Commission published the report entitled 'Our Common Future' in 1987. [140] This report is important for this research because even though it does not make explicit reference to the principle of mutual supportiveness there are some inherent references to the notion of mutual supportiveness. For instance, it states:

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[135] United Nations, 'Report of the United Nations Conference on the Human Environment' (Stockholm, 5–16 June 1972), UN Doc. A/CONF.48/14/Rev.1.
[136] Nico Schrijver (n 124) 45.
[137] UN General Assembly Resolution 2997 (XXVII), 'Institutional and Financial Arrangements for International Environmental Cooperation' (15 December 1972), UN Doc. A/8783.
[138] UN General Assembly Resolution 38/161, 'Process of Preparation of the Environmental Perspective to the Year 2000 and Beyond' (19 December 1983), UN Doc. A/RES/38/161.
[139] ibid.
[140] UN General Assembly Resolution 42/187, 'Report of the World Commission on Environment and Development' (11 December 1987), UN doc. A/RES/42/187

'…different stages of economical and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development'[141]

"Economic and social development can and should be mutually reinforcing"[142]

Therefore, arguably it not only brought together sustainable development objectives but also introduced the principle of mutual supportiveness, which, in chapters five and six, this thesis considers as the means to resolving conflicting trade and biosafety norms in the pursuit of sustainable biosafety.

Twenty years after the Stockholm Conference, the international community held the 1992 Rio Conference. The main objective was 'to promote further development in international environmental law', taking into account the Stockholm Declaration, while focusing on the needs of developing countries and elaborating on the general rights and obligations of states in this respect.[143] The conference was attended by all the then 176 UN Member States and more than fifty intergovernmental organizations, as well as numerous social[144] organisations. Similar to the Stockholm Conference, the debates faced the challenge of north-south dividing issues, such as 'sovereignty over natural resources, equitable burden sharing, funding, and the role of multilateral institutions, transfer of technology, climate change, biological diversity as well as deforestation'.[145] The overriding question was how to strike a balance between the environmental, social, and economic development concerns and whether these issues were indeed worth considering under a common umbrella.[146] Building on its predecessor, the Rio Conference

[141] ibid, page 1
[142] ibid, page 3
[143] ibid.
[144] UN General Assembly, 'Report of the United Nations Conference Report on Environment and Development' (12 August 1992) UN Doc. A/CONF.151/26 (Vol. I).
[145] Patricia Birnie and Alan Boyle (n 129).
[146] ibid.

further refined and realigned sustainable development even though it also did not make explicit reference to the principle of mutual supportiveness. However, it also has inherent reference to the principle. For instance, Principle 5 states:

> '…that the critical objectives for environment and development policies which follow from the need for sustainable development must include preserving peace, reviving growth and changing its quality, remedying the problems of poverty and satisfying human needs, addressing the problems of population growth and of conserving and enhancing the resource base, reorienting technology and managing risk, and merging environment and economics in decision-making'[147]

It is worth mentioning here that the developed countries viewed the environmental crisis as a direct technical crisis.[148] In view of these contentious issues, the Rio Conference had a tense atmosphere.[149] Nevertheless, it produced several non-binding instruments, namely the Rio Declaration on Environment and Forest and Agenda 21.[150] The principles enshrined in the Rio Declaration and Agenda 21 are significant for the evolution of sustainable development. Importantly, it opened up for signature two significant multilateral treaties – namely, the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). The CBD, which seeks to establish a framework to address the global depletion of biological diversity and is the parent treaty to the CPB, is discussed in detail in Chapter Four. Here it is important to note that the CBD creates key linkages between sustainable development and technology development and usage. This is important because advances in global communication and genetics, for instance, have brought environmental law within the remit of technology regulations.[151]

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[147] United Nations Report of the World Commission on Environment and Development (n 138).
[148] Patricia Birnie and Alan Boyle (n 129).
[149] ibid.
[150] United Nations Report of the World Commission on Environment and Development (n 138).
[151] Michael Redclift, 'Sustainable Development (1987–2005) An Oxymoron Comes of Age' (2005) 13 SD 212.

The Rio Declaration on Environment and Development and, more specifically, its twenty-seven principles, such as the precautionary principle, the polluter pays principle and public participation, have some bearing on sustainable development.[152] In their totality, these principles seek to balance the opposing environmental and economic objectives and the conflicting concerns of developing and developed countries. On the other hand, Agenda 21 creates a programme of action in focus areas, such as poverty alleviation and strengthening national and international environmental protection means and measures.[153] It explicitly focuses on the integration of environmental, economic and social developmental issues, such as poverty and inequality.[154] In order to translate these commitments into action, the UN Commission on Sustainable Development (CSD) was established in 1992 (later replaced by the United Nations High-level Political Forum on Sustainable Development).[155] Its mandate was to promote its principles through the assessment of national reports, the provision of funding and the transfer of environmentally friendly technologies to developing countries.[156]

In 2002, the Johannesburg Summit was held with the objective of reviewing the progress made in implementing the Rio principles in the ten years following the conference.[157] This summit was also well attended by 191 governments, civil and private organisations, but with the noticeable absence of the United States.[158] Contrary to the dissent of the previous world conferences, which were divided in terms of north-south issues and whether these matters should, indeed, be dealt with under a common global agenda, at this summit, there were

[152] Nico Schrijver (n 124).
[153] Patricia Birnie and Alan Boyle (n 129) 43.
[154] ibid.
[155] UN General Assembly Resolution 66/288, 'The Future We Want' (27 July 2012), UN Doc. A/RES/66/288.
[156] ibid.
[157] UN General Assembly Resolution 55/199, 'Ten-year Review of Progress Achieved in the Implementation of the Outcome of the United Nations Conference on Environment and Development' (20 December 2000), UN Doc. A/RES/55/199.
[158] International Institute for Sustainable Development, Earth Negotiations Bulletin, 'Summary of the World Summit on Sustainable Development' (6 September 2002).

differences of opinion on how to operationalise sustainable development.[159] Amongst other things, one of the main areas of contention was natural resource conservation and the prevention of biodiversity loss but significantly, how to implement the precautionary principle.[160] The summit produced two non-binding instruments – namely, the Plan of Implementation and the Johannesburg Declaration on Sustainable Development. Emphasising the urgent need for implementation, the Johannesburg Declaration considered present challenges, while reaffirming a further commitment to sustainable development with clear recognition of economic growth, social development and environmental protection as equivalent pillars of sustainable development. [161] Considering the previous versions of sustainable development declarations, this comprehensive version also supported by the newly adopted UN Global Development Agenda, discussed below, and is indicative of an emerging version of sustainable development that is more integrated rather than one that is focused on the environment-trade nexus. In addition, the Johannesburg Declaration has the most explicit citing of the principle of mutual supportiveness by stating:

'…should ensure a balance between economic development, social development and environmental protection as these are interdependent and mutually reinforcing components of sustainable development'. [162]

Most recently, the Rio+20 was held in June 2012 in Rio de Janeiro, Brazil, with the objectives of securing a renewed political commitment to sustainable development, to assess the progress and implementation gaps in terms of meeting previous commitments and to address new and emerging challenges.[163] It was attended by 192

[159] Alhaji Marong (n 25).
[160] International Institute for Sustainable Development (n 158).
[161] United Nations, 'Report of the World Summit on Sustainable Development' (Johannesburg, South Africa 26 August – 4 September 2002), UN Doc. A/CONF.199/20.
[162] ibid.
[163] United Nations, 'Report of the United Nations Conference on Sustainable Development' (Rio de Janeiro, Brazil 20–22 June 2012), UN Doc. A/CONF.216/16.

UN Member States, including fifty-seven heads of state and thirty-one heads of government.[164] The discussions were centred on two themes, including the creation of a green economy in relation to sustainable development and the poverty nexus, as well as how to improve the institutional coordination of sustainable development.[165] The main outcome was the non-binding political declaration titled: 'The Future We Want'.[166] The Declaration's support for sustainable development goals (SDGs) was clearly articulated and was strengthened by the inclusion of a set of measurable targets aimed at promoting sustainable development.

The sustainable development goals (SDGs) are part of the United Nations Post-2015 Development Agenda for the period of 2015–2030. The understanding is that the SDGs continue from where the Millennium Development Goals ended, and will address the general failures to integrate environment and development aspects.[167] To this effect, the SDGs aims to address key systemic barriers to sustainable development, such as inequality, unsustainable consumption patterns, weak institutional capacity and environmental degradation that the MDGs neglected.[168] This renewed focus on sustainable development further signifies its universal recognition, but more so, as mentioned above, of its conception of the broadly conceived notion of sustainable development.

Importantly, the Rio+20 also established the United Nations High-level Political Forum on Sustainable Development.[169] This forum is tasked with providing leadership and reviewing progress on sustainable development.[170] Notably, all these developments, including the adoption of the 2030 Global Development

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[164] See: United Nations Sustainable Development Knowledge Platform, 'Participating States Members of the United Nations and States members of specialised agencies' <https://sustainabledevelopment.un.org/memberstates.html> accessed 28 April 2015.
[165] United Nations Report (n 161).
[166] UN General Assembly Resolution (n 137).
[167] United Nations General Assembly Resolution, 'The Future We Want' (27 July 2012) A/RES/66/288.
[168] International Council for Science, Review of Targets for the Sustainable Development Goals: The Science Perspective (Paris, 2015).
[169] United Nations General Assembly Resolution (n 167).
[170] ibid.

Agenda, underline a renewed focus on sustainable development and denote that it remains the preferred framework of development. While this remains the case, several legal challenges have hampered the role and function of international environmental law in the progress of sustainable development. Hence, it remains a complex notion, that is also highly abstract and, because of this, the various sub-systems of international law assign it different levels of importance and address it from diverse perspectives, which further inhibits the role of international law in promoting sustainable development. The following provides a brief exploration of the notion of sustainable development in the WTO. If sustainable development is broadly conceived as the integration of the environment, trade and social objectives and if the two international law sub-systems develop their norms in a seemingly parallel manner, it is then important to consider its development and orientation in the trade sub-system as the discussion above did for the environment sub-system.

3.2.2 Sustainable Development in the WTO

There is no mention of the word 'environment' in the core agreement of the WTO system – namely, the General Agreement on Tariffs and Trade (GATT). It is also true that the words 'sustainable development' were only included as one of the general objectives of the World Trade Organization when it was established in 1994. However, as early as 1971, the GATT 1947 (the predecessor of the WTO) established a team of experts to deal with the challenges at the interface of trade liberation and environmental protection.[171] Interestingly, the 1971 WTO team of experts did not meet until 1991.[172] This was perhaps an indication of the WTO's reluctance to deal with environment-related objectives within its trade/economic jurisdiction. It was only at the 1994 Uruguay

[171] WTO, 'Early Years: Emerging Environment debate in GATT/WTO' <http://www.wto.org/english/tratop_e/envir_e/hist1_e.htm> accessed 12 May 2012.
[172] Phillippe Sands (n 4).

Round negotiations in Marrakesh that sustainable development became an objective of GATT 1947.[173] The initial environmental objective of the GATT 1947 encouraged 'the full use of natural resources of the world' [174] and was amended in 1994 to encourage the 'optimal use of the world's resources in accordance with the objectives of sustainable development'. [175] The reference to sustainable development in the GATT is limited, however, and does not appear anywhere else.[176] Even so, the general exception clause, namely Article XX of the 1994 GATT, is sometimes invoked in precedents and includes precepts related to sustainable development.[177] It states in sub paragraphs (b) and (g) that:

> 'Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting Party of measures:
>
> (*b*) Necessary to protect human, animal or plant life or health;
>
> (*g*) Relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.'

While these provisions are important in signaling the consideration of sustainable development within the trade regime, their conflicting meanings and implications are set out in the interpretations of the various WTO Panels. This is mainly because the trade regime's orientation of sustainable development considers trade as a priority and proposes that the resultant economic growth will lead to better living conditions and cleaner

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[173] WTO (n 171).
[174] World Trade Organization, General Agreement on Trade and Tariffs, GATT 1947 (n 5).
[175] World Trade Organization, General Agreement on Trade and Tariffs, Marrakesh Agreement Establishing the World Trade Organization (concluded 15 April 1994) (1994 GATT).
[176] ibid.
[177] Steve Charnovitz, 'A New WTO Approach for Trade and the Environment' (2007) 11 SYBIL 15.

environments. A good example is the application of Article XX by the Court in the decision in the *Shrimp-Turtle Case,*[178] discussed below. This case crucially illustrates the tensions emanating from the disparate consideration of the trade and environmental objectives of sustainable development in international law. Therefore, while the WTO has significantly integrated sustainable development, its practice means this objective remains elusive, as shall be demonstrated shortly through the analysis of the *Shrimp-Turtle Case.*

3.3 ICJ and WTO Engagements with the Notions of Sustainable Development

Sustainable development is enshrined in a vast number of conventions, such as the CBD,[179] regional instruments, e.g. the Southern African Development Community (SADC) Treaty[180] and various domestic laws. All of these international frameworks impose legal obligations on Member States. This multiplicity of legal instruments has led to obligations that are often imprecise in terms of the nature of sustainable development and its limits and the imposition of specific obligations.[181] This is because sustainable development is very vague and ambiguous in meaning[182] and this creates different interpretations and orientations.

This section demonstrates the practical implications of such difficulties by considering three cases of international law – namely, the *Gabĉikovo-Nagymaros Case* and the *Pulp Mills Case*, both decided by the ICJ,[183]

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[178] WTO, 'United States – Important Prohibition of Certain Shrimp and Shrimp Products' (*Shrimp-Turtle Case)* (15 May 1998) WT/DS58/R <http://www.worldtradelaw.net/reports/wtoPanels/us-shrimp%28Panel%29.pdf> accessed 6 June 2012.
[179] Convention on Biological Diversity (adopted 5 June 1992 entered into force 29 December 1993) 1760 UNTS 79 <http://www.cbd.int/convention/text/> accessed 22 May 2012.
[180] Objectives of the Treaty of the Southern African Development Community <http://www.sadc.int/english/key-documents/declaration-and-treaty-of-sadc/#preamble> accessed 11 September 2012.
[181] Virginie Barral, 'Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm' (2012) 23 EJIL 377.
[182] Patricia Birnie and Alan Boyle (n 129); Virginie Barral (n 181).
[183] *Case Concerning the Gabĉikovo-Nagymaros* (n 119).

as well as the *Shrimp-Turtle Case*, decided by the WTO's dispute settlement body.[184] These cases demonstrate challenges in reconciling the conflicting objectives of sustainable development and they are used here to prove and disprove various points made when defining sustainable development. It is worth noting that these cases are considered the most significant ones for the development of environmental law as it pertains to sustainable development, while also demonstrating, importantly, the trade-related issues that hinder its progress.[185]

They are also important because both the WTO's Dispute Settlement Mechanism and the ICJ have significant power. The ICJ is the 'principal judicial organ of the United Nations'.[186] However, the jurisdiction of this court is dependent on the consent of the parties who participate in any given case.[187] It covers the whole field of international law and, although it generally lacks enforcement mechanisms, its judgments are frequently respected.[188] On the other hand, the specialist WTO Dispute Settlement Body (DSB), as mentioned in the previous chapter, is well-established and mandatory and has dealt with a number of trade disputes which have considerable environmental implications.[189]

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[184] *Shrimp-Turtle Case* (n 178).
[185] Phillippe Sands (n 4).
[186] Charter of the United Nations (adopted 26 June 1945 entered into force 24 October 1945) 892 UNTS 119, Article 92.
[187] Christopher Greenwood, 'The Role of the International Court of Justice in the Global Community' (Lecture at the California International Law Centre, University of California, Davis March 2011) < https://jilp.law.ucdavis.edu/issues/volume-17-2/Greenwood.pdf> accessed 17 September 2018.
[188] ibid.
[189] Geraldo Vidigal, 'From Bilateral to Multilateral Law-making: Legislation, Practice, Evolution and the Future of Inter Se Agreements in the WTO' (2013) 24 EJIL 1027.

3.3.1 Gabĉikovo-Nagymaros Case and the Pulp Mills Case

The *Gabĉikovo-Nagymaros Case* was the first environmental case to come before the ICJ,[190] but subsequently the Court dealt with additional cases, such as *Pulp Mills*. These two cases, taking place over different periods, demonstrate how the court shifted in its consideration of sustainable development objectives. Both cases demonstrate how the ICJ engages with general principles of international environmental law and specifically those relating to sustainable development, and develops supporting principles, such as the precautionary principle and the duties of notification and consultation. These principles, as will be demonstrated in Chapter Four, are important for the attainment of sustainable biosafety.

Additionally, these cases present an opportunity to analyse how these emerging principles of environmental law are complimented by broader international legal principles, such as the 'state of necessity', as contained within the ILC Draft Articles. Understanding this context is crucial for the assessment of sustainable biosafety, as French argues that in biosafety regulation '… one needs to be aware not just of those rules that have been specifically adopted in response, but also the wider legal framework in which such bespoke legal regimes inevitably form but a small part'.[191] What is also notable is that these cases consider international law in the framework of a broader developmental policy,[192] which is similar to the overall objectives of sustainable biosafety.

[190] Ibrahim Kaya, 'Implications of the Danube River Dispute on International Environmental Law' (2008) 4 ILP 97; Jessica Howley, 'The *Gabĉikovo-Nagymaros Case*: The Influence of the International Court of Justice on the Law of Sustainable Development' (2009) 2 QLSR 1.
[191] Duncan French (n 25) 356.
[192] Ibrahim Kaya, (n 190).

The *Gabĉikovo-Nagymaros Case* was based on the 1977 Budapest Treaty between Hungary and Czechoslovakia[193] dispute, which arose because Czechoslovakia undertook a unilateral annexation of the Danube into its territory, contrary to the 1977 Budapest Treaty.[194] Among other things, the ICJ had to decide if the environmental concerns raised by Hungary constituted a 'state of necessity' under customary international law, if Czechoslovakia was legally entitled to unilaterally plan and operate an alternative project and if Hungary's notification of the termination of the 1977 Treaty was legal.[195] The Court ruled that Hungary had breached the Treaty and that they could not rely on their claim of 'state of necessity' to abandon the project.[196] It also ruled that Czechoslovakia had acted unlawfully in constructing the Variant C and depriving Hungary of its equitable share of the river and that Hungary's termination of the Treaty was illegal.[197]

These decisions by the Court and its reasoning expose several discrete legal issues that have broader implications for sustainable development, including its supporting principles and thus sustainable biosafety. This section will focus on four of those issues – namely, the missed opportunity of linking the 'state of necessity' with the newer emerging precautionary principle and the limited reliance on sustainable development as a balancing norm, bringing together divergent economic, social and environmental interests/objectives. In addition, this section will argue that the Court did not engage effectively with scientific knowledge, as was the case in the following analysis of the *Pulp Mills Case*. The aim of this discussion is to emphasise the importance of both the procedural and substantive elements of sustainable development through these decisions of the Court and their reasonings.

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[193] *Case Concerning the Gabĉikovo-Nagymaros* (n 119).
[194] ibid.
[195] *Case Concerning the Gabĉikovo-Nagymaros* (n 119) para. 25, 27.
[196] ibid.
[197] ibid.

The 'state of necessity' as contained within the ILC Draft Articles[198] provides a plea of necessity to allegations of illegality and, at times, responsibility, where the action taken is the only safeguard against a severe and a prominent threat (grave and imminent peril).[199] Thus, a court could regard a lack of scientific evidence to prove irreversible damage as a plea for necessity in instances of illegality. This could be used to safeguard concerns while undertaking sustainable development because necessity is a 'safety value' that States can use to 'escape the inevitably harmful consequences of trying at all costs to comply with the requirements of rules of law'.[200] Any costly or harmful consequences of complying with the law in this case could cover unknown risks due to a lack of sufficient scientific knowledge. The Court, arguing about the grounds of available scientific information – albeit disregarding scientific uncertainty and inconclusiveness – in this case claimed that Hungary had overemphasised the environmental risks.[201] Interestingly, it argued that the mere presence of such threats did not have sufficient weight to constitute a 'state of necessity'.[202]

The Court noted that:

> '… such grounds for precluding wrongfulness can only be accepted on an exceptional basis. … state of necessity can only be invoked under certain strictly defined conditions which must be cumulatively satisfied; and the state concern is not the sole judge of whether those conditions have been met.'[203]

The underlying argument of the Court was that the indication of the mere existence of a threat did not amount to the possibility of a 'grave and imminent peril' and that the dangers outlined by Hungary were long-

[198] Tarcisio Gazzini, 'Necessity in International Investment Law: Some Critical Remarks on the CMS v Argentina' (2008) 26 JENRL 450; Takuhei Yamada, 'State of Necessity in International Law: A Study of International Judicial Cases' (2005) 34 LPR 107.
[199] Takuhei Yamada, ibid.
[200] Rosenne Shabtai (ed), *The International Law Commission Draft Articles on State Responsibility, Part 1, Articles 1–35* (Kluwer Academic Publishers 1991).
[201] ibid.
[202] ibid.
[203] ibid, page 51.

term and of an uncertain nature.[204] The presence of peril was thus equated with the ordinary presence of risk and hence it did not constitute material damage.[205] While this seems like a logical response, the only drawback is in such cases where the harm that might emanate from the perceived risks could be irreversible, so the application of remedial safeguarding measures are important from the outset. This is the basic premise of the precautionary principle, which calls for caution when risks are uncertain and science cannot yet prove or disprove their existence. Often though, as was argued in this case, environmental challenges are perceived and anticipated, but were not judged to present substantial risks, especially in the long-term. Due to gaps in scientific knowledge, such risks cannot be proven or disproven, although they might be based on scientific assertions. Therefore, the requirement for safeguarding measures against severe and prominent threats/risks under the 'state of necessity' could be used to support the aims of the precautionary principle and thus support the environmental risks argument in support of sustainable development.

This is specifically important for sustainable biosafety because of the uncertain nature of the social, economic and environmental risks and the remaining knowledge gaps in terms of ascertaining or disproving the risks. Biotechnology has inherent risks that cannot be accounted for within the framework of current scientific knowledge, thus creating knowledge gaps and ambiguity in terms of risk.

Additionally, the Court's reluctance to rely on the precautionary principle in this case was also due to its disputed legal status as a general principle of international law. They argue that parties should rather incorporate

[204] ibid.
[205] ibid.

such principles as treaty norms.[206] In other words, the Court suggested that this principle only has legal status when incorporated in a treaty. Thus, as also noted by Kaya, the parties involved agreed on the importance of the precautionary principle,[207] but not on whether the consequences of the project warranted precautionary interventions. It is evident that, in reasoning in such a way, the Court missed an opportunity to consider the 'state of necessity' as a general rule of the wider international legal system with its new and emerging environmental concerns. It is worth noting that subject specific principles, such as the precautionary principle, have important interlinkages to sustainable development, as will be demonstrated in Chapters Four and Five. This also reinforces the fact that while international law has several principles such as the 'state of necessity' that could be used in the pursuit of sustainable development, they are simply ignored, based on questions regarding their legality and interpretive technicalities, and this is a major drawback for sustainable development.

Furthermore, even though the court in this case referred to sustainable development several times, it did not debate what might constitute sustainable development, but rather emphasised the importance of its procedural aspects, still falling short of defining what those procedures should be. [208] It also acknowledged that sustainable development was an emerging norm of international environmental law, but one that was not binding.[209]

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[206] *Case Concerning the Gabĉikovo-Nagymaros* (n 119) para. 140.
[207] Ibrahim Kaya, (n 190).
[208] Alan Boyle, 'The *Gabĉikovo-Nagymaros Case*: New Law in Old Bottles' (1997) 8 YIEL 14; P Sand, 'International Courts and the Application of the Concept of "Sustainable Development"' (1999) 3 MPYBUNL 389.
[209] Ibrahim Kaya (n 190).

What is, however, worth mentioning here is that in his separate opinion, Judge Weeramantry alluded to some normative content, as well as the procedural importance of sustainable development.[210] It is true that sustainable development requires both procedural and substantive notions to guide sustainable outcomes in areas such as biosafety and, according to Weeramantry, the normative value of sustainable development lies in the need to reconcile diverse environmental protections and conflicting human rights issues.[211] By referring to human rights issues as important elements of sustainable development, he acknowledged its deontological foundations, thus positioning its social and human dimensions as ones needing consideration. After all, as the previous chapter has concluded, development is about improving the sum total of lives, not simply as measured in economic terms, but also encompassing the social and human aspects.

Lastly, this case demonstrates that in international environmental law, the notion of sustainable development imposes limits within which States must exploit their natural resources, while balancing social, economic and environmental developmental objectives. This requirement positions sustainable development in the political sphere because the courts might not be the appropriate platforms to decide on such trade-offs. It is the need for determining trade-offs in the pursuit of simultaneous consideration of sustainable development objectives that forces judges to deal with highly technical scientific information outside the scope of their expertise, as argued below under the discussion of the 2006 *Pulp Mills Case* which was heard by the ICJ.

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[210] ICJ, *Case Concerning the Gabĉikovo-Nagymaros Project (Hungary v Slovakia)* (Separate Opinion of Vice-President Weeramantry) *(*25 September 1997) ICJ Reports 1997, p.7, para. 88.
[211] Patricia Birnie and Alan Boyle (n 129); Ibrahim Kaya, (n 190).

The *Pulp Mills Case* dispute arose when Argentina applied to institute proceedings against Uruguay for a breach of obligations incumbent upon them under the 1975 Statutes of the River Uruguay.[212] Argentina complained that Uruguay had unilaterally authorised the construction of two pulp mills on their side of the river and did not comply with their prior notification and consultation obligations under the 1975 Statutes.[213] They further argued that the mills posed environmental and social-economic threats. Having established that Uruguay had breached its procedural obligations, the Court then concluded that Uruguay had not breached it substantive obligations.[214]

Before expounding on the difficulties surrounding the courts use of scientific knowledge, it is worth noting here that, contrary to the *Gabĉikovo-Nagymaros Case,* the Court took a different approach to sustainable development in *Pulp Mills*. It made a strong pronouncement on the substantive content that clearly gravitated towards sustainable development. For instance, the Court took into consideration the relationship between equitable use and protection of the environment, as well as social and economic concerns,[215] as required by holistic sustainable development. Importantly, it also took into account procedural principles with important interlinkages to sustainable development, such as prior notification, the need for environmental impact assessments which include scientific risks assessments and the prevention of environmental harm and due diligence.

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[212] *Pulp Mills Case* (n 119).
[213] ibid.
[214] International Court of Justice Reports of Judgments, Advisory Opinions and Orders, Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay) judgment of 20 April 2010.
[215] Alan Boyle, 'Pulp Mills Case: A Commentary' (*British Institute of International and Comparative Law*, 2010) <https://www.biicl.org/files/5167_pulp_mills_case.pdf> assessed on 5 July 2018.

Furthermore, while there was a bulk of scientific evidence submitted supporting the arguments of both parties, the Court did not allow, 'general discussion on the relative merits, reliability and authority'[216] of the scientific information submitted. On the contrary, it argued that it "needs only to be mindful of the fact[s]'.[217] It remains to be asked how the Court did then determine what was factual in terms of the conflicting scientific evidence that was submitted. Similarly, in his case commentary on the *Pulp Mills Case*, Boyle questioned whether the Court could have benefited from input from scientific advisors and whether the judges were technically competent to decide on the adequacy of the scientific evidence.[218] These are not straightforward questions, however. While the challenges relating to the competence of judges in dealing objectively with scientific information are widely recognised, as is demonstrated by the emergence of environmental courts and tribunals with technical scientific backgrounds,[219] the involvement of expert advisors at a national level yield further challenges,[220] as is elaborated on in Chapter Six's discussion of biosafety in Namibia.

For instance, it raises questions concerning the objectivity of actors and the implications of this for sustainable development. A distinction should be made between the importance of scientific evidence in determining what is meant by environmental damage and the question of whether economic development has to take precedence over environmental protection because, as Boyle queried: is it the role of the Court to decide on such political questions?[221] It would be argued that it certainly is not in the latter case. However, before a court can reach a decision on the question of environmental damage, whether potential or real, it still needs to assess

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[216] International Court of Justice Reports of Judgments, Advisory Opinions and Orders, Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay) judgment of 20 April 2010.
[217] *Pulp Mills Case* (n 119), para. 168.
[218] Alan Boyle, 'Pulp Mills Case: A Commentary' (*British Institute of International and Comparative Law*, 2010) < https://www.biicl.org/files/5167_pulp_mills_case.pdf> assessed on 5 July 2018.
[219] George Pring and Catherine Pring, 'Greening Justice: Creating and Improving Environmental courts and tribunals (*The ACCESS Initiative*, 2009) < https://www.eufje.org/images/DocDivers/Rapport%20Pring.pdf> accessed 17 September 2018.
[220] Commission of the European Communities, 'Communication from the Commission on the Collection and Use of Expertise by the Commission: Principles and Guidelines' (Communication) COM (December 2002) 713.
[221] Alan Boyle (n 215).

scientific information to prove or disprove such claims. This is essential in as much as the existence of the damage, or its risks, is at the centre of the dispute at hand. These questions to a greater extent can be objectively informed by scientific evidence. Still, before considering the scientific information in order to determine damage or risk, the Court must validate such inputs – for instance, whether they are objective and sufficient to provide factual truth and/or whether the available scientific knowledge is conclusive. Therefore, courts have to find a way to deal with the difficulties surrounding the use of complex and highly technical scientific information and, considering judges often lack this kind of expertise, this imposes the necessity for structural reforms that enable courts to better deal with scientific evidence. This is one of the main reasons that Chapter Six of this thesis proposes the establishment of an Environmental Court in Namibia because it is only when these deficiencies are addressed that scientific evidence can be used in the integrated consideration of trade and environmental law norms and so promote sustainable development. Notably, such difficulties are even more prominent in the WTO and it is thus important to consider how this regime interprets and promotes the notion of sustainable development, despite its inherent challenges.

3.3.2 Shrimp-Turtle Case

The WTO have also dealt with several trade disputes, which have implications for environmental law, including the *Shrimp-Turtle Case* and the *EC-Biotech Case*. The *EC-Biotech Case* is discussed in Chapter Five of this thesis because of its direct relevance to this study. The current examination highlights the specific difficulties the WTO face in dealing with the disparate social and environmental objectives of sustainable development. This section will thus set out how the WTO considered this case purely in terms of its own principles and rules,[222] disregarding broader international legal objectives at the expense of sustainable development. What is particularly interesting

[222] Ilona Cheyne (n 7)

is that the Appellate Body arrived at a different ruling when they considered the facts of the same case in the light of the issues of sustainable development.

In the *Shrimp-Turtle Case*, the United States instituted an import ban on shrimp and shrimp products from India, Malaysia, Pakistan and Thailand.[223] In the same year, India, Malaysia, Pakistan and Thailand jointly sought consultations with the US under Article 4 of the WTO-Understanding on the Rules and Procedures Governing the Settlement of Disputes (DSU-Dispute Settlement Understanding) and Article XXII: 1 of the 1994 GATT.[224] Theses consultations did not yield satisfactory outcomes, however, and a joint WTO dispute settlement panel was instituted against the US unilateral ban on the import of shrimp and shrimp products from non-certified countries and the associated implementation measures. The complainants claimed that the United States was in violation of several GATT provisions and their actions could not be justified under the exception clause of Article XX. The panel then concluded that the US import bans were inconsistent with Article XI, subparagraph (1), which states that:

> 'No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures, shall be instituted or maintained by any contracting Party on the importation of any product of the territory of any other contracting Party or on the exportation or sale for export of any product destined for the territory of any other contracting Party.'[225]

Therefore, the general elimination of the quantitative restrictions that were mainly about subparagraph (1), which was the US' main defence, could not be justified under the exceptions of Article XX (g).[226] The

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[223] Section 609 US Department of State Federal Register 1999/Public Notice 3086: Revised Guidelines for the Implementation of Section 609 of Public Law 101–162 Relating to the Protection of Sea Turtles in Shrimp Trawl Fishing Operations (8 July 1999) <http://www.nmfs.noaa.gov/pr/pdfs/species/pl101-162_revised.pdf> accessed 6 June 2012.
[224] *Shrimp-Turtle Case* (n 178)
[225] *Shrimp-Turtle Case* (n 178)
[226] Virginia Dailey, 'Sustainable Development: Re-evaluating the Trade vs. Turtles Conflict at the WTO' (2000) 9 JTLP 331.

decision of the panel clearly demonstrates how the WTO adjudicated the matter, relying only on the WTO norms, at the expense of the non-trade objectives of the broader international legal system. With this ruling, the panel would seem to have proven the accusations of trade partiality of the WTO had the Appellate Body not made a different ruling, which clearly demonstrates that the regime indeed considers non-trade objectives, where appropriate.[227]

In responding to the question of whether the panel erred in their findings that the measure at issue constituted unjustifiable discrimination outside the scope of Article XX, the Appellate Body found that the conservation measures under Section 609 do, indeed, fall under the exceptions of Article XX.[228] Importantly, the Appellant Body argued that in interpreting and applying the WTO rules, the panel should consider the 'customary rules of interpretation of public international law'. Similarly, Article 3(2) of the Understanding on Rules and Procedures Governing the Settlement of Disputes[229] promotes the 'examination of the ordinary meaning of the words of a treaty, read in their context, and in light of the object and purpose of the treaty involved'.[230] The Appellate Body reasoned that this was the premise on which the Member States of the WTO explicitly acknowledged the objective of sustainable development in the preamble to the 1994 GATT.[231] Thus, the Appellate Body ruled that, even though the conservation of turtles should be inclusive of exhaustible natural resources, whether living or non-living, the measures violated the chapeau of Article XX as it was carried out in an arbitrary and discriminatory manner.[232] In this manner, the Appellate Body reiterated that the protection and preservation

[227] Richard Tarasofsky, 'The WTO Committee on Trade and Environment: Is it making a difference?' (1999) 3 MPUNYB 471.
[228] *Shrimp-Turtle Case* (n 6)
[229] WTO, 'Understanding on Rules and Procedures Governing the Settlement of Disputes' (*World Trade Law*) <http://www.worldtradelaw.net/uragreements/dsu.pdf> accessed 6 June 2012.
[230] *Shrimp-Turtle Case* (n 6) paras. 114 and 115.
[231] ibid., paras. 129 and 131.
[232] ibid., paras. 160, 176, 186 and 187 (c).

of the environment is of significance to the WTO members and that sovereign States can adopt effective measures to protect endangered species, such as sea turtles, as per Article XX of the 1994 GATT,[233] provided this be not done in an arbitrary and discriminatory manner. Therefore, this consideration of the non-trade objectives in the 1994 GATT is a landmark decision and the Appellate Body's referral to sustainable development as having legal value, in this case being part of the legal analysis, is deeply significant.[234] However, such significance was short-lived as the WTO panel in the *EC-Biotech Case* did not uphold the precedent that was established by the Appellant Body, as is discussed in Chapter Five.

What is worth mentioning here is that, similar to the discussion on the ICJ cases, the Appellant Body also reiterated both the procedural and substantive content of sustainable development by referring to the need for the consideration of environmental and trade objectives, albeit in a manner that is not arbitrary and discriminatory. Importantly, this case amplifies the difficulties of resolving the trade and environmental objectives of sustainable development in cases where environmental conservation or broader development activities in one State have an impact on the shared resources in another State or upon activities beyond the national jurisdiction.[235] In terms of biosafety, unilateral environmental measures in the forms of trade bans might thus be in direct conflict with the international trade obligations of Member States. While such bans might be carried out in pursuit of sustainable biosafety, for the trade liberation-oriented WTO, such measures could constitute non-tariff trade barriers in violation of WTO obligations. Chapters Four and Six highlight how this constitutes the basis for the creation of conflicting norms between the two regimes. Already, as worldwide economic integration deepens, the conflicts between international trade and environmental obligations are predominant[236] and the WTO has been widely

[233] ibid.
[234] Steve Charnovitz (n 177).
[235] ibid.
[236] Daniel Esty, 'Bridging the Trade-Environment Divide' (2001) 15 JEP 113.

criticised for its prioritisation of trade liberalisation at the expense of environmental and social objectives.[237] Sustainable development, which is the unifying objective of the two regimes, is only an oblique part of the WTO's legal framework[238] and that exacerbates these inherent conflicts. The challenge is to assess to what degree a policy of trade is aimed at finding a balance between the promotion of trade liberation and the associated environmental and social objectives when the latter two goals could inherently place limits on trade-liberation-oriented WTO laws. Therefore, the focus on sustainable development in international law in general and in environmental law specifically involves the challenge of how exactly the liberally-oriented WTO trade regime should consider and incorporate environmental considerations. This is a trying task, not only for the predominantly trade-oriented WTO, but also in terms of sustainable biosafety at a domestic level. This is particularly difficult when considering the chilling effect of the WTO Dispute Settlement Body on the biosafety efforts of developing countries,[239] as mentioned in Chapter Two and is also expounded upon in the coming chapters. Having discussed the objectives, orientations and challenges of sustainable development in both the trade and environmental regimes, it is important to answer the question: why sustainable biosafety? The following section deals with that by expounding on the social, economic and environmental objectives of biosafety through an assessment of the risks and benefits of biotechnology, as the regulatory subject of biosafety.

3.4 Benefits and Risks of Biotechnology: The Imperative for Sustainable Biosafety

The aim of this section is to explain the social, economic and environmental objectives of biotechnology while justifying why and how biosafety can address them simultaneously before offering a definition of sustainable biosafety. This firstly requires defining biotechnology and highlighting the social, economic and environmental dimensions of its objectives, noting that biosafety has already been introduced in the preceding chapters, this discussion will also further clarify what it is. According to the CPB, modern biotechnology consists of:

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[237] Emily Barrett Lydgate, 'Sustainable Development in the WTO: From Mutual Supportiveness to Balancing' (2012) 11 World T R 621.
[238] ibid.
[239] Heike Baumuller (n 113).

a) In vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles; or

b) The fusion of cells beyond the taxonomic family that overcome natural, physiological, reproductive or recombination barriers and those that utilise techniques unused in traditional breeding and selection.

Biotechnology has been around throughout human history and has been used in a number of ways and for different purposes.[240] For instance, in traditional agricultural biotechnology, farmers commonly preserved the best quality plants or crops as seeds for future use.[241] Breeding programmes involved continuous breeding and interbreeding through sexual reproduction to select the desired traits of both crops and livestock.[242] Therefore, traits of interest introduced into populations through natural selection and mutations are promoted via seed selection in order to produce new desired variants.[243] Thus, traits such as disease resistance, tolerance to drought and other harsh climatic conditions and plants that have an increased yield have been preserved through such breeding practices.[244] Hence, plant or animal quality has been continuously maintained and enhanced through methods such as selective breeding. These methods employ deliberate human interventions to overcome natural barriers in the process of breeding, albeit within the confines of the natural sexual reproduction process.[245] The desired genetic material, or DNA, is passed on within the same species through sexual reproduction and new

[240] Jauhar Prem, 'Modern Biotechnology as an Integral Supplement to Conventional Plant Breeding: The Prospects and Challenges' (2006) 46 CS 1841.
[241] F J Novakand H Brunner, 'Plant Breeding Induced Mutation Technology for Crop Improvement' (*IAEA*, April 1992) <http://www.iaea.org/Publications/Magazines/Bulletin/Bull344/34405682533.pdf> accessed 22 June 2013.
[242] Douglas Futuyma, *Evolution* (2nd edn, Sinauer Associates 2009) <http://ncse.com/files/pub/evolution/Evolution--Futuyma--chap11.pdf> accessed 22 June 2013.
[243] ibid.
[244] F J Novak and H Brunner H (n 184); A Micke and B Donini, 'Induced Mutations' (Plant Breeding Series 1993) 52.
[245] ibid.

genes are introduced mainly through genetic mutations within a species.[246] Therefore, natural or conventional reproduction is restricted to the gene pool available within sexually compatible species.[247]

Another example of a long-practised biotechnological operation is fermentation, which involves the conversion of carbohydrates to alcohols, carbon dioxide or organic acids, using microorganisms, such as yeasts, bacteria or a combination thereof, to produce alcoholic beverages, such as wine, beer and cider.[248] In addition, food preservation and the improvement of the taste of foods, such as yoghurts and cheese and the use of yeast in baking bread have always been done through fermentation processes using microbiological organisms.[249] All these elements show that biotechnology is an ancient practice, having been carried out for more than 5,000 years.[250] Nevertheless, since the 1970s, advances in biotechnological techniques have led to what is today known as modern biotechnology or genetic modification.[251]

Modern biotechnology or genetic modification, as per the CPB definition cited above, is the transfer of modified genetic material across species boundaries to confer traits that would not otherwise be possible with conventional breeding or reproduction.[252] Through these techniques, genes or segments of foreign DNA can be isolated and inserted into organisms without any mixing of genes through the conventional modes of sexual

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[246] Sewall Wright, 'The Roles of Mutation, Inbreeding, Crossbreeding and Selection in Evolution' (1932) 1 Proceedings of the Sixth International Congress of Genetics <http://www.esp.org/books/6th-congress/facsimile/contents/6th-cong-p356-wright.pdf> accessed 22 June 2013.
[247] ibid.
[248] Geofrey Campbell-Platt, 'Fermented Foods – A World Perspective' (1994) 27 3 FRI 253; Norman Haard, 'Fermented Cereals: A Global Perspective' (1999) FAO Agricultural Services Bulletin No. 138 <http://www.fao.org/docrep/x2184e/x2184e03.htm> accessed 22 June 2013.
[249] O K Achi, 'The Potential for Upgrading Traditional Fermented Foods Through Biotechnology' (2005) 4(5) AJB 375.
[250] Debbie Collier, and Charles Moitui (n 20).
[251] ibid.
[252] Jon Hickford and Huitong Zhou, 'Genetic Modification Technologies' (2003) 51 VJ 250.

reproduction.[253] Thus, genetic modification techniques challenge the natural pattern of sexual reproduction, which obviously only happens within the same species.[254] This modification and transfer of genetic material across species boundaries results in novel organisms that can confer desirable traits which have many beneficial applications and lead to the creation of multiple products. Nevertheless, natural systems are complex and the intended outcomes do not always come about, or even if they do, unintended negative effects often accompany them.[255]

In this regard, the advent of modern biotechnology and its products has caused a considerable outcry regarding safety, as well as the efficacy of its benefits, because natural systems are complicated and this form of the technology is relatively young. The risks and efficacy of its benefits remain open to dispute, at least until they are more concretely manifested. From the point of view of sustainable development then, genetic modification presents environmental, social and economic benefits, but also major concerns.

The benefits of modern plant biotechnology range from enhanced productivity and efficiency in agriculture, improved food quality, elimination of allergy-causing genes in foodstuffs, vaccinations for children provided via fruits, such as bananas, improvements in human and veterinary medicine and environmental management.[256]Thus, biotechnology has been marketed as a magic potion for addressing the problem of food

[253] Terje Traavik, Kaare Nielsen and David Quist, 'Genetic Engineering of Living Cells and Organisms' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (Tapir Academic Press 2007).
[254] Jon Hickford and Huitong Zhou, 'Genetic Modification Technologies' (2003) 51 VJ 250.
[255] Katleen McAfee, 'Neoliberalism on the Molecular Scale. Economic and Genetic Reductionism in Biotechnology Battles' (2002) 34 Geoforum, 203.
[256] Mae-Wan Ho, *Living with the fluid Genome* (Institute of Science and Society 2003).

shortages, ensuring economic prosperity and improving human health issues, such as solving nutritional insufficiency.[257]

One widely used example of biotechnology application in agriculture is the genetically modified (GM) *Bacillus thuringiensis* (Bt) gene that has been inserted in maize, soybeans, cotton and pearl millet, among others.[258] In these plants, a Bt-bacterial gene is inserted to transfer resistance to the bollworm, which is a prominent agricultural pest worldwide.[259] Once it has been ingested by these pests, the protein produced by the modified plant crystallises in the internal organs due to the inserted Bt-gene.[260] Hence, it destroys the internal organs and kills the worms before they cause major damage to the plants.[261] This implies cost savings since smaller amounts of insecticides are used, something that is also beneficial to the environment. Thus, Bt usage could not only result in economic benefits, but also environmental ones.[262]

Biotechnology applications also offer solutions to certain environmental problems in industrial operations – for instance, GM potatoes with altered starch composition can be used to produce biodegradable plastics.[263] Possible future applications of modern biotechnology include the development of viral-, fungal- and bacterial-disease resistant plants in order to address the problem of plant disease in agricultural production.[264] On the

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[257] ME John and James Stewart , 'Genetic Engineering Applications in Crop Improvement' in James Stewart and others (eds), *Physiology of Cotton* (Publisher Springer Netherlands 2010) 394, 403 <http://link.springer.com/Chapter/10.1007/978-90-481-3195-2_35#> accessed 15 June 2013; Mae-Wan Ho (n 253).
[258] ME John and James Stewart, ibid.
[259] Jun-Zhi Wei and others, '*Bacillus thuringiensis* Crystal Proteins that Target Nematodes' (2003) PNASUSA 2760.
[260] ibid.
[261] ibid.
[262] Clive James, *Global Status of Commercialized Biotech/GM Crops: 2010. ISAAA Brief No. 42*. (ISAAA 2010).
[263] K Vamling, 'A Natural Step? Genetic Modification for the Improvement of Plant Cultivars' (1998) RASAGT 13, 20.
[264]Stella Uzogara, 'The Impact of Genetic Modification of Human Foods in the 21st Century: A Review' (2000) 18 BA 179.

medicinal and the pharmaceutical side, as mentioned above, this technology promises improvements in the nutritional value of crops, which might address problems related to vitamin deficiency. For instance, Golden Rice, which is genetically engineered, is pro-vitamin to eliminate vitamin A deficiency.[265] Vitamin A deficiency is related to blindness and is very common in developing countries.[266]

In addition, biotechnology promises edible vaccines in plants, such as bananas, to enable their easy administration to children thereby circumventing children's aversion to needles. One such attempt involves engineering vaccines against hepatitis B, which is also prevalent in developing countries, even though it also occurs in developed countries to a lesser extent. Notably, these are all still contested benefits as the advent of biotechnology has generated a lot of controversy, fear and uncertainties, which has led to the premature rejection of this technology in some instances.

It is evident that the risks relating to biosafety range across its environmental, social and economic impacts. Specifically, they span from human health safety concerns, such as allergies to the toxicity of GM foods and medicinal products, and socio-economic and environmental concerns, including biodiversity-related concerns[267] including possible harmful effects on non-targeted organisms.[268] This threat is intensified by the possibility of horizontal gene transfer between unrelated species and this creates the risk of the loss of biodiversity

[265] Ingo Potrykus, 'The "Golden Rice" Tale' (2001) SIVB <http://goldenrice.org/PDFs/The_GR_Tale.pdf> accessed 15 June 2013.
[266] Mae-Wan Ho (n 253) 36
[267] Bruce Chassy, 'Food Safety Evaluation of Crops Produced Through Biotechnology' (2002) 21 JACN 166.
[268] Les Levidow and others, 'European Biotechnology Regulation: Framing the Risk Assessment of an Herbicide-Tolerant Crop' (1997) 22(4) ST&HV 472.

and/or the formation of harmful new organisms, such as pathogenic viruses and bacteria.[269] In terms of human health concerns, there are concerns that the use of antibiotic marker genes during the modification process might spread to common pathogens and amplify their resistance to widely used antibiotics.[270] Furthermore, the random insertion of genes during the process of modification has raised the question of unintended disruption and modification and the silencing of active genes, as well as activating silent genes with unknown consequences.[271]

While the aforementioned risks allude to the environmental and health challenges created by biotechnology, biosafety also involves a host of socio-economic dangers that have cultural, ethical and economic implications, especially for developing countries, as is demonstrated by the advent of genetic use restriction technology (GURT), also known as 'terminator' technology.

GURT includes the use of GM seeds with the ability to control gene expression in plants, plant parts or seeds and, by doing so, to thus restrict the use of GM plants by causing second-generation seeds to be sterile. Thus, this technology has the ability to switch gene expressions on and off between plant generations. The purpose of the GURT is to prevent seed replanting, exchange, diffusion and on-farm breeding activities, all of which are long-standing practices among smallholder subsistence farmers.[272] Hence, GURT is accused of promoting monopoly over seed supplies.[273] This has economic and social implications for subsistence farmers in developing countries. Firstly, these farmers do not have the necessary funds or credit to buy the seeds for each planting

[269] Jules Pretty, 'The Rapid Emergence of Genetic Modification in World Agriculture: Contested Risks and Benefits' (2001) 14 J Agric. Environ. Ethics135.
[270] Jeffrey Smith, *Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods* (Chelsea Green Publishing 2007); Bruce Chassy (n 267).
[271] Harry Kuiper and others, 'Assessment of the Food Safety Issues Related to Genetically Modified Foods' (2001) 27 PJ 503.
[272] Richard Caplan, 'The Ongoing Debate Over Terminator Technology' (2007) 19 IELR 751.
[273] Graham Dutfield, 'Social and Economic Consequences of Genetic Use Restriction Technology in Developing Countries' in Jay Kesan (ed), *Agricultural Biotechnology and Intellectual Property: Seeds of Change* (CAB 2007).

season. Secondly, farming practices among these farmers go beyond growing seeds, as they themselves engage in the breeding of local and modern seed varieties through on-farm selection and experimentation. Such practices are essential for ensuring a plant's adaptation to local conditions, especially in rural areas, and the prohibitions of GURT might undermine livelihoods and food security. The global commercialisation of the GURT could also reduce the variety of available germplasm and thus compromise plant-breeding efforts and the privatisation of agricultural research further marginalises poor farmers.[274]

Thirdly, monopoly over seed supplies raises the concern of food insecurity as the largest biotechnology companies, which own most IPRs are multinational corporations based in a few developed countries. Besides, for developing countries, who have a limited capacity for basic and adaptive research, the high cost of compliance with biosafety regulations of such patented technologies and a minimal capacity to ensure proper containment, as well as the implications of bans, results in biosafety and trade tensions.[275] Similarly, the unregulated release of GMOs into the environment implies gene transfer of patented genes to local seed and thus the IPRs on these seeds are conferred to international seed companies.[276] It could thus, be argued that the real beneficiaries of biotechnology are the market elite (i.e. the multinational corporations) of the developed world, who own the IPR on these plant varieties.

Furthermore, there has never been consistency, even among the scientific community, regarding the risks, benefits and even the efficacy of modern biotechnology. This has generated highly polarised views, whereby the

[274] ibid.
[275] Jose Falck Zepeda, 'Coexistence, Genetically Modified Biotechnologies and Biosafety: Implications for Developing Countries' (2006) 88 AJAE 1200.
[276] ibid.

proponents of this technology, at one extreme, claim that it is safe and that its risks are non-existent or at least manageable, while its opponents, reject such claims and this technology altogether.[277] These disagreements prevail and, even where scientific studies that are aimed at addressing them exist, they are accused of having shortcomings in terms of their methodology and biasness. For instance, they are accused of selectively focusing on short-term animal studies, while food safety studies on humans are rare,[278] and, where they do exist, food safety studies, for example, focus on one protein in isolation and not the whole food product. This is misleading because gene instability, for instance, might lead to unintended protein production and, therefore, the entire food product should be considered for the results to be meaningful.[279]

In the midst of all the above discussed benefits and risks, and the need to mitigate them, biotechnology regulation, also referred to as biosafety, involves complex and comprehensive risk identification and analysis at the interface of trade, economic, environment, human and animal wellbeing concerns. Nevertheless, how exactly could the risks in relation to biotechnology be defined? Risk in general is seen as 'a characteristic of the future concerning the uncertain consequences of decisions and contingencies', but this is an abstract and relative notion.[280] For instance, different disciplinary framings of an issue can lead to different definitions of risk.[281] Notably, risk also differs due to context, since it is based on values that are cultural, ethical, scientific and economically predisposed.[282] Therefore, in multicultural modern societies, there is an endless diversity of values that determine individual priorities. For instance, some people might value biodiversity over human and animal

[277] Jeffrey Smith (n 270).
[278] Bruce Chassy (n 267).
[279] Harry Kuiper and others, 'Assessment of the Food Safety Issues Related to Genetically Modified Foods' (2001) 27 PJ 503; Smith (n 440).
[280] Inger Lise Johansen, 'Study Report: The Foundations of Risk Assessment' (Master's Thesis, NTNU 2010) 19.
[281] ibid.
[282] Jane Morris, (n 19).

health issues, while others might prioritise economic advances. In addition, what could constitute risk in terms of biodiversity remains unclear – more so in instances where priority is given to human flourishing over environmental or biodiversity concerns. Indeed, there are different levels of risk-taking in different societies and these are intricate and complicated issues and the way compromises could be reached in each instance remains uncertain and complicates decision-making.[283] Thus, as Engelhard concludes: '[g]iven different thin theories of the good, even ones that differ only in the respective ranking of liberty, equality, security, and prosperity, not to mention different understandings of human flourishing, possible risks and benefits will be differently assessed'.[284]

Therefore, biotechnology should be used in a cautiously regulated manner to ensure safety, taking into account all the aforementioned difficulties.[285] In view of this, legal and regulatory frameworks based on the objective of sustainable development are essential for the use of biotechnology in a manner that supports overall development. As is also stated by Collier and Moitui: '… carefully derived and fully implemented principles for biosafety will substantially increase the likelihood that the use of genetically modified organisms (GMO) will promote, and not jeopardize, sustainable development'.[286] They further note that legal frameworks that are too restrictive will inhibit the full fruition of the benefits of such technology.

Because of all the concerns mentioned above, the international community and national governments have promoted and instituted legal and regulatory risk management frameworks and measures, collectively known as biosafety. As a response, the CPB (as introduced and discussed in Chapter Four) is premised on the principle of

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[283] Matthias Kaiser, 'The Precautionary Principle and its Relevance to Science' in Laurens Landeweerd, Loius-Marie Houdebine and Ruud Vermeulen (eds), *Biotechnology Ethics: An Introduction* (Angelo Pontecorboli Editore 2005).
[284] Engelhardt Tristram, 'Morality, Universality, and Particularity: Rethinking the Role of Community in the Foundations of Bioethics' in Julia Tao Lai Po-Wah (ed), *Cross-Cultural Perspectives on the (Im)Possibility of Global Bioethics* (Springer 2002), 38.
[285] Jane Morris (n 19).
[286] Debbie Collier and Charles Moitui (n 20).

sustainable development, understandably so because biosafety, as demonstrated above, centres around social, economic and environmental benefits and risks similar to sustainable development. Thus, in a way, which is similar to sustainable development, the CPB's objectives allude to the conservation and sustainable use of biological diversity, taking also into account the risks to human health that might emanate from modern biotechnology. The CPB draws these sustainable development objectives from its parent convention, which is the CBD.

Chapter Two and the discussions above illustrated how international law does not have a separate normative instrument for specifically dealing with the social objectives of sustainable development, even though it has separate sub-systems for trade and environmental objectives. There is, therefore, no structured approach to integrate social objectives in the integrated framework of sustainable development to meaningfully inform what ought to be sustainable biosafety. Yet, from the discussion above, it is also clear that sustainable biosafety should pivot around the simultaneous integration of social, economic and environmental objectives. In this regard, the following section considers and promotes an approach to the integration of social objectives based on Sen's normative framework of 'development as human freedom'.[287]

3.5 An 'Approach' Towards the Integration of the Social Objectives in Sustainable Biosafety

What is worth noting here is that, unlike the prior orientations of development, which saw it merely as economic growth, as discussed in Chapter Two, the 'development as human freedom' framework positions the human as the primary end, as well as the principal means of development. Economic growth is regarded merely as a means to ensuring human wellbeing and that the legal empowerment of human beings is of paramount importance. In

[287] Amartya Sen (n 121).

this regard, education and economic opportunities, an appropriate enabling of the individual through legal rights and so on are important vehicles for addressing injustice and inequality. The main proposition is that individuals, when empowered through the provision of various types of freedom, are the essential means and principal ends to development.[288] Therefore, as mentioned above, the underlying issue here is one of empowerment as the main way humans can act as the means and eventually the ends of development. This, according to Sen, includes entitlements that allow people to participate in and thus make use of 'social, political, and economic opportunities; to be productive; and to protect themselves'.[289] Thus, empowered individuals are central to overcoming development ills, be they economic, environmental and/or social.[290] Paradoxically, the extent to which an individual can be empowered is also dependent on the social, the political and the economic opportunities offered or denied to them.[291] For instance, education levels, poverty, the pressures on disadvantaged social groups, such as minorities, and the sex of an individual can, in some instances, preclude them from taking full advantage of opportunities and entitlements.

This is particularly true in terms of the economic opportunities provided by biotechnology, which can only be reached by those with higher education levels and economic capital, while effective public participation in biosafety depends, for instance, on issues such as public awareness levels, which are, again, dependent on education. Therefore, education levels and economic ability determine the extent to which individuals can be empowered and these issues are thus critical in enabling humans to participate equally in biosafety. Sen also argues that it is necessary to consider the individual rights and opportunities provided against the pressures of social, political and economic influence on the amount of and reach of individual freedom.[292] Again, exercising individual freedom, for instance, can be constrained by the economic situation and education levels of an

[288] Amartya Sen (n 121).
[289] ibid.
[290] ibid.
[291] ibid.
[292] ibid.

individual, which further underlines the imperative of basic enablers, such as opportunities to participate equally at least in basic economic activities and to have access to education and healthcare. Therefore, regulations such as biosafety that pivot around social, economic and environmental benefits and concerns should provide provisions to safeguard both human health and environmental safety, while providing options for equal economic opportunity.[293]

This practice should be guided by cautious consideration of what Sen describes as 'human functionings', which are those capabilities that are based on what people regard as being of intrinsic value to them and those that define who they are and what they do.[294] Again, these human functionings should be augmented by various substantive freedoms that enable people to be who they are and to do that, which is of value to them.[295] This is the underlying argument for legal empowerment in development aimed at the integration of human and social aspects.

The World Bank defined 'legal empowerment' as:

> '… a right-based strategy for improving governance and alleviating poverty … and involves … the use of legal services and related development activities to increase disadvantaged populations' control over their lives.'[296]

Alternatively, the High Level Commission for Legal Empowerment of the Poor states that legal empowerment '… expands the rule-of-law to the benefits of all citizens, rich or poor, men or women, rural or

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[293] John Roemer, 'Review Essay, The 2006 World Development Report: Equity and Development' (Cowles Foundation Paper No. 1186, 2006) <http://cowles.econ.yale.edu/> accessed 27 June 2011.
[294] Amartya Sen (n 121).
[295] ibid.
[296] Stephen Golub (n 107).

urban, and whether they belong to ethnic majorities, indigenous people, or other minorities'.[297] These definitions call for all people, including the poor, to be equally empowered through the provision of rights and opportunities as a starting point. However, empowerment implies more than just the provision of legal rights and opportunities. This could mean creating awareness and informing and educating people not only about rights and about opportunities, but also about how and when to use them. The provision of rights and opportunities without capacitating people to take advantage of them would, after all, be as bad as not having them in the first place. In this regard, the legal empowerment of the poor is, arguably, advocated as one of the remedial measures for addressing widespread inequality and injustices.[298]

Furthermore, Sen's framework positions political freedom, social facilities, transparency guarantees, economic opportunity and protective security[299] as the most basic and essential freedoms in development. All these freedoms require the existence of an overall democratic governance framework, including the rule-of-law to be legally provided for and enforced. For instance, the political freedom that comes from civil rights that enable people to participate in political activities, such as voting for the government of their choice, come from elements of government and the rule-of-law. Similarly, the notion of 'economic opportunities as freedoms' presupposes the existence of an economic legal framework to remedy unfair competition and ensure essential social safety nets to remedy the unfair effects of the competition between the market and the public. Thus, they are important empowering mechanisms in terms of making humans the means and ends of development.

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[297] USAID, 'Legal Empowerment of the Poor' (*USAID*, 2007) <http://pdf.usaid.gov/pdf_docs/PNADM500.pdf > accessed 4 March 2012.
[298] See François Bourguignon, 'The Poverty-Growth-Inequality Triangle', paper presented at the Indian Council for Research on International Economic Relations (New Delhi, February 2004) < http://siteresources.worldbank.org/INTPGI/Resources/342674-1206111890151/15185_ICRIER_paper-final.pdf> accessed 17 September 2018.
[299] ibid.

While this remains the case, it needs to be highlighted that these enabling freedoms are greatly interrelated and interdependent. For instance, economic facilities are instrumental in the attainment of all other freedoms, while transparency guarantees cannot be achieved without the existence of political freedom. Therefore, the fundamental point here is that such rights and opportunities should be provided for through appropriate legal provisions and enforcement and that Sen's framework converges with law and development theory, as discussed in Chapter Two, which positions the law as an important enabling force in development. The only difference is that law and development theory promote the use of law for economic growth-oriented development, while, in Sen's approach, law is aimed at promoting fundamental rights as enabling development, including equity and equality in economic growth. In this conception, the role of law is not merely regarded as a causal influence on economic growth, but a significant power in development as a whole, [300] inclusive of social objectives.

The major criticism of Sen's framework is that even though it enhances the need for addressing inequality and welfare in addition to economic growth, it also does not link these objectives with environmental objectives of sustainable development. Economic development is intrinsically linked to the environment, as evidenced by the trade and environment nexus of sustainable development discussed in the prior sections. Thus, this reinforces the impetus to conceptualise sustainable biosafety broadly in social, economic and environmental objectives. Also, the framework emphasis that social objectives could be best integrated through empowerments and rights, which for biosafety could, for instance, be provided through the provisions on public participation, provisions on capacity building to enable full utilisation of the provided rights, provision of the right to choose through appropriate labelling laws etc. The next section draws from all the discussions in this chapter so far in order to derive a definition for sustainable biosafety for the purpose of this thesis. This definition will be used to assess how exactly the CPB interprets and promotes sustainable development and this is laid out in Chapter Four.

[300] Amartya Sen, 'What is the Role of Legal and Judicial Reform in the Development Process?' (World Bank Legal Conference 2000).

Chapter Five will then analyse the Namibian Biosafety Act against the backdrop of this definition of sustainable biosafety and consider the CPB's interpretations and its impact in the Namibian context.

3.6 The Definition of Sustainable Biosafety for the Purpose of the Thesis

It is evident that the term 'sustainable development' consists of two words, which both have wide implications. Notably, the broad-based nature of these terms inhibits the creation of a precise definition of this concept. However, even though there is no official interpretation of this term, two recurring notions have emerged from the major treaties and normative instruments of international law. The first one is contained in the Brundtland Report, which defines sustainable development as '… development which meets the needs of the present without compromising the ability of the future generations to meet their own needs'.[301] The central focus of this definition, which is also implied by the adjective 'sustainable', relates to intergenerational equity, requiring the use of natural resources while conserving options for future generations.[302] Development in this context also relates to issues of intragenerational equity, implying that social and economic goods must be equitably distributed within one generation, both internationally and nationally.[303] This also relates to Principle 3 of the Rio Declaration, which declared that development must equitably meet the developmental and environmental needs of both present and future generations. Therefore, at the core of intergenerational and intragenerational equity issues, sustainable development ensures the integration of environmental protection and conservation measures. This implies that sustainable development is not only about meeting the needs of the current generation, but also those of future generations and that the environment and its resources must be preserved for all. [304] This notion is also reiterated

[301] UN General Assembly Resolution (n 137).
[302] Virginie Barral (n 181).
[303] Duncan French (n 25).
[304] United Nations General Assembly Resolution (n 167).

in the statement that development should be carried out in a manner that does not compromise humanity's aim of living a fulfilling life, both for the present and future generations.[305] This definition has '… a strong people-centred ethical stance',[306] similar to Sen's framework of development as human freedom. However, in this case, the notion of ensuring 'humanity's aim of living a fulfilling life' is the essence of the integration of economic growth, social affairs and environmental protection as interlinked and interrelated issues of development.

These gestures towards the second widely accepted vision of 'sustainable development' also referred to as the 'Three Pillar' definition. This is based on the integration of three constitutive elements of development – namely, economic, social and environmental. For instance, the CSD defines it as the:

> '…development approach that has at the core of its focus the need to balance often divergent and competing needs against the realization of environmental, social and economic constraints.'[307]

Both definitions are, however, extremely vague. For instance, in the first definition, the reference to meeting 'needs' might imply potentially broad-based and even divisive essentials and necessities. Individual needs can be subjectively informed and identifying such subjective issues can lead to conceptual problems, suggesting a vast scope, and this makes its practical application difficult. Also, needs are not constant over time[308] as the conception of development itself suggests (see Chapter Two). Moreover, there are ideological and cultural

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[305] ibid.
[306] John Krikby, Phil O'Keefe and Lloyed Timberlake (eds) *Sustainable Development* (Earthscan Publications 1995) 2.
[307] Sustainable Development Commission, 'What is sustainable development?' (*Sustainable Development Commission*) <http://www.sd-commission.org/pages/what-is-sustainable-development.html> accessed 21 November /2011. [Author: the link appears to be broken.]
[308] David Zwaag, 'The Concept and Principles of Sustainable Development: "Rio-formulations" Common Law Doctrines and Environmental Law' (1993) 13 Rec Ann Windsor Access Justice 38.

differences in the ways and means of defining and meeting needs, which then raise the question of what should be sustained.[309] For instance, some consider needs can be met through technological interventions, which make environmental conservation irrelevant, while many believe environmental degradation might not be irreversible and needs strict protection, irrespective of needs.[310] In this respect, they argue the principle of needs does not provide a framework for justifiable review standards, neither does it provide an accurate guide as to how to exactly achieve sustainable development.[311]

This definition also suggests that limitations are 'imposed by the state of technology and social organization on the environment's ability to meet the needs and alludes to institutional dimension of sustainable development.'[312] In addition, while this people-centred definition incorporates social and environmental dimensions, it is devoid of the economic dimension, not as an end in itself, but rather as a 'means for achieving the key aim of satisfying needs while recognizing the ecological limits established and shaped by society'.[313] This is where the Three Pillar definition overrides the intergenerational one. However, even though, the three pillars of sustainable development are interdependent and mutually reinforcing,[314] a major cause of disagreement remains due to the fact that the pillars themselves are very broad and polarised.[315] Thus, the three pillars often contradict each other and thus conflicts are inevitable, especially when considered in the context of international law, as demonstrated above. In this regard, the concept of balance at times necessitates making trade-offs, as reiterated by Birnie and Boyle who state that '… some element of compromise is undoubtedly part of the concept'

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[309] Micheal Redclift (n 151); Maruis Christen and Stephan Schmidt, S, 'A Framework for Conception of Sustainability – a Theoretical Contribution to the Discourse in Sustainable Development' (2012) 20 SD 400.
[310] Emily Barrett Lydgate (n 237).
[311] Marius Christen and Stephan Schmidt (n 309).
[312] Joachim Spangenberg, 'Sustainability and the Challenge of Complex Systems' in Judith C Enders, Moritz Remig (eds), *Theories of Sustainable Development: Routledge Studies in Sustainable Development Series* (Routledge, Taylor & Francis 2014) 89.
[313] ibid.
[314] United Nations, 'Report of the World Summit' (n 161).
[315] Emily Barrett Lydgate (n 237).

of sustainable development.[316] However, such trade-offs must be carefully considered, especially when promoting sustainable development. Therefore, while the substantive aspects of sustainable development could be determined on a case-by-case basis, sustainable development establishes relative, but not absolute obligations on States to ensure their best efforts in its pursuit.[317] Such best efforts in this pursuit can be judged by the emphasis placed on the procedural aspects of decision-making, which are then instilled through institutions, so both procedural and substantive aspects are important to sustainable development.

To this effect, Spangenberg highlights that sustainable development needs to:

> '… ensure a political framing striking the balance, firstly between the three components of development, secondly between private and public interest, thirdly between the individual pursuits of profit and lastly between the collective desire to sustain the social, environmental and institutional system our civilization is based on.'[318]

Therefore, who takes key decisions and how they are derived are some of the yardsticks against which sustainable development should be measured. Its procedural aspects are underpinned by the quality of public participation, risks/benefits assessment and decision-making obligations, as will be argued in the following chapters dealing with biosafety. Therefore, adequate provision for public participation linked to appropriate inter-institutional cooperation at both legislative and implementation levels must underpin biosafety norms.[319] This is well laid out by the Open Working Group on SDGs who state that people should be given a legal identity that:

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[316] Patricia Birnie and Alan Boyle (n 129).
[317] Lewis A Kornhauser, 'Governance Structures, Legal Systems, and the Concept of Law' (2004) 79 Chi-Kent L.Rev. 355.
[318] Jaochim Spangenberg (n 312).
[319] Lewis A Kornhauser (n 317).

'… they can use to claim their rights and pursue opportunities; ensuring public access to information; and reducing corruption." Thus, Goal 16 of the report calls for '… inclusive societies, [to] provide access to justice for all, and build effective, accountable and inclusive institutions'. [320]

The importance of institutions and their interactions in ensuring sustainable development is also one of the fundamental focuses of the principle of mutual supportiveness, which this thesis promotes in terms of the pursuit of sustainable biosafety, as discussed in Chapter Five. If the aim of law is to uphold the social good of any given society, based on the values and interests that shape its social and economic behaviours (see Chapter Two), then such values and interests should be integrated into any decision-making.[321]

Public participation under Principles 10 and 17 of the Rio Declaration prescribes the mechanisms to ensure this and is aimed also at guaranteeing the creation of win-win situations. This is particularly important for biosafety, as it also accounts for, and informs, the social and economic aspects, which fall outside the scope of scientific, risk assessment and in whose absence, as Marchi states: '… key risk issues may be neglected or discarded out of ignorance, high-tech enthusiasm, or private interest'.[322]

While public awareness incentives are noble, there are, however, several challenges that might undermine the objective of participation. For instance, effective public participation depends on the existence of a strong and

[320] UN General Assembly, 'Report of the Open Working Group of the General Assembly on Sustainable Development Goals' (12 August 2014), UN Doc. A/68/970.
[321] David M Trubek and Marc Galanter (n 57).
[322] Bruna De Marchi, 'Public Participation and Risk Governance' (2003) 30 Science and Public Policy 171.

pluralistic civil society. Indeed, as Sen argues, political freedom must be guaranteed by a high degree of transparency and accountability. Again, this calls for good governance, as well as the existence of the rule-of-law (see Chapter Two).[323] Indeed, a strong civil society is one of the important aspects for enriching participation.[324] However, for countries such as Namibia, poor civil society engagement and low levels of literacy and awareness concerning technically complex subjects, such as biotechnology, are major weaknesses that hinder effective participation. There are also challenges relating to access to information. Therefore, in assessing sustainable development in biosafety, procedural requirements, and the institutions that implement and enforce them, are important. However, caution should be exercised in terms of the extent to which decision-makers exercise objectivity, irrespective of their functional and rational interests, as elaborated on in Chapter Six. Therefore, provisions concerning public participation are not enough by themselves and actual decision-making must be an element of balanced representation and should strive to ensure win-win scenarios, specifically in terms of controversial biosafety regulations. Therefore, for the purpose of assessing sustainable development in biosafety in this thesis, 'sustainable biosafety' shall mean:

> The integration of social, economic and environmental aspects through better decision-making in order to balance competing objectives between these three elements of sustainable development, as well as balancing private and public interests, while preserving the interests of future generations.

While this conception seems logical in terms of biosafety, it is still not straightforward, especially when considered in the light of the challenges raised in the discussions above. This difficulty is explored in Chapters Four and Six, but what is worth mentioning here is the fact that the wider international law contains overlapping,

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[323] Australian Agency for International Development, 'Good Governance and a Good Society, Guiding Principles for Implementation' <http://www.ausaid.gov.au/publications/pdf/good_governance.pdf> accessed 2 November 2011.
[324] World Bank Institute, 'Governance Indicators: Where Are We, Where Should We Be Going?' Policy Research Working Paper 4370 <http://info.worldbank.org/governance/wgi/pdf/wps4370.pdf> accessed 19 May 2012.

but often conflicting norms that also introduce additional complexities in terms of the pursuit of sustainable biosafety.

3.7 Conclusion

Sustainable development is the most comprehensive conception of development, being widely defined as the simultaneous integration of social, economic and environmental objectives. Although this three-pillar definition of sustainable development provides some authoritative content to the norms that should be integrated, it is also limited by its comprehensive nature. This concept is also marred by the often-subjective values relating to developmental needs and wants, which raises questions regarding the extent to which the integration of such issues with more scientific environmental and economic objectives of sustainable development is possible. After all, it is practically impossible to integrate all these aspects simultaneously all the time and sustainable development thus often calls for difficult compromises, as will be explored in the next chapter. Therefore, although this concept is underpinned by the imperative to simultaneously integrate multiple aspects of sustainable development, it is also necessary to acknowledge that this is not a straightforward proposition.

Nevertheless, integration is a function of collaborative and considerate decision-making and this is important because, in the current set-up of international law, these objectives are handled in isolation by fragmented sub-systems, each handling specific aspects of these highly interlinked three pillars of sustainable development. However, this is only achievable to the extent that this is a recognised norm in a specific regime and that there are uniform orientations and perspectives and the importance assigned to it across sub-systems.

Sadly, the practice of international law, as demonstrated through the two cases just considered, shows that this is not the way things are handled. For instance, while the WTO has provisions that require the consideration of environmental objectives, these same provisions have conflicting meanings and implications when considered against their very own trade objectives. Thus, even though sustainable development is a recognised principle, its orientation and use are limited by an orientation towards promoting its own trade objectives.

Moreover, environmental conservation measures carried out in the pursuit of sustainable development might be prohibitive in nature and could constitute a potential conflict with trade objectives. So far then, international law has not succeeded in reconciling this clash of interests in a manner that advances sustainable development and, indeed, each regime seems to be pulling in its own direction. This not only undermines the normative validity of international law as a whole, but also compromises sustainable development efforts. In the midst of this, States also have to respect their international obligations, which is difficult to achieve under such circumstances, while additional challenges are introduced when they endeavour to advance their own national development efforts in a sustainable manner. Given this situation, which seemingly will persist for some time yet, developing countries have to surmount these challenges and come up with innovative legal solutions that will enable them to reach their own development imperatives, while also complying with their varied and often divergent obligations under international law, notwithstanding the fact that their own legal systems present institutional and normative weaknesses that contribute to the challenges of sustainable development and, by implication, their sustainable biosafety efforts. All these factors make the path to sustainable biosafety more slippery, as is demonstrated in the discussions in Chapters Four and Six specifically.

CHAPTER 4: THE CARTAGENA PROTOCOL ON BIOSAFETY: INCONGRUENCE WITH WTO LAW

4.1. Introduction

The aim of this chapter is to consider how the Cartagena Protocol on Biosafety (hereafter referred to as the Protocol) promotes the notion of sustainable biosafety. After introducing the CPB, the discussion will briefly consider the tense negotiations involved in order to examine how and to what extent the CPB diverges from WTO law and serves as a springboard for the principle of mutual supportiveness. This is important because sustainable biosafety objectives as enshrined in the CPB are influenced by associated WTO laws because they both deal with overlapping transboundary biosafety laws. However, their actual compatibility and the areas where they differ and thus hinder sustainable biosafety will be further explored in Chapter Five.

In order to deconstruct the question of how developed countries shaped the outcome of the CPB in accordance with the critique posed by TWAIL, these discussions will draw upon the north-south debates during negotiations, while also considering how the principles of the CPB converged and/or diverged with WTO law. Chapter Three concluded that sustainable biosafety is largely about the simultaneous integration of social, economic and environmental objectives and that trade-offs are inevitable. However, in terms of biosafety, the ability to reach sustainable trade-offs is hindered by interplay between social, economic and environmental objectives and is heightened by scientific uncertainty and its failure to provide definite guidance for decision-makers. Even though the precautionary principle aims to surmount scientific uncertainty, this is not a straightforward proposition. In order to examine these challenges, this chapter commences by introducing the origin of the CPB. By doing so, it will set out the CPB's connections with sustainable conservation efforts, starting with its objectives, breadth and the main principles and provisions that contribute to and/or affect sustainable biosafety. These are principles such as the principle of advance informed agreement (AIA), the precautionary principle, the importance of public participation and socio-economic considerations, starting with the objectives

and definitions of living modified organisms and the implications of this for the regulatory scope of sustainable biosafety.

The last two sections of the chapter will focus on the precautionary principle and scientific uncertainty both in the CPB and the WTO because these issues reinforce the persistence of the normative conflicts in biosafety and trade with which this thesis is concerned. Thus, the following sections will demonstrate the different orientations and perspectives of the principles in the CPB and WTO and how such differences contribute to normative conflicts. I will also consider the areas of difference and compatibility in the two regulatory approaches of the CPB, namely the approach underpinned by the precautionary principle, which is supported by the CPB, and the preventative approach, which underpins the WTO's approach. The underlying aim is to highlight how these differences safeguard and/or weaken substantive outcomes in sustainable biosafety.

4.2. The Origins of the CPB

The CPB is a subsidiary Protocol to the CBD, which Namibia signed in 1992 and ratified in 1997. The scope of the CBD is very broad and ranges from being one of protection, involving matters concerning the exploitation of genetic resources, as well as conservation and commerce, the allocation of rights, the imposition of responsibilities and even issues of fairness and justice. Prestre describes it as a treaty that demonstrates an overlapping of very different political undercurrents at the crossroads of conservation, sustainable use and benefit sharing.[325] It not only considers the means of conserving biodiversity, but also deals with those elements that cause biodiversity loss and the processes that foster it. While biotechnology can be a means to promote biodiversity conservation,

[325] Phillippe Le Prestre, 'The CBD at Ten: The Long Road to Effectiveness' (2002) 5 JIWLP 269.

as discussed in Chapter Three, it can also cause a loss of biodiversity – for instance through gene contamination – and thus destroy biological diversity.[326] Therefore, the CBD, within its framework of biodiversity conservation and sustainable use, requires that Member States engage in the regulated and well-managed use of biotechnology. This is because biodiversity is a critical component for the attainment of sustainable biosafety and human wellbeing, while, at the same time, this area requires conservation and protection. The CBD thus posits that the conservation and protection of biological diversity should not be carried out in an overly restrictive manner.[327] Therefore, the right to use biological diversity for development purposes is not absolute and imposes responsibility on States for the protection, and thus sustainable use, of such resources. As is stated by Pearson, 'rather than pursuing biodiversity conservation at the expense of economic growth, the CBD promotes a view of conservation that is facilitated by economic markets'.[328]

To this effect, the CBD considers the socio-economic issues that emanate from the use of genetic resources, as well as promoting access to technology, including biotechnology. From this perspective, the CBD is comprehensive in its approach to the conservation and the sustainable use of diverse biological resources and encompasses all three objectives of sustainable biosafety, as per the conclusions of Chapter Three. It is a comprehensive instrument, dealing with issues at the interface of social, economic and environmental objectives of development. In the effort to promote access, the CBD calls on States to strike a balance between the need to protect the environment and the possible adverse effects of technology, specifically biotechnology. Importantly, such access to technology for developing countries[329] ought to facilitate the attainment of the social, economic and environmental objectives of sustainable development. Thus, it recognises the potential benefits that

[326] ibid.
[327] Thomas Pearson, 'On the Trail of Living Modified Organisms: Environmentalism Within and Against Neoliberal Order' (2009) 24 CA 712.
[328] ibid.
[329]The reference to developing countries in this thesis is used in a generic sense, noting the existing socio-economic and political variations among them and taking into account the growing opposition to categorising such diverse economies as developing countries.

technologies, such as biotechnology, can offer for human wellbeing and even environmental protection, provided they are developed and used in a manner that promotes sustainable biosafety. It is with regard to this imperative that Article 28 of the CBD obligates Parties to develop additional protocols in pursuit of their objectives, while Article 19 (3) calls for a Protocol on living modified organisms (LMOs) by stating that:

> 'The Parties shall consider the need for and modalities of a Protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity.' [330]

Additionally, Article 8(g) of the CBD deals specifically with domestic measures and states that each party shall, as far as it is possible and appropriate:

> 'Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health.'[331]

Furthermore, the CBD, in Article 19, specifically calls for the establishment of a biotechnology regulations and management regime by stating that: '… each contracting party shall take legislative, administrative or policy measures, as appropriate, to provide for the effective participation in biotechnological research activities by those Contracting Parties …'.[332] In view of these provisions and the expressed need for a protocol on biosafety, the first

[330] Convention on Biological Diversity (n 179).
[331] ibid.
[332] ibid.

Conference of Parties to the CBD (COP-MOP) in 1994 discussed the necessity and the modalities of such a protocol.[333] In 1995, COP 5 resolved to commence negotiations for a protocol on biosafety.[334] Subsequently, the CPB was negotiated and opened for signature in May 2000 in Kenya, Nairobi, and entered into force on 11 September 2003 and, to date, has 163 parties.[335]

It is worth mentioning that the process of initiating, developing and adopting the CPB was marred with heavy contestations that, at one point, even became deadlocked. Many issues were left unresolved until the last round of the negotiations, while various provisions were ultimately highly diluted compromises.[336] The most contentious issues pertained to the scope of the CPB, specifically the inclusion of socio-economic considerations, the definition of LMOs, the precautionary principle and issues of liability, as well as the relationship of the CPB to other agreements – mainly, those of the WTO.[337]

4.3. Cartagena Protocol on Biosafety (CPB)

4.3.1 Objectives and Scope

It is worth noting that any treaty creates important restrictions within which the subject matter or the scope of regulation must be implemented. In setting out its objectives, the CPB essentially generates the parameters of its implementation, thus clearly demarcating the extent to which States can expand the scope of their biosafety rules.

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[333] CBD, 'Consideration of the Need for and Modalities of a Protocol for the Safe Transfer, Handling and use of Living Modified Organisms'(COP-2, Decision II/5, 1995).
[334] ibid.
[335] CBD, 'Parties to the Cartagena Protocol and its Supplementary Protocol on Liability and Redress' <http://bch.cbd.int/protocol/Parties/> accessed 17 September 2018.
[336] Robert Falkner, 'Regulating Biotrade: The Cartagena Protocol on Biosafety' (2000) 76 IA 299.
[337] Third World Network on Biosafety, Biodiversity Convention Briefing no 3, Panel of Experts Calls for Biosafety Protocol under Biodiversity Convention <http://twnside.org.sg/title/bio3-cn.htm> accessed on 2 August 2013.

Therefore, it is imperative that all actions and further elaborations of rules be in conformity with these objectives. In this respect, the CPB in Article 2 (4) specifically obligates parties to act within the confines of its objectives regarding their rights to take more protective measures than are prescribed, stating that such measures should be 'consistent with the objective of the Protocol'. [338] In its objective, the CPB states that:

> 'In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.'[339]

Several issues arise from the wording of this objective. Firstly, the reference to the precautionary approach positions this as the basis and point of reference for biosafety under the CPB.[340] Although, the reference to the precautionary approach cannot be precisely equated with the precautionary principle because it does not denote any legal obligations and only subscribes substantial content.[341] As elaborated on shortly, this was a highly contested move during the negotiations because this principle is marred with controversy regarding its normative content, as well as its legal status in international law,[342] as discussed below.

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[338] The Cartagena Protocol on Biosafety (n 15).
[339] The Cartagena Protocol on Biosafety (n 15)
[340] Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman (n 14).
[341] See, The Cartagena Protocol on Biosafety (n 15).
[342] WTO, *'EC Measures Concerning Meat and Meat Products (Hormones)'* (13 February 1998) WT/DS26/AB/R, para. 120.

Secondly, it is clear that the overall objective of the CPB is to achieve the safe transfer, handling and use of LMOs resulting from modern biotechnology that may have adverse effects on conservation and the sustainable use of biological diversity. However, the reference to an 'adequate level of protection' implies such measures of protection should be determined by the level of risk associated with the specific activity or LMO. It also calls for protection, even if the adverse effects are merely potential and not backed by scientific evidence.[343]Again, this is in alignment with the precautionary principle and is contrary to the WTO's sole reliance on perceived scientific certainty. Indeed, this varying regard for scientific evidence as enshrined in the different legal instruments of international law, especially in light of the prevailing lack of consensus among scientists and thus the continuation of scientific uncertainty in this area, constitutes one of the major difficulties of reconciling biosafety and trade normative conflicts, as is explored in the following discussions.

Thirdly, the phrase 'contribute to ensuring an adequate level of protection', as posited within the objectives, implies that the CPB is the main, but not the only instrument interested in the regulation of LMOs. In terms of social and human safety considerations, the CPB merely alludes to 'taking into account' such issues. Indeed, this weak consideration of the human and social objectives of the CPB indicates a compromise between the developing countries' position and that of the developed countries. Developing countries largely wanted to highlight social and human health objectives in conjunction with the conservation of biological diversity, while the developed countries mostly argued solely for the latter's importance. The CPB eventually adopted a minimalist scope mainly related to the transboundary movement of LMOs. However, in some instances, it gives discretion to States to expand upon this in certain aspects. For instance, Article 25 on illegal transboundary movements calls on parties to adopt appropriate domestic measures to prevent and penalise illegal activities if

[343] Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman (n 14).

they are consistent with the objectives of the Protocol, according to Article 2(4). Although the CPB makes exclusive reference to including LMOs with adverse effects, there is no exception for those without adverse effects and neither is there a standard for what constitutes such effects. It is worth noting that the definition of LMOs which was adopted has sufficient bearing on the scope of the CPB and this is discussed below.

Lastly, the CPB regulates most LMO activities, as per its objectives, but mainly the handling of transboundary movement and the use of LMOs, while ensuring protection against adverse effects on biological diversity and human health. Transboundary movement here means the movement of LMOs from one party to another. In the ensuing discussion, it is clear that the CPB also calls for simultaneous consideration for social and trade objectives, in addition to those involving biological diversity and human health, although the language of this specific provision, arguably, weakens the case for the protection of social objectives. Moreover, while this objective clarifies the scope of regulation to a certain extent, the definition of what constitutes an LMO is also important.

4.3.2 Definition of LMOs and this Definition's Implications for the CPB's Scope

The term 'LMO' is utilised by both the CBD and the CPB and this could imply a potentially broad scope of usage. However, the CBD's COP Decision II/5 narrowed this definition down to LMOs resulting from modern biotechnology,[344] defined in Chapter One. Thus, the CPB defines an LMO as: '… any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology' and a living

[344] CBD, COP-2, Decision II/5 (n 330).

organism is defined as a: '… biological entity capable of transferring or replicating genetic material, including sterile organisms, viruses and viroids.'

When considered in line with the objective above, the CPB regulates transboundary movement, transit, handling and use of LMOs as defined here. However, it has several sets of specific provisions for specific types of LMOs. For instance, while it excludes from its general scope those LMO products containing 'detectable novel combinations of replicable genetic material through the use of biotechnology', it addresses them in Annex I (i), dealing with the information required in notifications under Articles 8, 10 and 13, as well as Annex III (5) regarding risk assessment. Thus, the scope of the CPB generally applies to:

> '… the transboundary movement, transit, handling and use of all living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health.'[345]

The definition of LMOs provided above clarifies the applicable subject area of the scope of the CPB, but it is limited to those that are intended for direct introduction into the environment. For those LMOs that are intended for use as food, feed and processing, the CPB has separate provisions. In addition, while the general scope deals with the transboundary movement, transit, handling and use of all LMOs, as defined earlier, Article 5 excludes certain classes of LMOs, such as pharmaceuticals for use by humans that are addressed by other relevant international agreements and organisations.

[345] Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman (n 14).

During the negotiations of the CPB, many of the developing countries expressed concern regarding the exclusion of pharmaceuticals, arguing that safety systems in their countries were either underdeveloped and/or non-functioning and thus could not effectively deal with LMO pharmaceuticals.[346] For instance, in Namibia, human health issues fall under the scope of the outdated Public Health Act of 1919. This type of outdated legal instrument exposes the need for legal modernisation in developing countries. However, further legal reforms of this nature might be costly and might not be given top priority, especially when considered against other pressing development imperatives. This might again delay the effective implementation of the CPB. In addition, some biotechnology applications, such as gene therapy, have no other legal instruments for setting standards and institutional support for safety assessments in these countries are generally weak.[347]

Against the background of these arguments, different provisions were adopted for various types of pharmaceuticals. Pharmaceuticals intended for animals fall within the scope of the Protocol, while it is unclear whether biopharm (edible vaccines) and plant/animal factories that produce pharmaceutical compounds are included, although they fall under the definition of LMOs. In addition, the CPB does not regulate LMOs destined for contained use, as per Article 6(2), and those that are identified as 'not likely to have adverse impacts,' according to Article 7(4).

The issue of whether LMOs that are intended for food, feed and processing (LMO-FFPs) should be included in the general scope of the CPB was another cause of disagreement.[348] LMO-FFPs include widely traded

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[346] Li Lin Lim (n 371); The Secretariat of the Convention on Biological Diversity, *The Cartagena Protocol on Biosafety: A Record of the Negotiations* <https://www.cbd.int/doc/publications/bs-brochure-02-en.pdf> accessed 17 December 2014.
[347] *The Cartagena Protocol on Biosafety: A Record of the Negotiations*, ibid.
[348] Stanley Burgiel, 'Taking the Steps from Negotiation to Implementation' (2002) 11 RECIEL 53.

commodities, such as GM corn, soy, wheat, canola, tomatoes and so on.[349] On the other hand, exporting countries argued that since they were not intended for introduction into the environment, unlike seeds and microorganisms, they should be outside the scope of the CPB.[350] Notably, the inclusion of seeds and microorganisms in the scope was justified on the basis that they could mutate, migrate and multiply and so pose threats in terms of gene transfer and generate risks to biodiversity.[351] Opponents argued that the GMO commodities intended directly for food, feed and processing, do not pose similar risks, as they are not intended for introduction into the environment.[352] The main premise of this argument was that the overall objective of the CPB under the CBD is one of biodiversity conservation. However, neither are segregation and handling systems of these commodities in developing countries clearly demarcated, nor are they effective where they exist.[353] Thus, it was argued that, even though LMO-FFPs are not intended for introduction into the environment, it is impossible to ensure that they do not end up in the environment, irrespective of intent.[354] This also means there may be a risk to biodiversity through gene transfer.[355] Moreover, they argued that the issues of concern under the CPB are broader than biodiversity and should consider human health risks as well.[356] There was then some consensus to include LMO-FFPs in the scope. Nevertheless, the question of whether they should also be included under the scope of the CPB's AIA provisions was subsequently raised.

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[349] The Secretariat of the Convention on Biological Diversity (n 335).
[350] ibid.
[351] International Institute for Sustainable Development, 'The Cartagena Protocol on Biosafety: Analysis of Results' (*ISSD*, 2000) <http://www.iisd.org/pdf/biosafety.pdf> accessed 5 August 2013.
[352] ibid.
[353] Antoine Bouët, Guillaume Gruère and Laetitia Leroy, 'From '"May Contain" to "Does Contain"? The Price and Trade Effects of Strict Information Requirements for GM Maize under the Cartagena Protocol on Biosafety' (*International Food Policy Institute*, 2010) < http://www.isaaa.org/workshop/2012-01-10-bangkok/download/socio-economic_considerations/pbsnote18.pdf> accessed 20/09/2018.
[354] International Institute for Sustainable Development (n 351).
[355] ibid.
[356] ibid.

4.3.3 LMOs for Food, Feed and Processing

The final obligation on the LMO-FFPs only calls for information sharing, which is not meant to impose the right on the importing party to agree or not, unless it is allowed under domestic law. This is contrary to what the developing countries desired, while the LMO-producing countries fiercely opposed the inclusion of these commodities under the provisions of the AIA. They argued that the enormous volumes traded under this category of LMOs could present massive regulatory loads and trade disruptions if included under the provisions of the AIA.[357] The possibility of trade disruptions for resource-poor developing countries[358] was viewed in terms of potential WTO disputes against powerful States, such as the US, especially in the light of the then looming *EC-Biotech Case*. Thus, the result was a compromise, which states that the importing countries are to notify the Biosafety Clearing House (BCH) about the intent to import LMOs-FFPs.

The BCH is the information sharing mechanism as per Article 20. The country of import can assess this information and decide whether to approve or put restrictions on such a commodity where provision is made under domestic law. If not, it would just remain a procedural regulation of notification through the BCH. The difficulty with this is that even where domestic laws make such provisions, such States have to carry the burden of proof of both the efficacy and safety of such commodities under its social, economic and environmental contexts,[359] which also shifts liability to them. In addition, a unilateral restriction on these commodities could be construed as restrictive to trade and thus violate the WTO obligations,[360] as was the case in the *EC-Biotech Case* discussed in the next chapter.

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[357] Aarti Gupta (n 117).
[358] International Institute for Sustainable Development (n 351).
[359] Aarti Gupta, 'Governing Biosafety in India: The Relevance of the Cartagena Protocol' (Discussion Paper 2000–24, Kennedy School of Government, Harvard University October 2000).
[360] ibid.

4.3.4 Advance Informed Agreement/Consent

As hinted at above, the AIA, according to Articles 7-10 and 12, is the main regulatory procedure under the CPB, which gives the Parties of import the right to agree or disagree with the import and/or place restrictions or holds on specific imports of LMOs. As clarified above, while the transboundary movement of all LMOs, which may have adverse effects on the conservation and the sustainable use of biological diversity, are included in the general scope of the Protocol, the AIA provision only applies to LMOs intended for intentional introduction into the environment. It excludes LMOs in transit, which are intended for contained use, such as in laboratories, as well as those that are meant for direct use as food, feed and processing. Additionally, Article 6 exempts LMOs 'in transit' and those intended for contained use from the application of the AIA.

The basis of the AIA is found in CBD Article 19 (4), which establishes the requirement of providing domestic regulations regarding the use and safety of LMOs, including any other available information related to the adverse effects on the importing party:

> 'Each Contracting Party shall … provide any available information about the use and safety regulations required by that Contracting Party in handling such organisms, as well as any available information on the potential adverse impact of the specific organisms concerned to the Contracting Party into which those organisms are to be introduced.'[361]

Articles 8–10 and 12 of the CPB set out the obligations for the AIA and require that prior to the first intentional transboundary movement of a specific LMO into the jurisdiction of the importing party, the exporting party is to notify the importing party of such intentions by sending specified information about the LMO and its intended use. In this manner, the party of import is accorded an opportunity to decide whether to accept or reject

[361] Convention on Biological Diversity (n 179).

the proposed importation of LMOs. Such decisions are to be based on an assessment of the efficacy and safety of such commodities, based on the social, economic and environmental contexts of the importing State. The CPB prescribes specific decision-making parameters, which have considerable implications for sustainable biosafety, as explored below.

4.3.5 Environmental, Human or Socio-Economic Imperatives: Ambiguous Decision-Making Criteria

In considering the decision-making criteria, it is important to recall Chapter Three's discussion of the way that the aim of sustainable biosafety is to integrate economic, social and environmental objectives in a balanced manner, even though this is not an easy task. It is, therefore, not surprising that the CPB's provisions concerning decision-making criteria, as is argued by Gupta, are characterised by indistinctness,[362] exposing the divide between the north's and south's issues of interest. As also discussed above, during the negotiations, the developing countries argued that the issues of concern to be considered under the CPB should be broader than ones of biodiversity.[363] They argued that human health risks from the effects of biodiversity and direct contact with LMOs should be considered too, rather than narrowly considering risk in terms of food safety.[364] They further contended that a biosafety instrument, which does not include human health issues, is not viable and the same credence should be given to the impact of biotechnology on human health.[365] Thus, as is commensurate with the perceived risks of LMOs, they saw the need to embrace an all-encompassing safety system, while their opponents argued that such human aspects should be excluded from the scope of the CPB, as other instruments covered these issues.[366] Against this background, rather ambiguous and greatly compromised provisions were adopted, stating that risks to human health are to be 'only taken into account'.

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[362] Aarti Gupta (n 359).
[363] International Institute for Sustainable Development (n 351).
[364] ibid.
[365] The Secretariat of the Convention on Biological Diversity (n 335).
[366] ibid.

Interestingly, a part of this phrase is also found in the CBD. Although the CBD does not refer to human health in its scope, in Article 19(3) and Article 8(g) it obligates parties to regulate, manage or control the risks associated with the use and release of LMOs resulting from biotechnology which are likely to have adverse environmental impacts, that could affect the conservation and sustainable use of biological diversity, taking also into account the risk to human health', independent of any other instrument in this field, including the Protocol.[367]

Similarly, in Article 4, the CPB refers to '… LMOs that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health.' [368] The phrase 'taking into account' has never been clarified authoritatively by either the CBD or the CPB and there is also no consensus on its exact meaning and orientation.[369] The legal implications of taking into account risks to human health are also not clear and questions arise as to the type of risks related to human health that are to be taken into account. For instance, is it only the impacts of LMOs on human health emanating from the adverse effects on biological diversity, or is it also the risks that result from direct ingestion of LMOs?[370] Some commentators have concluded that it captures both concerns.[371] Considering the two divergent stances of the negotiators, this vague language can be interpreted either way. Those in support of the consideration of human health issues under the scope of the CPB could read these articles in a way so that the risks posed by an LMO to human health are to be taken into account, even in the absence of, or separately from, the potential adverse effects of the LMO on biological diversity. This could, for instance, be a change in the allergenic properties of pollen because of genetic modification or the consumption of GM food. However, opponents of this position could also interpret this to mean that the risks posed by LMOs to human health are taken into account under the CPB only if they result from

[367] Convention on Biological Diversity (n 179).
[368] The Cartagena Protocol on Biosafety (n 15).
[369] Ruth Mackenzie, Francoise Burhenne-Guilmin, Antonio La Viña and Jacob Werksman (n 14).
[370] ibid.
[371] Li Lin Lim, 'Cartagena Protocol on Biosafety' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (Tapir Academic Press 2007).

the potential adverse effects of the same LMO on biological diversity and not from direct usage or ingestion. As Gupta argues, this amounts to constructive ambiguity or an openness to differential interpretations and thus to normative uncertainty.[372]

Moreover, while this flexibility would allow States to give equal weight to biological diversity and human health issues when considered in the context of trade rules, it might also result in disputes, as is also an issue in relation to the equally vaguely crafted provision on socio-economic considerations, as discussed below. It is equally unclear as to whether risks to human health warrant a 'no decision' under the CPB and thus the question of hierarchy arises. In addition, the narrow focus on biological diversity, which constitutes only one component of the broader environment, implies that potentially adverse effects on other aspects, such as air and water, are excluded. Similarly, as is discussed below, the CPB does not only confer limited inclusion of socio-economic issues, but also requires that they be consistent with other international obligations, which in itself is a further limitation when considered in the context of the WTO agreements, as discussed below.

4.3.6 Article 26

Socio-economic concerns in biosafety arise from the fact that the use of biotechnology has ethical, cultural, economic and traditional implications, which are regarded as subjective in view of apparently objective scientific risk assessments. This is why Article 26 has been hailed as a landmark for the inclusion of socio-economic issues in a predominantly environmental [373] CPB. The article states that:

1. The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol, may take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified

[372] Aarti Gupta (n 359).
[373] Daniel Lee Kleinman and Abby Kinchy, 'Against the Neoliberal Steamroller? The Biosafety Protocol and the Social Regulation of Agricultural Biotechnologies' (2007) 24 Agriculture and Human Values 195.

organisms on the conservation and the sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities.

2. The Parties are encouraged to cooperate on research and information exchange on any socio-economic impacts of living modified organisms, especially on indigenous and local communities.'

Even though this inclusion signals a move towards a more comprehensive consideration of sustainable biosafety, the provision is still very basic and would, thus, only achieve very elementary results.[374] This is especially the case when the context of the substantive provisions on scientific risk assessment are considered, especially in the light of WTO law and, therefore, this arguably amounts merely to a 'nice gesture'. After all, it requires such considerations to be 'consistent with other international obligations' [375]when such consistency is not possible unless undue compromises are made at the expense of sustainable biosafety. It does not clarify whether all socio-economic concerns have equal weight in decision-making, particularly in the light of the phrase, 'taking into account'[376]. Again, as was discussed above, this phrase has uncertain legal implications and indicates the weakness of this provision.

Even though, at a general level, it is clear that socio-economic issues in biosafety reveal the ethical, cultural, economic and traditional implications of the use of biotechnology, it is not clear what exactly constitutes socio-economic considerations for regulatory purposes and how they ought to be weighed against the more objective economic/trade and environmental [377] objectives in the pursuit of sustainable biosafety. Interestingly,

[374] Debbie Collier and Charles Moitui (n 20).
[375] The Cartagena Protocol on Biosafety (n 15)
[376] The Cartagena Protocol on Biosafety (n 15)
[377] Duncan French (n 25).

Article 26 limitedly provides that 'in reaching decisions, Parties may consider socio-economic considerations arising from the impact of LMOs on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to local communities'. This implies a limitation and includes only those 'arising from the impacts of LMOs on the conservation and sustainable use of biological diversity'.[378] This is because, by implication, the LMO must first affect biological diversity and a socio-economic concern must thus arise from the impact and not directly from the use of the LMO.

Additionally, when considered in relation to the WTO's rules, this provision is almost of a minimal effect because the WTO strictly considers only scientific facts and thus the inclusion of non-scientific socio-economic issues might be inconsistent with these trade rules. At the same time, the extent to which the precautionary principle could help to remedy this difficulty is disputable, especially in the face of the prevailing scientific uncertainty and the WTO's reliance on scientific evidence, even when the science is inconclusive. What is interesting is that the CPB, while gravitating towards precaution and inclusion of socio-economic considerations, also puts emphasis on scientific risk assessments, even in the face of incongruence between these approaches.

Moreover, it does not prescribe how to resolve the subsequent conflicts and, for countries such as Namibia, that have adopted a broad scope in terms of socio-economic issues and sustainable biosafety, this would be inconsistent with their WTO obligations, as is discussed in Chapter Six. While this situation remains, the following section thus considers how the CPB promotes public participation as a means to integrate social objectives of sustainable biosafety, noting that this idea and the precautionary principle have normative importance as they play vital roles in bridging the notion of absolute reliance on science towards the inclusion of social issues.

[378] The Cartagena Protocol on Biosafety (n 15)

4.3.7 Public Participation

The CPB Article 23 obligates parties to embark on a process of increasing public awareness, education and participation in decision-making. It states that parties should promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of LMOs in relation to the conservation and the sustainable use of biological diversity, also taking into account risks to human health. In doing so, the parties shall cooperate, as appropriate, with other States and international bodies and endeavour to ensure that public awareness and education includes access to information. These provisions on public participation are laudable as participation in decision-making is a constitutional value. As discussed in Chapter Three, public participation obligations are important because they create an essential platform for integrating local, social and economic considerations in a democratic manner. In this regard, it is commendable that the CPB obligates members to promote and facilitate public awareness and education, including obligations in order to make information accessible. This links the right to participation to empowerment through legal provision of such rights as well as through education, which aims at enabling all people to take advantage of their rights. This is a matter of national implementation as parties are at liberty to do this, as stated by Article 23(2), which states that:

> 'The Parties shall, in accordance with their respective laws and regulations, consult the public in the decision-making process regarding living modified organisms and shall make the results of such decisions available to the public, while respecting confidential information in accordance with Article 21.' [379]

Thus, the onus is on the parties to consult the public about their laws and regulations as well as the emanating decisions. However, to what extent can input from the public be used in the decisions? It is up to the States to deal with the numerous and subjective forms of public feedback and it is, therefore, evident that the CPB

[379] Cartagena Protocol on Biosafety (n 15)

leaves many contentious issues to be handled by domestic law? It is worth noting that the ideals of participatory governance based on rational legislation, participatory politics and civic self-governance are one of the main objects in the pursuit of sustainable biosafety. This is because political and civil rights, and especially those that guarantee open discussion, debate, criticism and dissent, are central to the values of informed choices and decisions.[380] In addition, while this speaks to their intrinsic importance, such rights on participation also have a constructive role in development. As is argued by Sen, collective and reasoned decision-making amounts to the participatory and inclusive creation of values and norms, thus making the role of democracy constructive. Bohman and Rehg's edited volume on "Deliberative Democracy" argues, however, that there is 'no such thing as a uniquely determined common good that all people could agree on'.[381] Certainly, all perspectives are relative to cultural, traditional and religious norms. Hence, the extent to which a single decision can be effectively informed by all the diverse perceptions that might exist within a nation's citizenry is contestable. What is also clear is that when considered in terms of the context of other international obligations, such as trade norms, diverse and divisive values prove increasingly difficult to reconcile, as will be demonstrated in Chapters Five and Six. This is because such inputs are generally regarded as subjective, but also the trade regime considers non-trade objectives only in as much as they have scientific backing, as is clarified below and in the following chapters.

The challenge, therefore, is how to make participation meaningful within a specific country's context, taking into consideration diverse and potentially conflict-ridden international obligations. On the other hand, the answer to meaningful participation in the face of such a diversity of values and incongruent legal rules will largely depend on the quality and objectivity of decision-makers, as well as decision-making rules and guidelines. What follows is an exposition of the precautionary principle versus scientific uncertainty in decision-making,

[380] James Bohman, and Willaim Rehg (eds), *Deliberative Democracy: Essays on Reason and Politics* (The MIT Press, London 1997)
[381] ibid.

highlighting the discrete legal issues that arise at the convergence of biosafety and trade norms and their implications for sustainable biosafety.

4.4 The Precautionary Principle and Scientific Uncertainty: The Approach of the CPB

Chapter Three of this thesis clarified how sustainable biosafety essentially deals with predicting the environmental, social and economically harmful consequences or risks of any decisions or actions and considers how to mitigate these effects. The precautionary principle is a risk mitigating[382] principle that is relied upon when risks are uncertain. The principle has intrinsic links to sustainable development and thus sustainable biosafety. Its roots are found in the Rio Declaration on Environment and Development – namely, Principle 15, which states that:

> 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'[383]

Similarly, Article 11(9) of the CPB states that:

> 'Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate,

[382] William McKinney and Hammer Hill, 'Of Sustainability and Precaution: The Logical, Epistemological, and Moral Problems of the Precautionary Principle and Their Implications for Sustainable Development' (2000) 5 EE 77.
[383] United Nations Conference on Environment and Development, 'Rio Declaration on Environment and Development' (14 June 1992) UN Doc. A/CONF.151.26 (Vol 1).

with regard to the import of that living modified organism intended for direct use as food or feed, or for processing, in order to avoid or minimize such potential adverse effects.' [384]

Certainly, the CPB invokes the precautionary principle in cases when there is a lack of scientific certainty, while the Rio Declaration refers to the precautionary approach. These differences, where the first one implies some legal basis for the precautionary principle as a legal principle of law while the other implies a purely normative basis, is the fundamental basis of deviance between the CPB and WTO. This is important for this thesis, as it is one of the major causes of conflicts between the biosafety and trade norms and will be expanded on below. Here it is important to note that the principle is invoked when there is scientific uncertainty, so what then is it and how does it arise?

Scientific uncertainty arises in cases where science fails to provide meaningful conclusions, especially where the potential damage is momentous and irreversible. Even though, arguably, science is inherently about exploring the unknown in order to produce new knowledge and so uncertainty is inherent in its practice, uncertainty becomes a policy and a regulatory problem when there exist divergent data, interpretations and conclusions to guide sustainable biosafety decisions and thus it becomes an unreliable guide for decisions. In the biotechnology debates, at least during the negotiations of the CPB, the biosafety risks were largely speculative and their occurrence or non-occurrence could not be ascertained on a short-term basis. This was partly because this technology was relatively young and there was little practical evidence to back scientific claims concerning its risks. The expert scientific advisory voices were, and still are, divergent and often contradict each other, with some being in favour of biotechnology, *albeit* mainly in cases where safety studies were funded by the industry. These different views within the scientific community have resulted in policy as well as regulatory uncertainties and it could be argued on this basis that precaution is an absolute necessity.

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[384] Cartagena Protocol on Biosafety (n 15).

In addition, there are many theoretical and pragmatic issues, which hamper the proper application of the precautionary principle, exacerbated by it's disputed legal status. The precautionary principle has been said to be merely an ethical principle, which lacks a sound logical basis, as it does not possesses sufficient normative content.[385] It is said to be an emotion-laden and anti-scientific notion that thwarts scientific progress, some argue,[386] while still others contend that the principle could be used to further protectionist trade interventions.[387] However, the principle is only invoked when there is scientific uncertainty and when the threat of harm is serious and irreversible. Thus, a science-based risk assessment is essentially the starting point for the application of the precautionary principle. For instance, the EU has surmounted this issue in their legislation by prescribing that the application of the principle should be preceded by a science-based risk assessment.[388] The same is true for Namibia, as will be discussed in Chapter Six.

Thus, as stated by de Sadeleer: 'precaution is used when scientific research has not yet reached a stage that allows the veil of uncertainty to be lifted.'[389] The essence of the precautionary principle is its enabling nature, allowing for pre-emptive action aimed at avoiding the possibility of irreversible damage where the alternative course bears too much risk. Its central focus is that, where the scientific evidence about a certain risk is incomplete or insufficient to present clear guidance concerning how to appropriately regulate a particular technology, precaution enables proportionate anticipatory action, even if it means bans.[390] What is also worth exploring here is that the impediments that scientific uncertainty present in terms of biosafety have far-reaching implications for sustainable biosafety.

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[385] Foster Kenneth, Paolo Vecchia and Michael Repacholi, 'Science and the Precautionary Principle' (2000) 288 SJ 979.
[386] Hainnes Veinla, 'Free Trade and the Precautionary Principle' (2003) 8 JL 186.
[387] Foster Kenneth, Paolo Vecchia and Michael Repacholi (n 385).
[388] Hainnes Veinla (n 386).
[389] Nicolas de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules* (Oxford University Press 2002) 74, 75.
[390] Han Somsen, 'Cloning Trojan Horses: Precautionary Regulation of Reproductive Technologies' (TILT Law & Technology Working Paper No. 004/2007 and Tilburg University Legal Studies Working Paper No. 005/2007, 2007) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1053981 accessed 17 September 2018.

The challenges of scientific uncertainty for sustainable biosafety is compounded by the fact that natural systems are complex and that even fully determined and predictable systems sometimes tend to produce unanticipated results that might create irreversible catastrophic damage, be it social including human and animal health, environmental or economic. Regulating such speculative risks is a legal difficulty, as will also be demonstrated in the *Gabĉikovo-Nagymaros, Pulp Mills* as well as the *EC-Ciotech Cases* discussed in this thesis. The fact that a said risk is not proven or has not manifested hitherto does not mean that the hazard does not exist as it may be that there is no scientific procedure or information available to ascertain the existence or absence of such dangers as yet. Such an absence might either be due to the risk's non-existence or simply because it cannot be anticipated and proven in advance. The question is how such deficiencies can be determined if they are not known or cannot be foreseen, i.e. the unknown unknowns. Therefore, the lack of determination that a risk that has not yet manifested is actually absent, makes scientific uncertainty a regulatory obstacle and the utilisation of the precautionary principle an absolute necessity. However, while the underlying logic of the principle is gaining importance, its efficacy in handling uncertainty is not straightforward, the principle is highly abstract and its legal basis is still uncertain.

While the fundamental precepts of the precautionary principle are clear, there is still no commonly agreed definition for it. For instance, Wiener and Rogers propose that, out of the many definitions and interpretations of the principle, there are three basic elements.[391] The first one is that 'uncertainty does not justify inaction' and, alternatively, that 'uncertainty justifies action' or even that '… uncertainty requires shifting the burden and standard of proof'.[392] Therefore, not only does this principle impose protective measures when there is uncertainty, but as is also stated by Patterson et al., it '… places the duty of care on those who propose the

[391] Jonathan Wiener and Michael Rogers, 'Comparing Precaution in the United States and Europe' (2002) 5 Journal of Risk Research 317.
[392] ibid.

change'.[393] This is because in its strongest formulations, the principle implies that uncertainty shifts the burden and standard of proof to those who propose the technology.[394] It holds then that regulators can forbid potentially risky activity until the proponent of such activity demonstrates that it poses either no or acceptable risks[395] and by so doing this party bears liability, as is explained below. What is worth noting here is that there are different versions of the principle whereby some denote strict legal orientations while others have been watered down. The SPS Agreement is one of the weakest formulations, while the CPB has a stronger formulation. As stated above these differences account for the basis of normative conflicts and are discussed in the next section. It is important here to expound on the different approaches to the application of the precautionary principle, which come about because of the differential legal weight, resulting from the weak and strong formulations of the principle, namely the preventative approach and the approach underpinned by the precautionary principle.

It is important to clarify here that this thesis deliberately avoids referring to the approach underpinned by the precautionary principle as the precautionary approach. While some refer to the 'approach underpinned by the precautionary principle' as the precautionary approach[396], the two approaches do not denote the same thing. Firstly, the reference to the precautionary approach is a notion that is particularly preferred by the US and the proponents of biotechnology, as they do not want to be legally bound by a principle. Thus, they prefer the precautionary approach in order to use the precautionary principle in a way, which only prescribes some substantial notions and not imposing any legality.[397] Secondly, the precautionary approach is a softer interpretation of the precautionary principle, which recognises that all sorts of human activities have an

[393] Lee Ann Patterson and Tim Josling, *Regulating Biotechnology: Comparing EU & US Approaches*, (European Policy Papers 8, 2002).
[394] Li Lin Lim (n 371).
[395] Jonathan Wiener and Michael Rogers (n 391).
[396] Lee Ann Patterson and Tim Josling (n 393).
[397] See: Jonathan B. Wiener, 'Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems' (2003) 13 Duke J. Comp. & Int'l L. 207-262; Hainnes Veinla (n 386); Jonathan Wiener and Michael Rogers (n 391)

environmental impact and that they should be allowed as long as there is an economic gain for society and the impact is reversible.[398] This is contrary to the definition of the stronger versions of the precautionary principle as discussed above and adopted by the CPB and Namibia's Biosafety Law, thus this thesis aligns with the regulatory approach underpinned by the precautionary principle and not the precautionary approach. Moreover, the precautionary approach equates to what is also known as the preventative approach, which is in contrast to the approach underpinned by the precautionary principle.

The preventive approach is a reactive regulatory method aimed at minimising environmental damage only when the existence of harm has been scientifically demonstrated[399] and thus it is often linked to an objective scientific risk assessment. It regards scientific evidence of risk and benefit as the only objective guide for decision-making.[400] It is a form of 'regulation based on safety, quality and efficacy of the product regardless of the method of production'.[401] The focus, then, is on products and whether the risk has been scientifically proven or not. Prevention thus relies on the certainties of collective experience concerning the nature and the degree of the risk posed. Therefore, in order to reduce the probability of their occurrence, it takes as fact scientific information, thus viewing a scientific risk assessment as the only objective evaluation.[402] Biosafety measures, in this regard, are aimed at averting only the risks for which a cause-and-effect relationship is already known.[403] This has been labelled the *laissez-faire* approach to GMOs, 'allowing their development and use if no harm has been demonstrated'. [404] It is based on a substantial equivalence of LMOs with their conventional commodities and

[398] ibid.
[399] Lee Ann Patterson and Tim Josling (n 393).
[400] ibid.
[401] ibid.
[402] Nicolas de Sadeleer (n 389) 74, 75.
[403] ibid, 75.
[404] Ilona Cheyne, 'Life After the Biotech Products Dispute' (2008) 10 ELR 439; Asif H Qureshi (n 14).
[404] CISDL (n 20).
[404] Lee Ann Patterson and Tim Josling (n 393).
[404] Ilona Cheyne (n 404).

constitutes the legal doctrine of the SPS Agreement,[405] while an approach based on the precautionary principle is founded upon legitimising precautionary measures in cases of scientific uncertainty. The drawback with the preventative approach arises in cases of scientific uncertainty. As discussed above, the fact that a risk has not been demonstrated does not mean that it does not exist, but rather that there has not yet been established a procedure or knowledge base via which to ascertain its existence.[406] However, to prove the non-existence of an unknown risk is a logical impossibility[407] and this is where the issue of scientific uncertainty becomes a regulatory obstacle and hence establishes the necessity for the regulatory approach based on the precautionary principle.

On the other hand, the approach underpinned by the precautionary principle calls for the consideration of scientific uncertainty and inconclusiveness in decision-making. It even anticipates unproven risks and allows for bans and the delaying of operations, as decisions. [408] For biosafety, its regulatory focus is on the processes by which products are created, rather than concentrating solely on the product itself. It gives equal weight to both processes and products that are contrary to the substantial equivalence of products that underpins the first approach.[409] Thus, this principle imposes strict regulations on those who propose the action, as noted above. The EU and many developing countries, such as Namibia, have adopted the precautionary principle as the regulatory foundation of their biosafety and are thus said to be risk-averse countries,[410] as discussed in the next section.

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[405] Kaare Nielsen and Anne Ingeborg Myhr, 'Understanding the Uncertainties Arising from Technological Interventions in Complex Biological Systems: The Case of GMOs' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetic Modified Organisms* (Tapir Academic Press 2007).
[406] ibid.
[407] Lee Ann Patterson and Tim Josling (n 393).
[408] Dario Bevilacqua, 'Global v. Domestic Procedural Rules in Risk Regulation: The Precautionary Principle' (2006) 6 EFFLR 331.
[409] ibid.
[410] Ilona Cheyne (n 404) 52.

4.5 Precautionary Principle According to the CPB and WTO: The Main Causes for Conflicts Between Biosafety and Trade Laws

The last section has established that the CPB aligns with the approach underpinned by the precautionary principle, while the WTO aligns with the preventative approach. This section expounds on these differences by starting with an analysis of the SPS Agreement on precaution and scientific uncertainty in order to highlight its deviances from the CPB.

The SPS Agreement contains a number of provisions that give rights to States to set levels of protection based on what is appropriate for their context. Indeed, it has several ways of screening this process, such as the necessity test, plus assessing levels of harmonisation and obligations to ensure regulatory transparency, as well as scientific testing. The scientific test obligates Member States to base measures on a risk assessment supported by scientific evidence. Under such circumstances, can the precautionary principle really be used to interpret Article 5(1) (2) of the SPS Agreement that prescribes the filters for its application? Article 5 deals with the assessment of risk and determining the appropriate level of sanitary or phytosanitary protection. Sub-paragraphs 1 and 2 state that:

> 1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.
>
> 2. In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest — or disease — free areas; relevant ecological and environmental conditions; and quarantine or other treatment.'

In addition, Article 5(7) of the SPS Agreement states that:

> ‘In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.’[411]

The vision of scientific superiority enshrined in the SPS’ version of this principle is that it undermines the problem of scientific uncertainty.[412] For instance, while it allows for the adoption of precautionary measures by stating that precautions should apply where the relevant scientific knowledge is insufficient, it further obligates Members to seek any additional information that is necessary for an objective assessment of risk within a reasonable period. This has two major implications for sustainable biosafety regulation. Firstly, the concept of reasonable time, while being itself debatable, could depend on the specific LMO in question and how much is already known about it in the context of scientific information. Secondly, the obligation to obtain information in a reasonable period mandates the importing States to obtain additional information in order to take the necessary decisions within a reasonable period, rather than the exporter. This orientation shifts the onus and duty of care to the importing States, contrary to the CPB’s orientation, discussed above. Therefore, unlike the CPB, the SPS Agreement places the responsibility and, therefore, liability upon the importing States to prove the safety or otherwise of biotech products. It is worth noting then that most of the LMO imports flow from developed to developing countries. This implies that these countries now have to obtain additional information in order to make timely decisions, for instance, through experimentation and monitoring. These might need long-term studies and

[411] World Trade Organization, Agreement on the Application of Sanitary and Phytosanitary Measures (1867 SPS Agreement)
[412] Hainnes Veinla (n 386).

the obligation to decide within a reasonable period raises questions whether such testing will meet the WTO's requirements.[413]

On the other hand, the CPB in Article 10(6) states that insufficient scientific knowledge, which is the basis of scientific uncertainty, justifies precautionary measures, including bans. This orientation places the burden of proof, and thus liability, on the exporting States. As is argued by Nijar, this '… dispenses with the need for establishing the duty of care of the manufacturer … and hence, the precautionary principle and strict liability go hand in hand'.[414] This was one of the positions adopted by the developing countries during the negotiations of the CPD, which was considered a deterrent for dumping unwanted and untested technologies in these countries, which could be contrary to sustainable biosafety. Nevertheless, as long as the biotech giants are not parties to the CPB, biosafety and trade related disputes are likely to be subjected to the provisions of the precautionary measure under the SPS Agreement and conflicts are inevitable.

Furthermore, the practical usefulness of the precautionary principle is limited by its contended legal status, even though it is common law from precedent, which means that it is recognised as a general customary rule of international law or a general principle of law, as is evident from the *Gabĉikovo-Nagymaros Case* discussed in Chapter Two. While the ICJ acknowledged that new norms and standards of international environmental law have emerged in recent decades, it also argued that the precautionary principle was not recognised as one of them. Similarly, the Appellate Body in the *Shrimp-Turtle Case* concluded that:

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[413] Hainnes Veinla (n 386).
[414] Gurdial Singh Nijar, 'Liability and Redress for Damages Arising from Genetically Modified Organisms: Law and Policy Options for Developing Countries' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (Tromso and Tapir Academic Press, Trondheim 2007).

> 'The status of the precautionary principle in international law continues to be the subject of debate among academics, law practitioners, regulators and judges. The precautionary principle is regarded by some as having crystallized into a general principle of customary international environmental law. Whether it has been widely accepted by Members as a principle of general or customary international law appears less than clear …'[415]

Indeed, the highly abstract nature of this principle, as well as its divergent orientations and perspectives, denotes that it lacks the prescriptive normative parameters to guide its application. Neither is there a yardstick to ensure that it will not be used to reinforce undue and unfair trade measures. Importantly, the different ways it is framed in various international law regimes and the disparate prominence given to scientific risk assessments in decision-making, especially in the WTO and the CPB, underpins the fact that these norms will ultimately clash. Already these norms have come head-to-head in the *EC-Biotech Case*, discussed in Chapter Five. Therefore, disputes are inevitable, at least in as much as there is not yet an agreed upon methodology or vision of the place and standing of scientific knowledge, including how to account for its deficiencies. While this remains, innovative means need to be explored to bridge these conflicts in order to ensure sustainable biosafety. As I contend in the following chapter, the principle of mutual supportiveness offers such possibility.

4.6 Conclusion

The CPB, which is a subsidiary protocol to the CBD, is the main international normative instrument regulating the transboundary movement of the products of biotechnology. In doing so, the CPB deals with the promotion of comprehensive sustainable safety objectives, such as the environment, biodiversity conservation, human health and safety, as well as socio-economic considerations, including financial and trade issues. While these issues are divisive and broad-based in themselves, the surrounding debates during the development of the CPB bear

[415] *Shrimp-Turtle Case* (n 6), para 121.

testimony to how the plethora of regulatory complexities weighed against the desire to balance social, economic and environmental imperatives. Even though the international community can applaud themselves for producing an instrument on biosafety, to date the CPB poses considerable challenges for sustainable biosafety, especially when considered in the framework of the WTO obligations. Moreover, some of the provisions of the CPB create normative uncertainties, mainly due to their ambiguity, which results in interpretative flexibility creating further uncertainties. Perhaps this was the only way that the heavily contested CPB could come into being.

Even where such flexibility could provide sufficient discretion to accommodate country-specific biosafety concerns, the complexity of this regulatory subject area and the open-ended and broad decision-making parameters in heterogeneous modern societies compounded by often conflicting trade and biosafety international obligations, complicates sustainable biosafety. Moreover, biosafety must take into account significant issues of scientific uncertainty, the existence of substantial unproven risks and the problematic imbalance of knowledge in the midst of private and public tensions, as well as diametrically opposing interests between its proponents and opponents.

While all these factors contribute to the regulatory difficulties of sustainable biosafety, this chapter demonstrated that some of the provisions of the CPB, mainly concerning the precautionary principle, when considered in line with WTO law, specifically the SPS Agreement, give rise to inevitable normative conflicts. While it is true that conflicting norms can occur in any area of law and that this is not a new phenomenon, the only difference here is the imperative of sustainable biosafety, which is important for the development context of Namibia as outlined in Chapter One. Moreover, the following chapter will demonstrate, mainly through the *EC-Biotech Case* that in the case of international law, the adjudication of conflicting biosafety and trade norms has not been handled in a manner that promotes sustainable biosafety. This is mainly due to the limits of the traditional tools of conflict resolution as well as the legal and regulatory complexities of sustainable biosafety.

In addition, the trade and biosafety regimes have diametrically opposing regulatory approaches to biosafety – namely, the approach underpinned by the precautionary principle in the case of the CPB and the preventative approach of the WTO. This is the main basis of normative conflicts in biosafety and trade. For instance, the preventative approach regards LMOs and their conventional counterparts as being substantial equivalents and thus separate regulations for LMOs could be seen as discriminatory and contrary to the WTO's norms. Underpinning this approach is the belief in scientific objectivity and conclusiveness, which is not the case for the approach underpinned by the precautionary principle. This instead embraces scientific risk assessment as a decision-making tool, at least until scientific certainty prevails and advocates for precaution, when in fact science is deficient.

The following chapter demonstrates that biosafety and trade conflicts are difficult to resolve in the pursuit of sustainable biosafety because of the limits of traditional conflict resolution measures in international law. The principle of mutual supportiveness in terms of the pursuit of sustainable biosafety is one of the underused options that could promote coherence and co-existence in the biosafety and trade legal norms of international law, while pursuing sustainable biosafety.

CHAPTER 5: THE ROLE OF MUTUAL SUPPORTIVENESS IN PURSUIT OF SUSTAINABLE BIOSAFETY

5.1 Introduction

Thus far, this thesis has established that biosafety and trade laws are rather fragmented, taking form as separate norms of specialised and self-contained sub-systems of international law. By default, they impose overlapping and conflicting obligations on Member States. It is also true that resolving these conflicts proves to be challenging in international law and there is an *a priori* claim, in the absence of court decisions as also demonstrated in the next chapter, that it will be the same in Namibia, once its biosafety law is fully enforced. This Chapter mainly highlights that appeasement via parallel coexistence of the biosafety and trade norms which are functionally and relationally intertwined, does not necessarily lead to sustainable biosafety. More so, when the application of norms from one regime infringe upon or violate those in another and, by so doing, undermine sustainable biosafety. In light of this, this chapter aims firstly to demonstrate how the traditional techniques of conflict resolution in international law are not effective in promoting sustainable biosafety. Secondly, the chapter demonstrates how the structural set-up of international law, pertaining to biosafety/environment and trade specialised sub-systems, reinforces the problem of conflicting norms. Thirdly, the chapter introduces the principle of mutual supportiveness, as a best possible solution, by elaborating on what it is, as well as its mechanisms for resolving conflicts in a manner that is better than the existing conflict resolution techniques. It then expounds on the legality of the principle with a specific focus on CPB and WTO, before demonstrating the application of the principle through the lens of the *EC-Biotech Case*. It ends with an exposition of how, in this case, the principle of mutual supportiveness could be applied to transcend biosafety and trade conflicts in a manner that supports sustainable biosafety.

5.2 The Limits of Traditional Conflict Resolution Techniques in Public International Law

The Vienna Convention on the Law of Treaties constitutes the foundation for legal security in international law, by providing the basis for the validity of treaties. Therefore, while treaties themselves lead to diplomatic co-operation of States and other international actors, international law of treaties, enshrined mainly in the Vienna Convention on the Law of Treaties, constitutes the backbone of the international law. Arguably, there would be no international law without for instance, the principle of *pacta sunt servanda* ("conventions must be respected"). While this remains the case, when it comes to providing sustainable biosafety solutions in cases of conflicting trade and biosafety norms, the conflict resolutions tools and techniques of international law, including those enshrined in the VCLT, are not straightforward.[416]

The key shortcomings of the conflict resolution tools and techniques of international law, for sustainable biosafety, are that they first and foremost establish priority as the primary means of conflict resolution. These are secondary norms, which establishes priority. They range from determining the intention of parties through negotiations or through the application of presumption against conflict or by means of conflict clauses in specific treaties.[417] For instance, while they are important rules of international law, as outlined above, the major drawback of presumption against conflict techniques for ensuring sustainable biosafety in cases of conflicting trade and biosafety obligations is that they lead to parallel appeasement. This amounts to merely avoiding conflicts without any substantive considerations, as would be required by the objectives of sustainable biosafety, described in Chapter Two. In addition, often the rules of the VCLT such as *lex posterior derogat (legi) priori* and *lex specialis derogat legi generali* are relied upon.

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[416] See, for instance, Laurence Boisson de Chazournes and Makane Mbengue (n 10); see also, Jan Mus (n 30). Tomer Broude and Yuval Shany, *Multi-Sourced Equivalent Norms in International Law* (Hart Publishing 2011).
[417] Laurence Boisson de Chazournes and Makane Mbengue (n 10) 22.

Article 30 (2) of the VCLT rules that successive treaties relating to the same subject matter are applied in a way that the newer instrument takes precedence over the older one.[418] One of its limitations, as mentioned above, is that it merely prescribes priority, which is not the most appropriate way of conflict resolution for sustainable biosafety. In addition, applying the *lex posterior* rule in cases of multilateral treaties, which were ratified at different times, is challenging in terms of establishing the appropriate sequence.[419] Indeed, in cases of retroactive treaties, Article 30 (2) is compromised by the difficulty of determining the date of entry into force as agreed by parties if it is earlier than the adopted text.[420] All the same, to the detriment of the rule-of-law in international law, these rules are often ignored, as also affirmed by Czaplinski and Danilenko, who state in relation to the rules of sequencing:

'… modern international law rejects the rule of primacy of the earlier treaty in the case of conflict; it does not approach the problem from the point of view of the validity of treaties.'[421]

Similarly, judicial practices also take recourse to *lex specialis derogat legi generali* as well as the principle of good faith and the principle of *pacta sunt servanda.*[422] Again, they are only useful in determining priority and are not straightforward to rely on in each case. [423] For instance, the *lex specialis derogat legi generali*, which asserts that the law governing a specific subject matter overrides the law that governs only general matters, is not useful in cases when two norms from self-contained specialist sub-systems apply in a particular case, thus making

[418] Vienna Convention on the Law of Treaties (adopted 22 May 1969, entered into force 27 January 1980) 115 UNTS 331.
[419] Jan Mus (n 30); W Czaplinski and G Danilenko, 'Conflicts of Norms in International Law' (1990) 21 NYIL 3.
[420] ibid.
[421] W Czaplinski and G Danilenko, 'Conflicts of Norms in International Law' (1990) 21 NYIL 3.
[422] UN General Assembly, 'Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law: Report of the Study Group of the International Law Commission Finalized by Martti Koskenniemi" (13 April 2006) UN Doc. A/CN.4/L.682, Murphy argued that Koskenniemi's writings signalled an appreciation for creativity and flexibility, and that fragmentation and proliferation of special types of law is creativity in response to special needs.
[423] Jan Mus (n 30).

it difficult to determine which norm should prevail.[424] Even if it manages to proscribe priority, it does not provide any guidance for substantive outcomes as required in the pursuit of sustainable biosafety.

Furthermore, one limit of the rules of conflict resolution, as also stated by Kuijper, is that they 'are only useful in and as prescribed by law when the two norms are not in an unambiguous conflict.'[425] In such cases, presumption against conflict becomes useful, which means that in addition to rules such as Article 31(1) (3) VCLT, the interpretation of unclear treaty provisions should be guided by their ordinary meaning, as well as their context and objectives. [426] However, they narrowly aim to avoid conflicts by reconciling, or at least minimising, perceived conflict.[427] Such a simplistic approach disregards real or persisting conflicts, especially when the specialised sub-systems of international law do not exist in unison and operate in a highly fragmented manner. This state of affairs amplifies conflicts, rather than diminishing them.[428] Therefore, it is evident that presumptions against conflicts cannot reconcile real conflicts, but only eliminate potential ones. Jenks also confirms the limitations of presumption against conflicts in the case of real conflicts when he stated: '… presumption against conflict will not suffice to reconcile clearly irreconcilable provisions ... [it] may eliminate certain potential conflicts but it cannot eliminate the problem of conflict.'[429]

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[424] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[425] Pieter Jan Kuijper, 'Conflicting Rules and Clashing Courts: The Case of Multilateral Environmental Agreements, Free Trade Agreement and the WTO' (*University of Amsterdam*, 2010) <http://dare.uva.nl/document/351903> accessed 2 May 2014.
[426] ibid.
[427] ibid.
[428] See Sean D Murphy, 'Deconstructing Fragmentation: Koskenniemi's 2006 ILC Project' (2013) 27 Temp Int'l & Comp L J 293; 'Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law: Report of the Study Group of the International Law Commission Finalized by Martti Koskenniemi" (n 415); see also Pierre-Marie Dupuy, 'The Danger of Fragmentation or Unification of the International Legal System and the International Court of Justice' (1999) 31 International Law and Politics 791; and Gerald Hafner, 'Pros and Cons Ensuing from Fragmentation of International Law' (2004) 25 Mich J Int'l L 849.
[429] Wilfred Jenks, 'Conflict of Law-making Treaties' (1953) 30 BYBIL 401.

Apparent, or *prima facie,* conflicts are those that can be resolved by whatever means, such as derogation or negotiation, and are also known as figurative conflicts and are based on assumptions.[430] On the other hand, real conflicts occur when there is no derogation to resolve such a conflict.[431] Before considering the principle of mutual supportiveness as the possible solution, it is important here to expand on how the structural set-up of international law reinforces conflicting biosafety and trade norms.

5.3 Structural Set-Up of International Law and how it Reinforces the Problem of Conflicting Norms

Since the end of the Second World War, international law has expanded through the formation of specialised institutions. Consequently, as the inter-State cooperation needs of the modern pluralistic society have grown, more and more highly specialised regimes have emerged. For instance, after 1972, more than 500 MEAs were established and are now enforced, albeit with weak compliance and enforcement mechanisms.[432] Similarly, there are many areas of environmental concern and these are regulated by numerous legal instruments under the auspices of a variety of fragmented international organisations.[433] Even though the United Nations Environment Programme (UNEP) is the main United Nations (UN) organ dealing with environmental policies and issues, there are also several overlapping efforts on environmental issues within the UN itself.[434]

Besides this, the absence of a single unifying environmental body with a similar standing to the WTO is detrimental to the proper integration of environmental norms.[435] Due to this, there have been calls to establish a

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[430] Joost Pauwelyn (n 32).
[431] ibid.
[432] Nils Goeteyn and Frank Maes, 'Compliance Mechanisms in Multilateral Environmental Agreements: An Effective Way to Improve Compliance?' (2011) 10 Chinese JIL 791.
[433] Patricia Birnie and Alan Boyle (n 129) 41.
[434] ibid.
[435] Voight C (ed), *Rule of Law for Nature: New Dimensions and Ideas in Environmental Law* (Cambridge University Press 2013).

central unifying environmental body with the same standing as the WTO. However, due to the nature of environmental disputes, such a call generates more questions than solutions. For instance, environmental instruments have multiple objectives and their broad and encompassing nature widely overlaps with that of others and raises more jurisdictional problems.[436] Similarly, international law consists of highly specialised and multi-levelled sub-systems, such as environmental, trade and human rights regimes, and self-contained systems that are autonomous from general international law, such as the EU.[437] This proliferation of institutions implies a similar explosion of judicial bodies in the same legal system, each functioning on its own normative basis with a distinct uniqueness based on different goals, ideologies and logic. [438] This results in 'regime shopping' whereby the aggrieved party can consider where to launch a complaint based on where its stands the best chance of winning, considering the significant jurisdictional overlaps which blur a subject-specific court's jurisdiction. Arguably, this was the case in the *EC-Biotech Case*, where the complainants considered that their chances of getting a favorable ruling were higher in the WTO than the CPB, although the latter was both *lex posterior* and *lex specialis derogat legi generali.*

Additional weaknesses of the horizontally fragmented international law is that it blurs judicial hierarchy. In the national legal system, one can resort to the clearly defined judicial hierarchy when one is aggrieved by the decision of a lower court. While such hierarchy might exist in the self-contained sub-systems, there is no overall hierarchy of courts, or an overall neutral court, which one can appeal to if one is aggrieved by the outcomes of

[436] Alan Boyle, *'Judicial Settlement of International Environmental Disputes: Current Problems' (2013)* 4 JIDS 245.
[437] Anja Lindroos, 'Addressing Norm Conflicts in a Fragmented Legal System: The Doctrine of *Lex Specialis*' (2005) 74 Act Scand Juris Gent 27.
[438] ibid.

the courts of the specialised sub-systems. Rather each sub-system has its own dispute settlement mechanism or court and some, specifically the WTO, are powerful and have coercive influence, as discussed below.

What is also detrimental to international environmental law is the fact that this regime consists mainly of non-binding soft law instruments,[439] while some are not even compulsory.[440] This state of affairs reduces the strength of the environmental regime in that it cannot engage on an equal footing with the WTO, which has the well-established and mandatory court. Arguably, this situation is also furthered by its own institutional rules for instance under the DSB rules which, in Articles 3 (2) and 19 (2), prohibit '…add[ing] to or diminish[ing] the rights and obligations of Members under the WTO agreements[441].' Thus, not only has the WTO ensured the DSB operates in its favour, but it specifically promotes the rights of its members, limiting the room for creating both functional and rational linkages aimed at ensuring mutual supportiveness. By implication, this state of affairs is to the detriment of sustainable biosafety. This also affirms the WTO's efficacy-based claims to validate its legitimacy are unfounded and highlights the deficiencies of its underlying sovereignty,[442] as also concluded by Vidigal:

> 'The imbalance between the WTO's strong system of adjudication and the burdensome procedures for multilateral law-making has led to the belief that the WTO would face a choice between

[439] Patricia Birnie and Alan Boyle (n 129) 751.
[440] Antonio Cardesa-Salzmann 'Constitutionalising Secondary Rules in Global Environmental Regimes: Non-Compliance Procedures and the Enforcement of Multilateral Environmental Agreements' (2012) 24 JEL 103; Nils Goeteyn and Frank Maes, 'Compliance Mechanisms in Multilateral Environmental Agreements: An Effective Way to Improve Compliance?' (2011) 10 Chinese JIL 791.
[441] WTO, Understanding on Rules and Procedures Governing the Settlement of Disputes available on https://www.wto.org/english/tratop_e/dispu_e/dsu_e.htm assessed on 01 April 2019
[442] Richard Higgott (n 24); Daniel Esty, 'The World Trade Organization's Legitimacy Crisis' (2002) 1 World T R 7; David Henderson (n 24).

paralysis and a return to the 'club model' in which like-minded members would agree to rules applicable *inter se.*' [443]

Nevertheless, this proposition is highly resisted by the close and secretive WTO who are obsessed with trade liberation, which in pursuit of their trade-oriented objectives, has adopted a 'clubbish' style led by dedicated economists and diplomats.[444] This remains a concern also because the trading system, by its design, rests exclusively on principles geared towards trade promotion and environmental measures, such as biosafety bans, which are potentially trade restrictive. While such measures could be justified under the CPB, the principle of mutual supportiveness could require that they be considered in relation to WTO objectives and perhaps that there should be remedial measures, such as risk management plans or time-bound bans, rather the straight bans, as will be discussed shortly. In the circumstances, the best possible option is recourse to pursue sustainable biosafety through mutual supportiveness and this is the focus of the remaining sections of this chapter.

5.4 The Principle of Mutual Supportiveness

The principle of mutual supportiveness asserts that the different sub-systems of international law and their norms are not exclusive alternatives but are integral parts of each other and should be jointly understood, specifically as they relate to sustainable development and by implication sustainable biosafety. One of the versions that clearly denotes the conception of the principle is the statement by the tribunal in the *Arbitration Regarding the Iron Rhine (Ijzeren Rijn) Railway Case,* which stated that the various regimes and their norms:

[443] Geraldo Vidigal (n 189).
[444] ibid.

'… stand not as alternatives but as mutually reinforcing, integral concepts, which require that where development may cause significant harm to the environment there is a duty to prevent, or at least mitigate such harm.'[445]

Therefore, the principle is based on the foundation of normative cohesion or the interconnection between the norms of the specialised regimes of international law. It evolved in the arena of environment-WTO conflicts, but could find utility in the broader international law as well as national law, specifically in sustainable biosafety. The emphasis of the principle is uniquely on cohesion and so similar to sustainable biosafety it requires holistic integration of the disparate economic and environmental norms. In this respect, it is an 'interpretative principle or technique focussing on a common objective while addressing similar concerns to those underlying notions such as systemic integration, and presumption against conflicts.'[446] From this perspective, it is not a freestanding principle but own that advance the objectives of the principle of sustainable development.

The principle of mutual supportiveness is often used interchangeably with the principle of harmonisation, but they have different orientations and do not mean the same thing. The WTO defines harmonisation as efforts undertaken when, 'WTO members base their regulations, standards or conformity assessment procedures on the relevant international standards, guides or recommendations, or when they recognize each other's measures as equivalent'.[447] Article 3.1 of the SPS on harmonisation aims to create synergies between conflicting trade rules, including the non-WTO ones as cited above. It states that:

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[445] Permanent Court of Arbitration, Arbitration regarding the Iron Rhine ('Ijzeren Rijn') Railway Between the Kingdom of Belgium and the Kingdom of the Netherlands, Award of the Arbitral Tribunal, Decision of 24 May 2005, Volume XXVII, pp. 35-125, para. 59.
[446] Riccardo Pavoni, 'Mutual Supportiveness as a Principle of Interpretation and Law-Making: A Watershed for the "WTO-and Competing-Regimes" Debate?' (2010) 21 EJIL 649.
[447] WTO, 'Detailed Presentation of the Harmonization Principle in the TBT Agreement' <https://ecampus.wto.org/admin/files/Course_385/Module_1600/ModuleDocuments/TBT_Harm-L2-R1-E.pdf>.

'To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist, except as otherwise provided for in this Agreement, and in particular in paragraph 3.'[448]

In this sense, harmonisation merely alludes to ensuring compatibility, which presupposes that each regime works in unison from the other, without considering divergent norms and/or objectives. By implication, harmonisation is intrinsically linked to a presumption against conflict[449] and its aim is to avoid or mitigate conflict by resolving apparent or *prima facie* conflicts, but not real ones.[450] This is based on false compatibility and thus subjective appreciation and is often limited to the will of the disputing States.[451] This kind of compatibility does not aid conflict resolution in the manner needed to advance sustainable biosafety, because it avoids conflict without any consideration for the outcome. It presupposes that each regime works in unison with each other presuming that there is a unity between trade and environmental norms in as much as their rules are not necessarily dismissive of each other.[452] This observation is also supported by de Chazournes and Mbengue who stated that conflicts between the WTO and MEAs are a myth, as both regimes create linkages to avoid conflicts that could be contrary to their interests. [453] As hinted at above, sustainable biosafety and the surrounding trade and biosafety conflicts, disprove this view, because merely creating linkages through conflict clauses, similar to the ones discussed in Chapter Four, are not useful in this instance. Moreover, the interaction between the CPB and WTO is more complex, as demonstrated throughout this thesis.

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[448] World Trade Organization, Agreement on the Application of Sanitary and Phytosanitary Measures (1867 SPS Agreement)
[449] Wilfred Jenks, 'The Conflict of Law-Making Treaties' (1953) 30 British Ybk Intl L 401.
[450] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[451] 'Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law: Report of the Study Group of the International Law Commission Finalized by Martti Koskenniemi" (n 415).
[452] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[453] ibid.

As the analysis in Chapter Four indicated, coherence in the pursuit of sustainable biosafety is about more than just creating linkages. Moreover, at a normative level, the CPB and the WTO are not isolated functionally and relationally in as much as they are geared towards pursuing the same substantive objective, in this case sustainable biosafety. Again this unity is compromised by the differential meanings and orientations assigned to the unifying objectives and principles. This greatly weakens both the functional and relational relationships of the two regimes, as demonstrated above. It is therefore the orientation towards the pursuit of common objectives that, in these instances, can promote mutual supportiveness, contrary to the principle of harmonisation. Therefore, this false compatibility is a slippery slope for sustainable biosafety.

Mutual supportiveness has interpretive as well as pragmatic law-making importance, which is useful when all the attempts to reconcile conflicts have proven futile.[454] Unlike harmonisation, it objectively pursues coherence based on some common unifying objective, irrespective of State will.[455] It does this by creating a point of orientation, in this case sustainable biosafety, and then locates alterations and deviations in opposing laws and, by so doing, unifies them through the co-operative interpretation of the conflicting laws.[456] This is the functional utility of the principle, which implies that trade and environmental regimes are actually pursuing the same objective. This functional utility of mutual supportiveness accounts for the non-intrusive nature of this principle,[457] because each regime still maintains its independence while being unified by the same objective. This does not imply that the two regimes cannot deal with or include each other's principles and rules,[458] but that, in pursuit of supportiveness, such regimes must consider each other's concerns and interests.[459] For instance, a trade

[454] Jan Mus (n 30) 208.
[455] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[456] ibid.
[457] Emily Barrett Lydgate (n 237).
[458] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[459] ibid.

dispute in biotechnology can be handled by the WTO; however, it must not 'avoid, or … interpret away, a conflict of norms; on the basis of its wording alone but should rather promote the functioning of either of the two treaties involved.'[460] This imperative implies primarily *ex-ante* coordination where, for instance, conflict clauses are an important starting point. If this fails to avoid the conflict in a manner that promotes the common objective, *ex post* synchronisation through the range of norms orientated around the common objective[461] should ensue, followed by a collective interpretation of all other applicable norms. This envisages the need to solidify coherence and build on the consistency existing between different regimes through functional links, which pursue common objectives, such as sustainable biosafety. In this respect, the principle of mutual supportiveness amplifies the use and understanding of rules in a manner that diminishes conflicts by transcending the reason of conflict.

5.5 Legal Status of the Principle of Mutual Supportiveness in International Law

Although the principle of mutual supportiveness is currently under-utilised, it is gaining prominence as a means of resolving conflicts of norms between highly specialised systems, such as biosafety and trade. However, similar to general principles of law, its legal status can only be ascertained in as much as it is integrated in a binding legal instrument. Article 38 paragraph 1(c) of the ICJ Statute refers to the 'general principles of law recognized by civilised nations' as one of the sources of international law. This Article does not give a straightforward legal status to principles, mainly because though principles are formulated as propositions with legal scope, their vague and imprecise nature limit the imposition of specific obligations.[462] Due to this, principles such as mutual supportiveness, even though they fulfil important functions, run the risk of being neglected. This was also said by Czaplinski and Danilenko who stated that principles in international law '… do not have a proper and precisely defined place within the system of the sources of international law.'[463] Therefore, this section will explore the

[460] Pieter Jan Kuijper (n 425).
[461] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[462] Virginie Barral (n 181).
[463] W Czaplinski and G Danilenko, 'Conflict of Norms in International Law' (1990) 21 NYIL 3.

legality of the principle of mutual supportiveness through the exploration of its incorporation in treaty law and recognition from courts and tribunals, specifically focussing on the WTO and the CPB. Even so, it is important to mention here that the fact that a general principle have legal standing does not automatically imply it has legal consequences especially in the absence of indicative court recognition. This assessment of the principle of mutual supportiveness will consider all these aspects.

Mutual supportiveness is gaining prominence through incorporation in more and more treaties as treaty law in both the WTO and environmental legal jurisdictions, including the CPB as well as normative environmental law instruments such as Agenda 21.

Agenda 21 calls on the international community to make available 'a supportive international climate for achieving environment and development goals by making trade and environment mutually supportive.'[464] Similarly, the 2002 World Summit on Sustainable Development, Johannesburg Plan of Implementation,[465] made a call for States to promote mutual supportiveness between trade and environmental law regimes and the subsequent 2005 World Summit made similar demands.[466] Therefore, States are obligated to promote domestic and international policies that make economic growth and environmental protection mutually supportive propositions.

[464] United Nations, 'Agenda 21' (Conference on Environment and Development, Rio De Janerio, Brazil 3-14 June 1992).
[465] United Nations, 'Report of the World Summit' (n 161), see para. 98, para. 44 (r) and para. 97.
[466] United Nations General Assembly Resolution 60/1, '2005 World Summit Outcome' (24 October 2005), UN Doc. A/RES/60/1.

While these are non-binding instruments, they denote the normative importance of this principle in international environmental law. Nevertheless, the principle of mutual supportiveness is also enshrined in various legally binding treaties such as: the 2001 Stockholm Convention on Persistent Organic Pollutants, the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture and, most importantly, the 2000 CPB, which deals specifically with biosafety. In its Preamble, the CPB states:

> 'Recognizing that trade and environmental agreements should be mutually supportive with a view to achieving sustainable development,
>
> emphasizing that this Protocol shall not be interpreted as implying a change in the rights and obligations of a Party under any existing international agreements,
>
> understanding that the above recital is not intended to subordinate this Protocol to other international agreements …'

Similarly, the 1998 Rotterdam Convention on the Prior Informed Consent for Hazardous Chemicals and Pesticides in International Trade, the 2001 Stockholm Convention on Persistent Organic Pollutants and the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture all enshrined the principle of mutual supportiveness in one form or another. For instance, the 1998 Rotterdam Convention on the Prior Informed Consent for Hazardous Chemicals and Pesticides in International Trade states in its preamble:

> 'Recognizing that trade and environment policies should be mutually supportive with a view to achieving sustainable development,
>
> Emphasizing that nothing in this Convention shall be interpreted as implying in any way a change in the rights and obligations of a Party under any existing international agreement applying to chemicals in international trade or to environmental protection, understanding that the above recital

is not intended to create a hierarchy between this Convention and other international agreements …'[467]

What is worth noting here is that these cited formulations betray the negotiators' concerns about the subordination of environmental agreements to other international agreements – by implication WTO trade agreements. Nevertheless, the principle of mutual supportiveness is gaining significance through treaty integration, but much of its effectiveness depends on the specific wording of the legal instruments and this is where its interpretation by courts and tribunals will play an important role by adding further meaning in terms of setting precedents. While the two provisions mentioned above are important, this principle can only be powerful in as much as it has some legal standing and court recognition in the WTO.

In 1994, the WTO Committee on Trade and Environment (CTE) reaffirmed their commitment to undertake operations in a manner that ensured the mutual supportiveness of international trade and environmental policies. Additionally, the WTO Doha Ministerial Declarations, which mandated the WTO members' negotiations on a range of subjects and other work, included implementation issues of the current WTO agreements, states that:

'With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The

[467] Rotterdam Convention on the Prior Informed Consent for Hazardous Chemicals and Pesticides in International Trade (adopted 10 September 1998 entered into force 24 February 2004) 2244 UNTS 337.

negotiations shall be limited in scope to the applicability of such existing WTO rules as among Parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a Party to the MEA in question …'[468]

This growing acknowledgement by the WTO of the importance of the mutual supportiveness of environmental and trade objectives, is also reflected in the Appellate Body's 1998 decision on the *Shrimp-Turtle Case*,[469] demonstrated by the primary relevance that the Doha instruments assign to its principles,[470] and further elaborated on in Chapter Three.

In addition, in its proposals to establish a Working Group on Biotechnology in the WTO, Canada called for revisions of WTO rules to improve mutual supportiveness between biosafety and trade rules, by stating that:

'While many regard, the current provisions of the WTO to be sufficient and effective in dealing with all products, including those of biotechnology, some hold the view that biotechnology is unique to require further clarification and/or elaboration of existing provisions in order that they may apply effectively and in a predictable, transparent manner.'[471]

Thus, there are calls to update and realign the WTO's remit of operations in order to consider modern day normative conflicts by also integrating the underlying logic of the other important goals and values, rather than

[468] WTO, *Doha Ministerial Declaration* (14 November 2001) WT/MIN (01)/DEC/1, Para. 31.
[469] This case, expounded in Chapter 3, exemplified how the WTO Appellate Body decided between opposing imperatives of free trade and environmental protection measures to address the associated killing of sea turtles in shrimp fishing. See *Shrimp-Turtle Case* (n 6).
[470] *Doha Ministerial Declaration* (n 459), Para. 31.
[471] WTO, *Canada Proposals for a Working Party on Biotechnology in the WTO* (12 October 1999) WT/GC/W/359.

narrowly focusing on economic and trade promotion.[472] What is worth noting is that the precise legal status of the principle of mutual supportiveness in the WTO jurisprudence is debatable. This is because the principle's connotations with non-trade objectives cannot be put on an equal footing with the WTO's norms or other binding secondary legislation, such as waiver decisions under Article IX (3) of the WTO Agreement.[473] Therefore, as argued by Pavoni: 'in the absence of any clear indication to this effect, emerging from WTO practice, none of them are formally binding upon WTO dispute settlement bodies'.[474] Even though, arguably it is one of the WTO's internal standards by adoption at and posits a relevant context when interpreting WTO rules and norms.[475] However, there is currently no significant court recognition in the WTO of the principle even though two important WTO incidences reveal that this has significance, especially when considered in the context of the above-cited Doha Ministerial Declaration.

Firstly, the 1994 WTO Decision on Trade and Environment instructed that all trade and environmental activities should be pursued with the aim of making international trade and environmental policies mutually supportive.[476] This Decision also calls for 'positive interactions between trade and environmental measures and that policy contradiction should be avoided'. [477] Secondly, following on from this instruction, the 1996 CTE Report to the Singapore Ministerial Conference emphasised that trade and environment are both important '… and should be mutually supportive in order to promote sustainable development.'[478]

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[472] Daniel Esty (n 442).
[473] Nottage Hunter and Sebastian Thomas, 'Giving Legal Effect to the Results of the WTO Trade Negotiations: An Analysis of the Methods of Changing WTO Law' (2006) 9 J Intl Econ L 989; Riccardo Pavoni (n 446).
[474] Riccardo Pavoni (n 446).
[475] ibid.
[476] WTO, Multilateral Trade Negotiations, the Uruguay Round, Trade Negotiations Committee, Decision of 14 April 1994, MTN/TNC/45(MIN).
[477] ibid.
[478] WTO, *Report (1996) of the Committee on Trade and Environment* (12 November 1996) WT/CTE/1, para.167.

Therefore, the principle of mutual supportiveness has applicability, both in environmental law and the WTO, albeit with insignificant court recognition, which further limits its legal standing. Thus, courts cannot adjudicate against it, but can use it as an interpretive tool to fill the gaps, as described above. As is demonstrated in Chapter Six, although the principle is also gaining progressive legality in national legal systems,[479] at least through the imposition of international treaty law obligations, such legal standing is limited to the will of courts. Because in the absence of clear and unambiguous enshrinement of the principle, it does not confer legal consequences, except to be used as an interpretive tool, subject to the will of courts.

5.6 Is There Room for Mutual Support in Biosafety and Trade Conflicts? Lessons from the *EC-Biotech Case*

The following section considers the *EC-Biotech Case* with the view to examining how mutual supportiveness through *ex post* synchronisation could be useful in promoting sustainable biosafety. While doing so, it will focus on how courts could promote sustainable biosafety using the principle of mutual supportiveness.

The *EC-Biotech Case* arose when the US, Canada and Argentina brought the EU to the WTO's DSB about the legality of a *de facto* moratorium on the approval of certain GMOs in the EU.[480] They claimed that there was an 'undue delay' in approving biotech products for commercial use and also disputed the legality of the requirement for a science-based risk assessment as the basis for a trade-related SPS 'measure', as well as the application of provisional SPS measures when there was insufficient scientific information on which to base a

[479] Laurence Boisson de Chazournes and Makane Mbengue (n 10).
[480] WTO, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products: Request for the Establishment of a Panel by the United States (EC-Biotech Case)* (8 August 2003) WT/DS291/23.

risk assessment.[481] The complainants also disputed the various EU safeguard measures related to specific GMO products, such as maize, and domestic measures prohibiting the import and/or the marketing of specific GMOs in some EU member countries.[482] The EU member countries in question were Austria, France, Germany, Greece, Italy and Luxembourg.[483] The complainants claimed that these measures were inconsistent with Article 8 and Annex C (1) (a) of the SPS Agreement as they were not based on a risk assessment. They further claimed there was sufficient scientific evidence to carry out such a risk assessment as per Article 5.1 of the SPS Agreement. The panel ruled that the general *de facto* moratorium and product-specific measures affecting product approval were inconsistent with Article 8 and Annex C of the SPS Agreement as they amounted to a failure to complete specific approval procedures without undue delay. [484] Contrary to the claims of the complainants, the panel concluded that the general moratorium is not a substantive SPS measure subject to the science assessment provisions of the SPS Agreement. [485] Rather, they considered the EU bans as measures, which collectively amounted to procedural decisions aimed at avoiding making final decisions and thus they argued that the measures violated only the SPS' procedural requirements on the grounds of 'undue delay' in approval. [486] The panel undermined the application of scientific risk assessments when it ruled that the general moratorium was not a substantive SPS measure subject to the science assessment provisions of the SPS Agreement. [487] Additionally, the fact that the panel ruled that the risks underlying the bans being addressed by the pre-market approvals system for GM products mirrored SPS purposes, as they aimed to protect humans, animals and plants from pests,[488] effectively undermined important environmental aspects of the case and thus sustainable biosafety.

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[481] WTO, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products: Final Panel Report (EC-Biotech Case)* (29 September 2006) WT/DS291/R, WT/DS292/R, WT/DS293/R.
[482] ibid.
[483] ibid.
[484] ibid.
[485] ibid.
[486] ibid.
[487] ibid.
[488] ibid.

This ruling of the panel demonstrates clear and discrete legal issues that have implications for the application of the principle of mutual supportiveness and so sustainable biosafety. Below is an analysis of how the panel erred in its reasonings and how the case could benefit from the application of the principle of mutual supportiveness.

At the core of this dispute is the relationship between WTO agreements and the CPB, which are two specialised sub-systems of the same international legal system. As established above, both the CPB and WTO were under obligation at least via the principle of mutual supportiveness to consider each other's norms in a complementary and coherent manner. Thus, the WTO could have considered the non-WTO's law, namely the CPB, which in this case was both *lex posterior* and *lex specialis derogat legi generali,* as applicable law or at least as interpretive law. Nevertheless, as discussed above, these conflict resolution techniques, similar to the relevant principles such as mutual supportiveness, were simply ignored or interpreted away.

The panel considered Article 31(3) (c) [489] of the VCLT and ruled that it could take into account non-WTO instruments, but only those to which all disputing parties have consented.[490] It argued that the parties referred to in Article 31(3) (c) are those States, 'which have consented to be bound by the treaty and for which the treaty is enforced' as per Article 2(1) (g) of the VCLT.[491] To date, none of the disputing States is party to the CPB, while

[489] Vienna Convention on the Law of Treaties (entered into force 27 January 1980 – currently has 108 parties) (n 411).
[490] Robert Howse, 'European Communities – Measures Affecting the Approval and Marketing of Biotech Products' (2009) 8 World T R 49; Margaret Young, 'Case Comment: The WTO's Use of Relevant Rules of International Law: An Analysis of the Biotech Case' (2007) 56 ICLQ 907.
[491] Lorenz Franken and Jan-Erik Burchardi, 'Assessing the WTO Panel Report in the EC-Biotech' (2007) 4 JEEPL 47.

Argentina and Canada have ratified the CBD and the US has signed the Convention.[492] Thus, the CPB was not utilised as an applicable or interpretive law on the basis that none of the complaining parties had acceded to it even though some of them had to the CBD. The panel further substantiated this dismissal on the basis that the CBD does not have the same coverage of members as the WTO's Agreements.[493] What is worth mentioning here is that these are not documented international law rules and the panel was obligated to consider non-WTO subject-specific rules of international law by virtue of its own internal legal standard of mutual supportiveness, as concluded above. According to Article 31(1) of the VCLT, the CPB could serve as an informative source, notwithstanding the fact that the CPB itself compromised the reliance on this provision through its saving clauses, as discussed in Chapter Four.

The EU on its part attempted to argue for the environmental basis of the case and so to pursue mutual support between the WTO and the CPB, even though they did not put claim on the principle of mutual supportiveness. In this respect, they contended that the precautionary principle could be used as an interpretive tool and a general principle of law based on the CPB.[494] They added that the principle's inclusion in the preamble of the CPB as a conflict resolution tool and its incorporation in the CBD, gave enough basis to promote reliance on this principle.[495] This could have enhanced complementarity in the interpretation of the applicable WTO and CPB rules, as the WTO's applicable law should have been considered in the broader context of other international law instruments, especially as the CPB specifically deals with the issues that were at hand. Therefore, not only did the WTO undermine its own internal standard, that of mutual supportiveness, but it also undermined SPS Agreement Article 3(1), as cited above. Moreover, the EC's act of exercising their discretion under Article 3(3),

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[492] CBD, Parties to the Protocol and Signature and Ratification of the Supplementary Protocol <http://bch.cbd.int/protocol/parties/> and List of Parties <http://www.cbd.int/information/parties.html> accessed 14 January 2014.
[493] *EC-Biotech Case: Final Panel Report* (n 481).
[494] ibid.
[495] ibid.

which allows members to adopt higher standards of 'sanitary or phytosanitary protection than would be achieved based on the relevant international standards, guidelines or recommendations if there is a scientific justification …', should have been allowed. Therefore, higher standards, such as bans, should be based on relevant international standards and guidelines and scientifically justifiable evidence, which was either ignored and/or interpreted away. In addition, the SPS Agreement in Article 3 specifies three WTO compatible and recognised standards, guidelines and recommendations established by the Codex Alimentarius Commission for food safety, the Office International des Epizooties for animal health measures and the Secretariat of the International Plant Protection Convention for plant health measures. Therefore, technical norms of the CPB did not withstand the WTO compatibility test that could allow it to serve at least as one of the WTO compatible and recognised standards.[496]

Had the panel considered the CPB in conjunction with the applicable WTO law, they might have given orientation to the poorly defined notions of the precautionary principle and the risk assessment of the SPS Agreement. For instance, the science-based standards of risk assessment in Annex A (5) of the CPB could orient the application of the SPS rules, at least as far as they could allow the application of the precautionary principle in the midst of scientific uncertainty.[497] Notably, the greatest value the CPB could have added, if considered as applicable law, was its elaborate guidelines on scientific risk assessment and the application of the precautionary principle when science is uncertain and/or inconclusive.

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[496] Duncan Currie, 'Genetic Engineering and the WTO: An Analysis of the Interim Report in the EC-Biotech Case' (WTO) < https://www.wto.org/english/forums_e/ngo_e/posp66_greenpeace_engi_e.pdf> accessed on 17 September 2018.
[497] Economics' International, 'Trade, the Environment and the International Regulation of Biotechnology' (2006) 3 JTES 1.

What is equally troubling is that the panel dismissed the reliance on the precautionary principle, claiming that it has disputed legal status, as it is not a recognised principle of general or customary international law. They cited the outcomes of previous cases, such as the decision in the *1998 EC-Hormone Case*, in which the panel also declined to rule on whether this principle is a general or a customary principle of international law.[498] However, the fact that it is not spelt out in the WTO agreements did not prevent the panel from making bolder statements on the precautionary principle as this could have been done in terms of the application of the principle of mutual supportiveness to the interpretation of the precautionary principle. Nevertheless, based on its arguments, the panel adjudicated an environmental dispute entirely on trade law, relying mainly on the SPS, and thus reduced the broader environmental concerns to a mere animal and plant health issue[499] at the expense of the *lex posterior* and *lex specialis derogat legi generali.* This also aligns with the argument above that the traditional means of conflict resolution are not useful in modern day conflicts and, even where they are, they are simply not relied on.

Additionally, the WTO Panel altogether disregarded the utility of sustainable development, even though as discussed in Chapter Three, it is a legal notion in the WTO, notwithstanding its trade-oriented status. This was perhaps to be expected, considering the background of the WTO's engagement with sustainable development and its accompanying principles, such as the use of the precautionary principle.

On its part, the principle of mutual supportiveness could have imposed on the panel a requirement to interpret the case in an integral manner to reach a rational balance between all the competing interests underlying

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[498] See WTO, *'EC Measures Concerning Meat and Meat Products (Hormones): Appellate Body Report'* (13 February 1998) WT/DS26/AB/R.
[499] Christopher Bonneuil and Les Levidow, 'How Does the World Trade Organization Know? The Mobilization and Staging of Scientific Expertise in the GMO Trade Dispute' (2012) 42 SSS 75.

the dispute and so promote sustainable biosafety. How exactly the principle of mutual supportiveness could achieve this, is considered below. The panel's disregard of the principle in this case amounts to a disregarding of its own rules,[500] thereby, arguably, undermining the rule-of-law within the WTO. Besides, the panel's narrow reliance on the WTO's interpretative sources amounts to selective and arbitrary practices, contrary to even its own Article 3.2 of the DSU[501] thus undercutting its own rule-of-law in yet another way. In addition, its extensive interpretation of the objectives of the SPS Agreement only further undermines its own TBT and SPS Agreement in contravention of the customary international rules of treaty interpretation made binding by the panel under DSU Article 3.2.[502] It is therefore disputable whether the panel's interpretation of the relevant rules of international law to dismiss the CPB and the CBD was rightfully carried out,[503] while others question the narrow epistemological reliance of the panel on scientific knowledge, while disregarding concerns about scientific uncertainty.[504]

While it is not clear why the panel took this approach, commentators have presented varying views about this. Some questioned the extent to which the highly technical WTO Panel struggled to interpret vague and complex environmental norms since they drew very little from the substantive scientific risk issues, even though they heavily mobilised scientific input.[505] Perhaps the panel's reluctance aligns with Sands' argument that such panels often refrain from '… descend[ing] into detail if to do so is to adjudicate upon a dispute that has a broader

[500] Riccardo Pavoni (n 446).
[501] Alice Palmer, 'The WTO GMO Dispute: Implications for Developing Countries and the Need for an Appeal' (*GeneWatch UK*, 2006) <http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/WTO_Biotech_case_dcsummaryfinal_1.pdf> accessed 4 March 2014.
[502] Ibid.
[503] Robert Howse (n 490); Margaret Young (n 490); James Harrison, 'Case Comment: Trade and Environment' (2007) 19 JEL 413.
[504] Christopher Bonneuil and Les Levidow (n 499).
[505] ibid.

context and that might lead to changes that the panel is legislating'.[506] This could certainly be the case because already the WTO's efficacy-based claims to validate its legitimacy are under attack and the deficiencies of its underlying sovereignty are being heavily criticised.[507] Consequently, had the panel adjudicated in the context of broader international law, it could have rendered visible a rationale for the WTO beyond economic success.[508] What the WTO Panel seemed to ignore is the fact that modern day trade and biosafety objectives challenge the very basis of the specialised sub-systems of international law and thus raise questions with regard to the legitimacy of the WTO. Therefore, it would only be in the WTO's interest to realign their standing for usefulness and legitimacy by equally considering none-trade objectives.

Arguably, perhaps the interest of the WTO Panel in resorting to the instrumental use of existing technical loopholes, backed by vaguely phrased provisions and supported by scientific limitations, was to advance its trade and economic objectives.[509] Alternatively, it is conceivable that the panel aligned with the thinking that international law judges only cite the law and avoid fact-finding '… precisely because doing so does not fit their conception of finding the truth'.[510] If so, this also demonstrates how such practices in international law reinforce and support the narrow regard of the norms of the specialised sub-systems and so work against sustainable biosafety. This is exactly why the law and development literature asserts that, beside the existence of relevant norms, the existence of an enabling environment in which the rule-of-law exists, is paramount in advancing the appropriate implementation of said norms and that this is equally important for law to attain its role in development, such as in sustainable biosafety. Therefore, while there is room for mutual supportiveness, the

[506] Phillippe Sands, 'Litigating Environmental Disputes: Courts, Tribunals and the Progressive Development of International Environmental Law' (2007) 37 EPL 66.
[507] Richard Higgott (n 24); Daniel Esty (n 442); David Henderson (n 24).
[508] Daniel Esty (n 442); David Henderson (n 24).
[509] Robert Howse (n 490).
[510] Makane Moise Mbengue, 'International Courts as Interpreters and Developers of the Law, The Case of Scientific Fact-Finding in International Adjudication' (2011) 34 Loy LA Int'l & Comp L Rev 61; Jose Alvarez, 'Are International Judges Afraid of Science? A Comment on Mbengue' (2011) 34 Loy LA Int'l & Comp L Rev 81.

existing norms and practices might limit its effectiveness in international law, although the case might be different in national legal systems, which will be considered in the remaining two chapters.

5.7 What Could be Different with Mutual Supportiveness?

The main benefit that the reliance on mutual supportiveness could bring to this case is that it could obligate the WTO court to consider the environmental dimension of the case through the harmonious interpretation of its applicable law and the CPB. That being so, a case would have a different underlying rationale and potentially a different outcome. When considering the claims of the disputing parties, it is clear that the court, in addition to the legality of the EU delays in approving biotech products, had to answer questions about the legality of the requirement for a science-based risk assessment for SPS measures.[511] It is important to mention here that both the SPS and the CPB have different perspectives and *orientations vis* the application of scientific risk assessments, as well as they have different regulatory approaches, namely the approach underpinned by the precautionary principle of the CPB and the preventative approach of the WTO, as discussed in Chapter Four.

As this is a biosafety dispute at the nexus of trade, the point of orientation that could serve as the convergence point according to mutual supportiveness could be sustainable biosafety. Sustainable biosafety is directly derived from sustainable development, which is a principle of law in the WTO, as concluded in Chapter Three. This imperative could then require that the WTO court consider sustainable biosafety as the desired outcome of the case and obligate the WTO to consider the environmental aspects in conjunction with its trade objectives. The question then is, how would the court progress the pursuit of sustainable biosafety, given the surrounding facts of the case?

[511] *EC-Biotech Case: Final Panel Report* (n 481).

The SPS Agreement only covers measures directed at protecting human and animal life and health from food-borne risks arising from pests. Thus, biotech products could only be covered under the SPS, in the event that they become classified as plant or animal pests. This could be a very narrow inclusion of broader environmental matters excluding biodiversity conservation. It is for this reason that the EU, in the above-discussed *EC-Biotech Case*, sought recourse to the CBD and the CPB, who deal with biodiversity concerns. Had this been the case, how could the reasoning and/or outcome have been different?

Notably, the EU's concern was that it needed additional information to understand the biotech products in question in its specific environment. This was a biodiversity conservation rationale, which could be considered in the framework of the CPB under the Risk Assessment Annex. This Annex, allows Member States to consider potential risks associated with specific biotech products in their specific environments, before taking decisions. This might require that such States carry out additional contained environmental field trials to gather such information. For instance, under its principle 5 and 6 it states:

> "Risks associated with living modified organisms or products thereof…should be considered in the context of the risks posed by the non-modified recipients or parental organisms in the likely potential receiving environment;"[512]

> "Risk assessment should be carried out on a case by case basis. The required information may vary in nature and level of detail from case to case, depending on the living modified organism concerned, its intended use and the likely potential receiving environment."[513]

[512] The Cartagena Protocol on Biosafety (n 15)
[513] The Cartagena Protocol on Biosafety (n 15)

Therefore, had the CPB been used as applicable law, the EU could have been given reasonable time to carry out confined field trials in its environment, in order to assess possible biodiversity related impacts of the biotech products in question. The fact that there could be a time limit to the ban could not violate the 'undue delay' provisions of the SPS Agreement, as such time limit could be justified on scientific grounds relating to growing seasons, rainfall and the biology of the plants. Thus, the EU's bans could not have been ruled as undue delays, but reasonable time could be proposed to enable the EU to fill the knowledge gaps. It is only when those knowledge gaps were filled that meaningful substantive outcomes could be derived, in the pursuit of sustainable biosafety. The compromise between the provisions of the SPS and the CPB on delays and bans could then be that such bans could not be indefinite, but only for a reasonable time. This would amount to the non-intrusive functional utility of mutual supportiveness[514] as each regime still maintains the integrity of their rules, because the conflict is resolved through symphonic interpretation of both sets of norms. Thus, this kind of use and understanding of rules of the SPS in conjunction with the CPB could transcend and diminish conflicts and pursue sustainable biosafety, as imposed by mutual supportiveness. At least, to the extent that there is a common understanding of the questions on the exact role of scientific knowledge in such decision-making where the limits of science are also considered. Nevertheless, one further hindrance that could inhibit this harmonious interpretation of the SPS and the CPB rules is the absence of such a common understanding and/or guidelines.

It is worth noting here that Article 2.2 of the SPS Agreement, similar to the CPB in its Risk Assessment Annex III, obligates Member States to base their measures on scientific principles supported by sufficient scientific evidence. In addition, the SPS, similar to the CPB, allow Member States to take higher safety levels, based on available scientific information. However, questions such as whose science, what is the minimum

[514] Emily Barrett Lydgate (n 237).

epistemic thresholds, etc. remain unclear.[515] In addition, Gruszczynski importantly asked: "what is the level of required scrutiny when examining scientific backup for national measures'[516] that could justify higher safety measures? Of course, as expounded on in Chapter Three, the challenges surrounding the competence of the specialised trade court to engage meaningfully with technical scientific knowledge also remain. Both the WTO and the CPB have not authoritatively addressed these questions to the extent needed to provide meaningful conflict resolutions for sustainable biosafety. As long as these none-legal issues around the use of scientific knowledge remain unsolved, the courts will have an avenue to use discretionary interpretation of the legal rules to align their decisions with their desired outcomes, irrespective of the sustainable objectives. Especially when their regulatory approaches are divergent and could bring about different outcomes, each supported by the array of conflicting and uncertain scientific information. Therefore, there is need for international law to clarify the challenges surrounding the judicial use and place of scientific information.

5.8 Conclusion

It is evident that the traditional techniques of conflict resolution in international law have limited utility in ensuring sustainable biosafety specifically in cases of real conflicts between biosafety and trade norms. The existing rules have limits and even when they are useful, they do not resolve conflicts on substantive issues, as would be required by sustainable biosafety. The under-utilised principle of mutual supportiveness has legal standing in promoting sustainable biosafety in such cases, as an interpretive tool. Its unique utility lies in the fact that it bridges the shortcomings of existing conflict resolution techniques through the interpretation of norms in a manner that pursues common functional objectives, such as sustainable biosafety. After all, normative vagueness and the question of whether biosafety and trade norms can be reconciled in a sustainable manner, falls within the

[515] See Gruszczynski Lukasz, *Regulating Health and Environmental Risks under WTO Law: A Critical Analysis of the SPS Agreement* (Oxford Scholarship Online, May 2010).
[516] ibid.

remit of interpretation. It is regrettably an under-utilised principle, which has legal standing, but very limited court recognition and thus does not impose any hard consequences.

The *EC-Biotech Case* exemplifies the practical reality of the difficulties of sustainable biosafety. It also exposes how technicalities, including the instrumental use of law to advance regime specific objectives, is used against the imperatives of sustainable biosafety. Moreover, there is no WTO court recognition of the principle of mutual supportiveness. Court reliance on this principle in this case could have benefitted the case, in terms of protecting the integrity of international law and so ensuring sustainable biosafety.

What is evident is that, even though the principle of mutual supportiveness has demonstrated efficacy, it can only be of greater usefulness in sustainable biosafety if the specialised sub-systems of international law align their norms and practices with each other. This includes assigning a similar importance and orientation to unifying objectives pursued through mutual supportiveness, in this case sustainable biosafety. Even so, international law should develop normative guidelines for the use of scientific information in decision-making so that its epistemic weaknesses should not be used to promote regime specific objectives, at the expense of sustainable biosafety.

For countries such as Namibia who have adopted similar precautionary biosafety laws as to the CPB, as discussed in Chapter Six, the outcome of this case has significant implications. It is also worth mentioning that as is noted by Palmer, the Panel '…did not revoke the right of WTO Members to choose whatever level of protection they want to provide to their people from risks to human health and the environment including "zero-

level" risk'.[517] However, this is not a straightforward proposition and it can lead to further disputes, as will be demonstrated in Chapter Six and Seven.

[517] Alice Palmer (n 501).

CHAPTER 6: SUSTAINABLE BIOSAFETY IN NAMIBIA

6.1 Introduction

Namibia ratified the CPB in 2005 and has been a party to the CBD since 1995. Both the CBD and the CPB call for domestic regulation to manage the social, economic and environmental risks and benefits emanating from biotechnology in a sustainable manner. To this effect, Namibia has adopted the Biosafety Act 2006 (Act no.7 of 2006 – hereafter referred to as the Act). The aim of this chapter is to assess to what extent the Act has managed to surmount or has failed to deal with biosafety and trade conflicts, specifically when considered within the Namibian social, economic and environmental context. In order to account for the local context, this chapter starts by highlighting the debates prior to the development of the Act that, in one way or another, shaped its provisions. It will then outline Namibia's specific free trade objectives and the way they have been balanced with the imperatives of biosafety, examining the diverse and divergent concerns involved, as well as the interests and values that were at play in the debate concerning biotechnology. This chapter will also consider the SADC's regional dimensions of biosafety and trade and the specific events that influenced the Namibian biosafety discourse and the specific framings of the provisions of the Act.

The second part of the chapter will then analyse the Act, starting with a brief introduction of the broader national biosafety framework, including its background and rationale. The subsequent discussion of the Act will focus on the principles and main provisions enshrined in the Act that have implications for sustainable biosafety. Moreover, this section will examine whether there is a fit between the law and Namibia's unique socio-economic concerns, specifically considering biosafety and trade conflicts and their implications for sustainable biosafety. By so doing, this part of the chapter will explore the case for the pursuit of mutual supportiveness in the Namibian biosafety context, as discussed in the following chapter.

6.2 Background and Rationale for Biosafety in Namibia

The aim of this section is to situate the provisions of the Act in the prevailing social, economic and environmental context, which shaped and influenced its formation. The advances in biotechnology, mainly in the developed world, have generated considerable interest and enthusiasm in scientists of developing countries.[518] Similar to their counterparts in the West, scientists in developing countries also wanted to engage in the educational, research and developmental activities of biotechnology.[519] For Namibia, the notable absence of biotechnology industries and the formerly low level of training in biotechnology suggest that such technology would need to be mainly imported and biotech companies, such as Monsanto, could not allow the use of their technologies in the absence of appropriate IPRs and biosafety laws.[520]

Although the legal aspects of IPRs in biosafety are outside the scope of this thesis, it is worth mentioning that they are also important enabling framework laws for a KBE. This is because such laws promote and even encourage investment in the otherwise expensive and cumbersome knowledge production and applications that underpin technology development.[521] The aim is to increase the expected returns on private investments made in the production and the application of knowledge.[522] Importantly, they promote welfare by enabling such breakthroughs to be distributed for the further development of knowledge and products, such as technologies.[523] For Namibia, the Ministry of Trade and Industry already has a functional IPR legal framework, although it has

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[518] Xueman Wang, 'Challenges and Dilemmas in Developing China's National Biosafety Framework' (2004) 38 JWT 899.
[519] This was also true for China.
[520] Jack Heinemann, *Hope not Hype: The Future of Agriculture Guided by the International Assessment of Agricultural Knowledge, Science and Technology for Development* (Third World Network 2009) 7.
[521] For an overview of the importance of IPR in a KBE, see Robin Cowam and Elad Harison, 'Report on Intellectual Property Rights in a Knowledge Based Economy' (September 2002) <http://edocs.ub.unimaas.nl/loader/file.asp?id=231> accessed 17 September 2018.
[522] Dominique Foray, 'Intellectual Property and Innovation in the Knowledge-Based Economy' (2002) <http://www.sristi.org/mdpipr2006/new_files/7.pdf> accessed 17 July 2015.
[523] ibid.

some shortcomings.[524] This also indicates that even though Namibia has adopted a KBE as a development strategy, the legal reforms specifically aimed at improving framework conditions have not yet been given the primacy they deserve. Similarly, the absence of a fully enforced biosafety law is one of the major hindrances to engaging in biotechnology, especially for scientists.

Thus, eager scientists were always willing to contribute to the aspirations of the new KBE, but were restricted by the absence of an appropriate enabling legal and policy framework – hence, they engaged with the government in order to develop a biosafety law that allowed them to further their research.[525] Some of these scientists were included in the working group on biosafety under the National Biodiversity Programme of the Ministry of Environment.[526] This was a broad-based framework programme aimed at furthering Namibia's obligations under the CBD. Therefore, even though the scientists' initial interests in terms of advancing the law were motivated by their need to engage in biotechnology training and research, this was also supported by the CBD's objectives. The biosafety working group was an interdisciplinary group, comprised of scientists and officials from relevant ministries, such as Education, Environment, Agriculture, Trade and Industry, Science and Technology and Justice.[527] In addition, commercial and subsistence farmers were represented through their respective unions, while consumer groups, such as the consumer lobby, represented the public.[528] The group was then tasked to serve as an interim biosafety management committee for developing biosafety policy and the

[524] The Namibian IPR law is as old as 1936. Even though some segments of this law have been revised recently, it is evident that it cannot deal with the unique challenges posed by biotechnology, such as the patenting of genes.
[525] Namibia Biotechnology Alliance (NABA) <http://www.unam.na/research/naba/naba_index.html> accessed 3 May 2013.
[526] Ministry of Environment, Biodiversity and Development in Namibia (n 3).
[527] ibid.
[528] Axel Hartmann (ed), 'Biotechnology and Biosafety in Namibia: A Country Study: Report for Namibia Biotechnology Alliance' (1999) < https://www.cbd.int/doc/world/na/na-nbsap-01-en.pdf> accessed on 03 April 2013.

required legal instruments[529] and this group produced the first national biosafety policy for Namibia, which preceded the Act.

On the contrary, the initial biosafety debates at the SADC level were mainly sparked by the 2002 Zambian food aid event,[530] which exposed how ill prepared the SADC countries were for dealing with biosafety. In the same year, the SADC Advisory Committee on biosafety was established with the mandate to develop guidelines on GMOs and broader biotech issues. They were specifically tasked to:

- Build economies of scale to attract favourable biotechnologies to the region.
- Address the spill-over effects of biotechnology, such as the need for a shared policy to address the issues of porous borders.
- Ensure robust resistance to unwanted technologies.

The Advisory Committee produced a number of drafts on such guidelines that were never formally adopted by the SADC [531] for unknown reasons. Perhaps reaching common policy positions on complex biosafety issues that also had multinational interests proved abortive, denoting a similarity to the failure of the African Union

[529] Ministry of Environment (n 3).
[530] In 2004, the Zambian Government rejected 35,000 tons of food aid containing GMOs while experiencing severe food shortages and extreme hunger. This was due to health, environmental, and trade concerns. See AC Lewin, 'Zambia and Genetically Modified Food Aid' in Per Pinstrup-Andersen and Fuzhi Cheng (eds), *Food Policy for Developing Countries: Case Studies* (2007) 12; Noah Zerbe, 'Feeding the Famine? American food aid and the GMO debate in Southern Africa' (2004) 29 FP 593, 608.
[531] See the SADC portal on the various adopted guidelines <http://www.sadc.int/documents-publications/guidelines/> accessed 12 August /2016.

(AU) African Model Law on Biosafety.[532] Nevertheless, these instruments have been constructive in the development of national laws on biosafety in one way or another. However, while many SADC countries initiated the development of biosafety policy and legal instruments,[533] to date only South Africa (SA) has enacted a fully functional biosafety law and has embarked upon biotechnology importation, field trials and even the commercial release of GMOs since 1999,[534] as discussed below.

Therefore, the porous nature of borders, intensified by trade between the SADC countries, lead to the unregulated spread of GMOs in the region from SA. This is one of the reasons that biosafety concerns came to the fore in Namibia. The spread of GMOs in Namibia has been substantiated recently by a study that was commissioned by the Namibian Consumer Trust. This study confirmed the presence of GMOs in two different maize brands – one product contained 66.79% GMO and another (White Star) had 87.34%, which was a substantial increase from 2012 when the two brands had only 1.09% and 2.75% presence of GMO material respectively.[535] This unregulated spread of GMOs created concerns about gene contamination and biodiversity loss. Among other issues, this state of affairs raises major implications for consumer rights and appropriate

[532] Haidee Swanby, 'On-going Concerns about Harmonisation of Biosafety Regulations in Africa' (Africa Centre for Biosafety, Briefing Paper No. 11, November 2009) <http://www.biosafety-info.net/file_dir/2484217664b02137ac5049.pdf> accessed 12 August 2016.
[533] For an overview of the status of biosafety regulations in Africa, see James Okeno and others, 'Africa's Inevitable Walk to Genetically Modified (GM) Crops: Opportunities and Challenges for Commercial' (2013) 30 NB 124.
[534] Adenle Ademola, Jane Morris and Govindan Parayil, 'Status of Development, Regulation and Adoption of GM Agriculture in Africa: Views and Positions of Stakeholder Groups' (2013) 43 FP 159.
[535] See Namibia Consumer Trust, Press Release of 6 June 2015, Windhoek, Namibia.
One brand of maize products contains a whopping 87.34% GMO presence. See also 'Namibia Consumer Trust, Genetics of Staple Food on Namibian Shelves Investigated,' Newsletter 1 http://www.fao.org/fsnforum/sites/default/files/files/92_CS-PS-Nutrition/NCT%20newsletter%20Volume%201.pdf assessed on 28 March 2019. These tests were conducted by an accredited GMO Testing Facility in the University of Free State South Africa.

labelling requirements.[536] Moreover, it poses a threat to Namibia's rich biodiversity noting that the nation hosts a number of protected species of both plants and animals and its environment is pristine, but fragile.[537]

Two-thirds of Namibia's landmass is desert, while the remainder ranges from arid to semi-arid land. It is one of the few African countries with internationally recognised 'biodiversity hotspots'.[538] Therefore, the possibility of genetic contamination and the loss of biodiversity through horizontal gene transfer between unrelated species and the formation of harmful new pathogenic viruses and bacteria has triggered significant concerns.[539] Overall, however, similar to the contentious issues that dominated the negotiations of the CPB, the biodiversity concerns were considered in the context of trade implications and this resulted in highly polarised debates. Specifically, deciding upon the scope of biosafety regulation and the use of the precautionary principle were the main issues of contestation and caused considerable difficulties in creating provisions that would be acceptable to all and yet still be practical. It turned out that this would not be achievable without some compromises on sustainable outcomes, as outlined below.

6.3 Free Trade Challenges to Sustainable Biosafety in Namibia

In order to best account for and demonstrate the challenges posed by the interface between trade and biosafety objectives in Namibia, this section will focus on a number of events that transpired during the development of the Act. These range from the influence of the adoption of GMO by Namibia's neighbouring nation and major trading

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[536] See Namibia Consumer Trust, Press Release on the 6 June 2015, Windhoek, Namibia.
[537] See World Wildlife Fund <http://worldwildlife.org/places/namibia> accessed 23 May 2013.
[538] Ministry of Environment, Biodiversity and Development in Namibia (n 3).
[539] Ministry of Agriculture, Water and Rural Development, Meat Board of Namibia and Namibian Agronomic Board, *Report on the Cost-Benefit Analysis of the Utilization of GMOs in the Production of Namibian Agricultural Products for Local and International Consumption* (Namibia Resource Consultants, December 2002).

partner, South Africa, as well as the EU's adoption of its 2003 policy on co-existence,[540] followed by the 2000 CBD-instituted *de facto* moratorium against field trials and commercialisation of the GURTs technology, which was re-affirmed in 2006.[541] These events contributed to the institution of a *de facto* moratorium against GMOs in Namibia and shaped, in one way or another, the provisions of the Act.[542]

In the case of Namibia's *de facto* moratorium, there were various underlying rationales, but it was mainly aimed at protecting Namibia's trade interests, using an environmental rationale. In light of this, the focus of this section will be on the social, economic and environmental regulatory dimensions of biotechnology, with a view to assessing how they eventually shaped Namibian law and what its implications will be for sustainable development once it is fully enforced. Before doing so, however, it is important to give a general overview of trading patterns in the SADC in order create a sense of the extent of GMO's spread in the region and in Namibia.

As stated above, SA is the only SADC country that is enforcing its GMO law, while most SADC countries are in the process of implementing their laws or do not have laws in place.[543] Officially, only SA has commercially released GMOs. Zimbabwe has a law in place and approvals for confined field trials, but not for commercial release.[544] SA has engaged in the commercial releases of biotechnology since 1999[545] without the segregation of

[540] Volker Beckmann, Claudio Soregaroli and Justus Wesseler, 'Coexistence Rules and Regulations in the European Union' (2006) 88 AJAE 119.
[541] CBD, Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eighth Meeting, Section C on Genetic Use Restriction Technologies (15 June 2006) UNEP/CBD/COP/DEC/VIII/23.
[542] See Government of the Republic of Namibia, *National Policy: Enabling the Safe Use of Biotechnology* (October 1999).
[543] Adenle Ademola, Jane Morris and Govindan Parayil (n 534); James Okeno (n 533).
[544] Michelle Nel, 'First GMO Seed Scandal in Africa: South Africa Contaminates the Continent' *GENET-News* (29 May 2013).
[545] ibid.

GM from non-GM.[546] Yet they are the main suppliers of seeds and grain in the region.[547] To date, SA has around 2.3 million hectares of GMO plantation.[548] During the years ranging from 1999-2013, it granted 1325 permits for the importation of GM products, 1504 for exports and 529 for commodity clearance and conducted 393 field trials.[549] Their GMO law does not call for segregation and labelling[550] and the movement of GMOs through trading channels is obvious. It is not clear why the SADC countries seem to have ignored this situation. This is even the case while the SA Act seemingly aligns with the objectives of the CPB, as well as the obligations to meet the requirements of the AIA, which has not been enforced at least in the cases of its exports to neighbouring countries.

In SA, the GMO Act was promulgated in 1997 with the objective of implementing measures to ensure responsible activities in relation to the use of GMOs in order to limit their adverse impact on the environment and human and animal health. The Act was amended in 2006 to bring it in line with SA's obligations under the CPB.[551] To this effect, a permit requirement is attached to all GMO activities, including the exporting of GMOs from SA. This obligation is reinforced by the fact that both SA[552] and Namibia are parties to the CPB, as mentioned above. Therefore, as per the AIA provisions explained in the previous chapter, SA is at the very least obligated to notify Namibia of such exports. This has never been the case, however, and neither does the SA Biosafety Clearing House provide sufficient information on specific export permits to Namibia or any other SADC country, nor

[546] ibid.
[547] ibid.
[548] See Biosafety in South Africa <http://www.biosafety.org.za/resources/data_page.php?page=3> and Biosafety South Africa <http://www.gmo-safety.eu/basic-info/1318.biosafety-south-africa.html> accessed 30 January 2013.
[549] See Department of Agriculture, Forestry and Fisheries available on https://www.daff.gov.za/daffweb3/Branches/Agricultural-Production-Health-Food-Safety/Genetic-Resources/Biosafety/Information/Permits-Issued assessed on the 21 September 2018.
[550] See Chris Viljoen and Lukeshni Chetty, 'A Case Study of GM Maize in South Africa' (2011) 23 ESE 113.
[551] See Department of Agriculture, Forestry and Fisheries, *South Africa, Annual Report 2004/2005, Genetically Modified Organisms Act (1997)* <http://www.nda.agric.za/docs/geneticresources/gmo%20res%20act%20.pdf> accessed 21 September 2018.
[552] South Africa ratified the Cartagena Protocol on Biosafety in 2003.

concerning any risk assessments they have conducted. [553] The Biosafety Clearing House mechanism, as per Article 20 of the CPB, is a mechanism for information exchange concerning the movement of LMOs with the aim of facilitating the sharing of information and experience.[554] This is not only in violation of international law, but, for Namibia, it also violates its own constitution, which in Article 96(d), declares that Namibia shall endeavour to foster respect for international law and treaty obligations.

While the reluctance to enforce these obligations persists, the inevitable spread of GMOs continues. The extent of the spread of GMOs in Namibia can[555] be illustrated by the fact that trade between the two countries is significant, not only due to geographical location, but also for historical reasons. This also explains the notable absence of a GMO industry in Namibia. As discussed in Chapter Two, Namibia was once a protectorate of SA and this resulted in limited industrial growth in Namibia.[556] This situation persisted, even after Namibia gained independence in 1990.[557]

As a result, Namibia is still importing about 75% of its goods from SA, including fresh produce, seeds and grain.[558] In addition, the borders between these countries are porous and the amount of transboundary movement of people, including farmers who practice traditional seed sharing is sizeable.[559] Seed sharing, as

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[553] CBD, 'Biosafety Clearing House' <https://bch.cbd.int/about/> accessed 4 June 2015.
[554] ibid.
[555] See above-cited GMO test results that indicated high presence of GMOs in some maize brands.
[556] See Nordiska Afrikainstitutet and B Oden, *Namibia's Economic Links to South Africa* (Reprocentralen HSC 1999).
[557] See Report of the Regional Trade Facilitation Programme titled *'2007 Update Survey of Non-Tariff Barriers to Trade: Namibia'* (July 2007) and *'The Global Edge: Namibia: Economy'* <https://globalthe dge.msu.edu/countries/namibia/economy> accessed 23 May 2013.
[558] WTO, 'Trade Profiles' <http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=NA> accessed 23 May 2013.
[559] Doreen Shumba-Mnyulwa (ed), 'Biotechnology, Biosafety and the Environment in Sub-Saharan Africa' (2006) 2(1) BB.

explained in the previous chapter, is a common practice in the region. Similarly, the movement of goods through Namibia from the port of Walvis Bay to landlocked SADC countries, such as Zimbabwe and Botswana, is substantial and is one of the possible paths for the unregulated entry of GMOs into Namibia. All these issues indicate that there is an unregulated spread of GMOs through both formal and informal trading systems,[560] which is also substantiated by the above-cited study into the spread of GMOs into Namibian crops and environment.

In terms of Namibia's biosafety efforts, the large-scale release of GMOs by SA and thus the spread of GMOs in the region has created significant capacity demands. Moreover, it is true that developing countries are lacking in the technical and procedural knowledge necessary to regulate biotechnology, as is argued by Okeno et al.[561] On the other hand, this state of affairs also limits progress in scientific research and the associated training needed to enhance capacity in support of a KBE's objectives, as discussed in Chapter One. Even though a considerable number of Namibians have been trained in biotechnology and related fields elsewhere in the world, their full contribution to this research is restricted. This also shows that the nation's KBE aspirations are inhibited as there is no functional enabling legal framework. As noted in Chapter One, the ambition to promote economic growth through science and technology requires substantial levels of highly skilled human resources and sophisticated scientific institutions. In addition, as is argued by Okeno et al 'legislation and policies must be in place to build a country's competence to handle biotech R&D and commercialization'.[562] In relation to biosafety, the technical expertise to enable regulatory success is industry-based and, for Namibia, as explained above, there is notable absence of such institutions, which puts additional capacity and resource demands on a country, which is already constrained in this area.

[560] Michelle Nel (n 544).
[561] James Okeno (n 533).
[562] ibid.

It is also worth mentioning that one of the significant events prior to the development of the Act was the CBD *de facto* moratorium against the GURTs technology, which also contributed to Namibia's adoption of a similar, albeit illegal, moratorium.

In 2000, the CBD instituted a *de facto* moratorium against field trials and the commercialisation of GURTs, which was re-affirmed in 2006.[563] Similarly, several national governments, such as India and Brazil, had passed national laws to prohibit this technology[564] and Namibia followed suit, albeit at the policy level only, stating that:

> 'Pending the outcome of global and regional assessments of the severe potential socio-economic, ethical, and environmental risks posed by "Genetic Use Restriction technologies" (GURTs), Namibia shall enforce a five-year, renewable moratorium on the import, export, sale, or use of genetic material, such as seeds, altered by these technologies, including the so-called "Terminator Technology" and related processes. Such moratorium shall take immediate effect on the acceptance of this policy by Cabinet.'[565]

Notably, this moratorium was to come into effect upon the adoption of the draft version of the 1999 National Policy on Biosafety entitled: 'Enabling the Safe Use of Biotechnology in Namibia'. Although cabinet policies can serve as essential normative antecedents for legal reforms, they are not legally binding.[566] Thus, the legal validity of the moratorium was questionable. While this engendered much debate, the point of interest here

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[563] CBD (n 541)
[564] News, President of Ecuador Opens the Door to Terminator Seeds available on http://www.banterminator.org/News-Updates/News-Updates accessed 20/03/2013.
[565] UNEP/GEF Biosafety Project, 'Support to the Implementation of the National Biosafety Framework of Namibia' <http://www.unep.org/biosafety/Documents/NBFs/Namibia_Biosafety.pdf> accessed 17 June 2012.
[566] Sam Amoo, *An Introduction to Namibian Law* (Macmillan Education 2008).

is the response of the various farming sectors that demonstrated their diverse interests, values and concerns in terms of sustainable biosafety objectives. For the commercial farming sector, the perceived moratorium was thought to be a stepping-stone towards a total GMO ban.[567] Some even claimed that it applied to all GMOs and not narrowly to GURTs.[568] Indeed, the beef farmers trading with the markets in the EU claimed that they would lose their EU markets once it transpired that their cattle were fed GM crops.[569] This was the belief of many developing countries.[570] As Kindelerer states:

> 'Developing countries have been wary of introducing the new varieties, as the impact on their income if they fail to sell the commodities in Europe would be substantial, even though the improvement in agricultural production could have been substantial if the transgenic varieties had been effective in their agricultural conditions.'[571]

Thus, Namibian fear of losing EU markets was reinforced by the EU's 2003 policy on the co-existence between GM, organic and conventional agriculture, as the productions of a system[572] and the *de facto* moratorium on the approval of certain GMOs, which eventually lead to the *EC-US Biotech* dispute discussed in Chapter 5. Thus, for the Namibian EU beef farmers, such a moratorium was even considered a market advantage, i.e. they could supply GM-free beef to the lucrative EU niche market.[573] It was thus perceived that the EU market was GM-free and if Namibia were to adopt GMOs, it could compromise the 30% premium for GMO-free beef and

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[567] See Minutes of the Briefing Meeting with the Permanent Secretary of Ministry of Agriculture, Water and Rural Development held on 15 July 2003.
[568] ibid.
[569] See Dominic Glover, *GMOs and the Politics of International Trade, Democratising Biotechnology: Genetically Modified Crops in Developing Countries* (Briefing Series 5 2003).
[570] Xueman Wang (n 518).
[571] Julian Kindelerer, 'The Cartagena Protocol on Biosafety' (2008) 4 CBR 12.
[572] Volker Beckmann, Claudio Soregaroli and Justus Wesseler (n 540).
[573] Ministry of Agriculture, Water and Rural Development, Meat Board of Namibia, Namibian Agronomic Board, *Report Cost-Benefit Analysis of the Utilization of GMOs in the Production of Namibian Agricultural Products for Local and International Consumption*, by Namibia Resource Consultants, December 2002.

amount to the potential loss of their 30% market share.[574] However, it was then established that this was a myth and that Namibia would lose only 1% of revenue from exports to the EU if it were to use GMOs. [575] Arguably, this measure was aimed at protecting the market interest of only a few elite beef farmers and not the farming community or country at large.

The stance on GMOs among the other farming sectors also differed considerably. Crop farmers in the low rainfall regions who farm under irrigation systems, pointed out that poor harvests caused by pest-related problems were their main concern.[576] The specific pest in consideration was the bollworm and Bt-maize is engineered to resist this, thus Bt-maize was appealing to them.[577] In contrast, the farmers using rain-fed farming systems indicated that such Bt-maize did not assuage their main agricultural problem, which was irregular rainfall. Thus, they were interested in drought-resistant transgenic varieties. Still again, the ostrich farmers in the south of the country actively pursued the importation of GM feed because of periodic droughts in that part of the country.[578] They argued that regulating or banning the import of transgenic maize and soybean for feed processing while the processed feed from the same GMO material, if allowed, would disadvantage Namibian feed producers.[579] Although this concern was considered, the inclusion of GMO products in the Act was mainly substantiated based on food safety concerns,[580] as discussed below. Certain fractions of the public wanted GMO maize, mainly because of the perceived price reductions, while their more educated counterparts were largely skeptical about its safety.[581] To this effect, the moratorium contributed to further polarisation of the GMO debate thus indicating the

[574] ibid.
[575] ibid.
[576] ibid.
[577] Ministry of Education, Training & Employment Creation, Information Memo Reporting on the Meeting Held with Hardap Cooperative on the 12 March 2002 with Officials of the Ministry, Hardap. (Unpublished).
[578] ibid.
[579] ibid.
[580] Workshop Proceedings on Implementation of the National Biosafety Framework for Namibia, Windhoek, Namibia, 11–14 March 2003, (Unpublished).
[581] Ibid.

plurality of interests and concerns that needed to be reconciled. For policy makers, the concern was how to speedily devise a regulatory framework in order to mitigate the risks and benefits of biotechnology.

Although there is now a worrying slow-down in the urgency of implementing the biosafety law, it was initially received well by policymakers. Having noted that the law-making process could be long, they started exploring the option of implementing interim biosafety regulatory measures.[582] However, the legality of such interim measures based on mere policy pronouncement was questioned[583] and thus did not take effect. This does not correlate with the initial urgency to regulate GMOs, given safety concerns and the ensuing delayed implementation. These delays could perhaps be attributed not only to slow law-making, but also to an underlying lack of real political commitment, exacerbated by funding and capacity constraints. Arguably, the complex nature of this regulatory subject area was amplified by the difficulties in reconciling conflicting trade, social and environmental interests and values and exerted a coercive effect. Therefore, it boiled down to the difficulties of balancing the three sustainable biosafety objectives. To what extent then did the Namibian Biosafety Act establish relevant standards to mitigate the benefits and risks, while ensuring a balanced integration of trade, social and environmental interests and values?

6.4 The National Biosafety Framework: The Biosafety Act

6.4.1 Objectives

The overall objective of the Act is to protect and ensure conservation, the sustainable use of biodiversity, to ensure safe and responsible use of biotechnology in terms of human and animal health and to create an infrastructure for GMO testing, research and development (training).[584] It is worth noting that while the first objective speaks to

[582] ibid.
[583] ibid.
[584] Biosafety Act 2006 (Act No. 7 of 2006).

the CBD's goals, the latter aligns with Namibia's economic growth objectives within the framework of a KBE by calling for a GMO-based R & D infrastructure development. This aims to promote the use of scientific and technological tools, in this case biotechnology, for socio-economic advancement.

In the framework of these broad objectives, the Act also has two objectives that are more specific. They aim to:

> '… introduce a system and procedures for the regulation of genetically modified organisms in Namibia in order to provide an adequate level of protection to the conservation and sustainable use of biological diversity, taking into account;
>
> i. Potential risk to the health and safety of humans and harmful consequences to the environment posed by GMOs or GMO products
>
> ii. Social, cultural, ethical and economic considerations.'[585]

The phrase, 'to provide an adequate level of protection to the conservation and the sustainable use of biological diversity' is the same language used in the CPB, which alludes to giving preference to environmental protection and the conservation of biological diversity. Thus, the focus of the Act, at least inasmuch as its objectives are concerned, is the conservation and protection of biodiversity in a sustainable manner. This objective follows the CBD's perspective that biodiversity warrants sustainable use by virtue of its economic value and that economic incentives contribute to biodiversity conservation.[586] However, the Act contains internal contradiction because of the divisive nature of its broad objectives, specifically in pursuit of sustainable biosafety. Chapters Two and Three of this thesis have demonstrated the difficulties of achieving sustainable biosafety objectives. Moreover, the aim of pursuing the sustainable use of biological diversity in an unrestrictive manner, while calling

[585] ibid.
[586] Thomas Pearson (n 327).

for equal, if not preferential, consideration of the health and safety of humans and harmful consequences to the broader environment, results in inherent conflicts.

The inclusion of broader environmental aspects in the scope of the Act is also affirmed by the definition of the environment in the Environmental Management Act No. 7 of 2007. It defines environment as:

'… the environment is the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and quality of life, and includes

a) The natural environment being land, water, air, all organic and inorganic material and living organisms; and

b) The human environment being the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.'[587]

Consequently, it is clear that both the comprehensiveness and anthropocentric conception of the environment includes even values that are often linked to cultural and traditional practices.[588] According to this anthropocentric view, which is also affirmed by Principle 1 of the Stockholm Declaration that: 'human beings are at the centre of concerns for sustainable development',[589] the Act calls for the consideration of the impact on the broader environment and positions human wellbeing at its core.

[587] Environmental Management Act 2007 (Act No. 7 of 2007).
[588] Patricia Birnie and Alan Boyle (n 129).
[589] United Nations, 'Stockholm Declaration on the Human Environment' (June 1972), UN Doc. A/CONF 48/141 Rev.1, principles 1.

The issues to be considered in granting permits also have a bearing on the scope of the Act. For instance, Article 25(5) obligates that any impact on local knowledge and technologies and the specific developmental needs of particular communities must be considered in decision-making exercises. These requirements, when taken into account along with the already broad and conflicting sustainable biosafety objectives, further widen the scope of such legislation and introduce further complexities. For instance, the law involves subjective values and, as such, they cannot stand the claimed supremacy of scientific objectivity,[590] especially when considered in the context of Namibia's WTO trade obligations (as will be explored in the following chapter). The inclusion of the developmental needs of local communities that are rooted in cultural, traditional and religious values introduces the complexities of a needs-based framework of sustainable development, as discussed in Chapter Three. For example, there are conflicting needs and interests in the pluralistic and culturally diverse Namibian society and reconciling them will thus be challenging.

Moreover, the Act does not clarify which norm should supersede which in cases of conflict, particularly in the absence of decisions under the law. As established above, the Act does not prescribe any hierarchy, but rather puts all norms on a par. On the other hand, the Act prescribes that the aforementioned objectives are to be substantiated by scientific risk assessment, but it also calls for caution when science is uncertain stating that a:

> '… lack of scientific knowledge due to insufficient relevant scientific information or scientific consensus should not be interpreted as indicating a particular level of risk, or absence of risk, or an acceptable risk.'[591]

[590] Silvio Funtowicz and Roger Strandt, 'Models of Science and Policy' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (Tromso & Tapir Academic Press 2007) 264.
[591] Biosafety Act 2006 (Act No. 7 of 2006).

The meaning and the implications of the precautionary principle in the Namibian context are not clarified, yet it is not a straightforward principle, especially in relation to scientific risk assessment, as was discussed in the previous chapter.

The second objective of the Act is to:

> '… provide a framework for responsible research, development and the use of genetic engineering and to manage the risks posed by or as a result of gene technology by regulating activities involving the development, production, use, import, export, transport, release into the environment, marketing and other uses of genetically modified organisms and genetically modified products.'[592]

This objective fundamentally deals with the promotion of biotechnology for social and economic advancement. The phrase 'a framework for responsible research, development and the use of genetic engineering …' arguably supplements the interests of the scientists that initially pushed for the development of the law in order to conduct their work within the confines of the law. Similarly, this objective is in line with the objectives of a KBE, as discussed in Chapter One, and it is indicative of how this biosafety policy is also aligned with national developmental aspirations. However, by addressing, the potentially conflicting objectives of technology promotion and regulation in the same instrument and allowing this to be implemented by the same institution could amount to the practice of the regulator regulating himself/herself and this presents a potential conflict of interest, as discussed below.

[592] ibid.

6.4.2 Scope

The Act distinguishes between GMO activities and the subject matter to be regulated. The scope of the regulation of GMO activities is wide-ranging, while the difficulties surrounding the subject matter introduces further legal and regulatory complexities. As stated in the preambulary paragraph, the Act covers '… activities involving research, development, production, marketing, transport, application and other uses of genetically modified organisms and specified products derived from genetically modified organisms …'.[593] In Article 3, the Act outlines that activities involving GMOs are:

> 'the import of a GMO or GMO product; the export of a GMO or GMO product; the release into the environment of a GMO or GMO product; the contained use of a GMO or GMO product; the placing on the market of a GMO or GMO product; the transport of a GMO or GMO product, including transport in transit through Namibia; and the use or handling in any other way of a GMO or GMO product.'[594]

Thus, the GMO activities that are to be regulated are broad-based, ranging from their transboundary movement (import and export), including local transport, transit, commercial and market release and their containment or laboratory use, plus field trials for R & D purposes and commodity releases intended for food, feed and processing, as well as the use of specified products derived from them. Thus, the Namibian law regulates all GMO activities and their specified products. Many included activities, such as contained or laboratory use, were justified on the basis that the existing policies and laws were weak and did not address the unique challenges posed by biotechnology. On the other hand, activities such as the transit of GMOs were one of the major transboundary concerns for Namibia as a transit-State for a number of landlocked SADC countries. These

[593] ibid.
[594] ibid.

activities and the encompassing definition of GMOs and their specified products accounts for the wide scope of the Act. This broad scope is also in tandem with the position of the developing countries in the CPB negotiations when they called for the inclusion of GMO products, including pharmaceuticals.[595]

The Act defines a GMO as an 'organism that possesses a novel combination of genetic material obtained through the use of modem biotechnology and includes combinations of genetically modified organisms.' [596] GMO, in the context of the Act, means 'a genetically modified organism' whether living and capable of biological propagation or not. [597] Thus, the Act includes in its scope all living and non-LMOs, including processed GMO products. As established in the previous chapter, the CPB does not regulate processed GMO products and this is one of the main deviations of the Act from the CPB. For instance, bearing in mind the volumes of trade in such products, Namibians could be faced with enormous task of regulating all GMOs, all GMO activities, as well as their specified products. Considering the vast uses of some of the modified plants – for instance, maize and cotton and even those that might contain minor traces of GMOs, such as chocolate and cotton T-shirts – vast numbers of commodities and processed foods could fall under the remit of the Act.

As noted above, regulating processed products is a tedious and complicated task, which is also resource-intensive. For Namibia, this could pose challenges in the enforcement of the law, which are amplified by capacity limitations, as discussed above. One such challenge pertains to the complications in enforcing such a law through testing and verification, augmented by the amount of trade and resources needed. Testing for the presence of

[595] Ministry of Education, Training & Employment Creation, *Discussion Document for the Workshop on the Finalization of the Draft Biosafety Bill held on the 3 December 2003* (Windhoek, Namibia).
[596] Biosafety Act 2006 (Act No. 7 of 2006).
[597] ibid.

modified genes or segments in processed organisms, depending on the intensity of the processing, is extremely difficult.[598] As such, there is a concern whether Namibia can efficiently and effectively implement such technical regulation in colossal volumes, given its general institutional and human resource capacity constraints.[599] However, it was agreed that capacity constraints should not dictate the level of protection, rather the level and nature of the risk should justify the level and the nature of protection.[600] Therefore, this provision was included with a parallel commitment that the related capacity needs are to be addressed as national priorities, while taking advantage of international and regional resources.[601] In addition, addressing these capacity limitations could also be beneficial for the implementation of the overall food safety legislation as there are fundamental weaknesses in this area. Moreover, enhancing scientific capacity, even if it is mainly for the implementation of the biosafety rules, is a pre-requisite for attaining scientific and technological development in the frame of a KBE, as was examined in Chapter Two.

Namibia's reasons for regulating GMO products do need some consideration, though. The reasons cited for the regulation of products based on food safety concerns need to be considered, particularly how the unique country-specific socio-economic context reinforced the need for such laws. The meal from GMO maize was the main product that called for regulation and this is made from maize kernels, which are ground to produce maize flour.[602] The justification for regulating maize meal was because it was consumed widely as a staple food in Namibia.[603] In some instances, it is consumed three times per day, mainly by the poorer segment of society.[604]

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[598] See Eede Guy van den, Kay Simon, Anklam Elke and others, 'Analytical Challenges: Bridging the Gap from Regulation to Enforcement' (2002) 85 JAOACI 757.
[599] Axel Hartmann (ed), 'Biotechnology and Biosafety in Namibia: A Country Study: Report for Namibia Biotechnology Alliance' (1999) < https://www.cbd.int/doc/world/na/na-nbsap-01-en.pdf> accessed on 03 April 2013.
[600] Workshop Proceedings: Risk Assessment and Risk Management Workshop, 3–4 August 2006, Windhoek, Namibia. (Unpublished)
[601] ibid.
[602] Workshop Proceedings on the Implementation of the National Biosafety Framework for Namibia (n 580).
[603] ibid.
[604] ibid.

There are those who cannot afford a balanced meal and thus their nutritional intake might already be compromised. In addition, these people cannot afford baby milk and often feed infants maize meal, supplemented by breast milk, and, when weaning babies, it is all these children eat. Likewise, with the high prevalence of HIV rates in Namibia, immune-compromised HIV-positive people often rely on maize meal as their daily meal and, at times, it is eaten three times a day without proper nutritional supplementation.[605] In these cases, the consequences, if the perceived safety concerns related to GM maize are real, are regarded as a matter of serious concern.[606] This is one of the context-specific socio-economic arguments that was used to qualify the inclusion of certain processed GMO products. Furthermore, the inclusion of derived products in the scope of the Act underlines that the objective of the Act puts environmental and food safety issues on a par. This is because, as also commented on by Van der Meer, environmental objectives narrowly focus on LMOs that can grow, multiply and disperse, but not processed products.[607] Namibia, because of the existing weaknesses in the food safety legislation, opted for an all-encompassing biosafety law.

In Namibia, various pieces of legislation that deal with the different aspects of food safety are generally outdated. This was expressed by the representative of the Ministry of Health at one of the Biosafety workshops, who stated that "there is a general concern of the lack of updated food legislation, e.g. the Public Health Act no. 36 of 1919, which also hinders the effective implementation of other international obligations dealing with aspects of food safety".[608] The same argument was used to substantiate the inclusion of pharmaceuticals, which was excluded in the initial bill on the basis that pharmaceuticals already go through "a strict approval process". However, it transpired that in Namibia, the current legislative process for pharmaceuticals was compromised

[605] ibid.
[606] ibid.
[607] Comments on the Eighth Draft of the Biosafety Bill by Piet Van der Meer, February 2003, (Unpublished).
[608] Workshop Proceedings of the "UNEP/GEF Project Closure" 21–23 August 2007, Windhoek, Namibia, (Unpublished).

again by the lack of updated legislation.[609] Consequently, an all-encompassing biosafety regime with a single and well-equipped regulatory authority was accepted as ideal and thus an all-inclusive encompassing Act was adopted.[610] Considering the validity of the concerns that led to the inclusion of products and the prevailing capacity limitations, the compromise position was to regulate only products that were to be gazetted. [611]

Furthermore, there is no normative definition for what constitutes GMO products or derived products, as the CPB does not regulate processed products. Hence, eventually, in Namibia, a generic definition was adopted that defines GMO products as those:

> '…products which are likely to have an adverse effect on human health (allergenicity and toxicity) or environment and will only include … any article, material, substance or thing specified by the Minister under subsection (2) to be a GMO product for the purposes of this Act.' [612]

Consequently, the number of GMO products that need to be regulated could be minimal, including products with real social concerns and not chocolate and T-shirts made with GM products. Therefore, the overall scope of the Act encompasses all GMOs, living and non-living, irrespective of purpose, but focuses only on the gazetted GMO products. It was foreseen that the list of products to be regulated might expand and, if new or unanticipated risks showed up or a gazetted GMO product was proven unsafe, it could be easier and faster to

[609] Workshop Report of the "Discussion on the Draft Bill with the Relevant Stakeholders" on 3 December 2003 held at Safari Hotel, Windhoek, Namibia, (Unpublished).
[610] ibid.
[611] ibid.
[612] Biosafety Act 2006 (Act No. 7 of 2006).

change the gazetted list rather than the law. This flexibility was considered in view of the looming uncertainty of biotechnology and its products and contributes to the precautionary nature of the Act.

What is also foreseeable is the difficulty in integrating the various sustainable development imperatives in biosafety, as discussed in Chapter Three, especially when considered in relation to Namibia's international trade obligations. This will largely depend on the specific GMO in question and its use. It is equally true that the decision-making criteria, including the principles that underpin the law, influence such outcomes. In reality, procedurally, the quality of the consent processes and procedures, as well as the decision-makers, matters the most. Notwithstanding the difficulties it poses for current implementation, this is the ideal option for Namibia, given the unproven risks of biotechnology.

6.4.3 Principles Enshrined in the Biosafety Act

i. Advanced Informed Consent & Consent

Under Article 20 of this Act, any person dealing in GMOs needs to obtain prior authorisation through a permit system. This is known as the principle of AIA, as introduced in Chapter Four. Articles 21, 22, 23 and 24 prescribe the detailed procedural requirements to be followed in order to secure a permit. They also clarify the responsibilities of each biosafety institution and person in the application process. Article 25 establishes the decision-making criteria. In subsection 6, it states that only applications that fulfil the requirement that any risks are capable of being managed and whose activity is in the public interest will be allowed. Accordingly, as mentioned in the previous section, the issues to be considered before authorisation are broad-ranging, including the protection of human and animal health and safety and the environment at large, not simply biodiversity conservation. Subsection 6 also requires that biosafety

activities contribute to sustainable development and this implies the simultaneous integration of economic, human and animal health socio-economic objectives. In this regard, socio-economic issues could be seen to be covered under diverse public interest issues, as per Article 25(6) (b). In addition, Article 25(5) calls for the consideration of impacts on local knowledge and technologies and the specific developmental needs of particular communities. It states that:

> '… in determining whether or not any dealing proposed to be authorized by a permit will be in the public interest, the Council and the Minister may take into account any factors which the Council considers appropriate, including the extent to which the dealing is likely to contribute to sustainable development, undermine indigenous knowledge or technology or how it affects the social and economic advancement of people and society, including a particular community.'[613]

Article 23 further obligates that these considerations are to be underpinned by a proper scientific risk assessment, which should prove that there is sufficient evidence that the perceived risk is acceptable and manageable. The requirements for scientific information in the midst of uncertainty are discussed below, but it is worth mentioning that these Articles establish very broad decision-making parameters.

In addition, as discussed in Chapter Four, the 'may take into account' phrase could be interpreted as either supporting broad inclusions or not. This implies that almost anything and everything could be used to justify a decision, while the task of deciding what exactly constitutes public interest could be daunting. This is because, as also argued in Chapter Two, there is no uniquely determined common good that all people can agree on and, thus, alluding to public interest without defining what it entails could be a regulatory obstacle. After all, virtues have many perspectives and they are relative to diverse cultures, traditions and religions. What further complicates

[613] Biosafety Act 2006 (Act No. 7 of 2006).

this matter is that it is not clear how Namibia will align the inclusion of more subjective public interest issues with its trade and environmental objectives.

This is particularly the case with its trade obligations because, as discussed elsewhere, the trade regime only requires information and knowledge that is supported by objective scientific facts. Thus, any decision-making criteria that defy the sound scientific testing could potentially violate WTO rules. As such, it is arguable that, due to the foreseen disputes and their possibly disastrous outcomes, decision-making could be made at a political level. Perhaps this also explains why the Act is still not being fully implemented after so many years. After all, as is stated by de Chazournes and Mbengue, to give priority to a norm when the system does not denote clear hierarchy implies that such 'decisions actually rely on political … considerations'.[614] Similarly, when science fails to provide meaningful guidance, decision-making then falls to the sphere of politics as, when disputes arise, technical decision-makers cannot be held directly accountable. However, it is already foreseeable that this will present difficulties because political appointees cannot effectively handle biosafety decisions, which is a technical area that needs scientific expertise in order to make meaningful decisions. Nevertheless, it is the case that, in Namibia, the Biosafety Council is only a technical advisory body that advises the minister, who then makes the final decision. This arrangement puts the decision-making responsibility of a highly technical subject matter in the realm of politics. This in itself could prove problematic, for instance in cases where the political interests deviate from the imperatives of sustainable biosafety. This could, for instance, be the case where corruption is suspected, as already demonstrated in the two Namibia cases discussed in Chapter Seven.

[614] Laurence Boisson de Chazournes and Makane Mbengue (n 10).

ii. Public Participation

Public participation is one of the principles enshrined in the Act and it can be defined as the process of involving stakeholders from all levels of society in decision-making processes, giving everyone a chance to express their views and considering their suggestions in decision-making.[615] This principle has inherent value as it accounts for autonomy and self-governance. However, it also has a constructive role because inclusive and collectively reasoned decision-making amounts to the participatory and the comprehensive creation of values and norms, as discussed in Chapter Two.[616] In this regard, the Act obligates that public input is sought and considered in decision-making exercises and Article 22 (4) requires that an advertisement of an application be published in two widely circulated newspapers once a week for two consecutive weeks in Namibia or by any other means as may be prescribed. It requires a newspaper advertisement, which contains the prescribed particulars of an application, including a risk assessment report and a risk management plan.

In addition, one of the prescriptions under Article 24 deals with the procedures for considering permits: '… the Council may take any action it considers appropriate for the purpose of considering an application, including amongst others holding a public hearing'. It further elaborates on how to conduct a public hearing. These provisions are notable as they supplement the requirements of an enabling legal framework to ensure that people are empowered to express their views and concerns on the issues affecting them[617] (see Chapter Two).

[615] Steven Were Omamo and Klaus von Grebmer (eds), 'Biotechnology, Agriculture, and Food Security in Southern Africa' (International Food Policy Research Institute 2005).
[616] Amartya Sen (n 121) 147.
[617] Amartya Sen (n 121).

However, the Act falls short of addressing the limitations that might hinder the successful implementation of these provisions. For instance, it does not deal with concerns relating to the prevailing low levels of public awareness and education on the issues of biotechnology and biosafety. This is a fundamental concern, as it is essential for informed participation. Moreover, such shortcomings, as discussed in Chapter Two, undermine people's abilities to use their rights.[618] It is, therefore, not enough to make only legal provisions.[619] The other difficulty that might impede the implementation of these provisions relates to the handling of the numerous and often highly subjective and conflicting public inputs and, as discussed above, their subjective nature versus objective scientific knowledge requirements. This is particularly an issue when considered in relation to the more objectively inclined trade and environmental aims and it raises the question of hierarchy, which is a difficult matter to resolve, especially when the norms advancing these objectives are in conflict, as has been explored earlier in this thesis.

Nonetheless, what is clear is that the WTO requirement for a scientifically sound risk assessment as a decision-making tool implies that the more subjective public inputs or socio-economic considerations could well be overwritten. This is especially the case when considered in the light of trade obligations and the coercive influence of this regime, as was discussed in Chapters Three and Five. Moreover, not only is the disregarding of more subjective public inputs possible when prominence is given to scientific risk assessments as a decision-making tool, but it may also create regulatory problems in cases where the science is ambiguous. Although the Act prescribes the application of the precautionary principle when scientific conclusions are uncertain, this is not a straightforward proposition, as discussed in the previous chapter and will be considered in the next section in the specific context of Namibia.

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[618] Stephen Golub (n 107).
[619] ibid.

iii. The Precautionary Principle

Although not explicitly stated in the Act's objectives, what is stated above gestures towards the application of the precautionary principle. It basically implies that a lack of scientific knowledge due to insufficient information and the absence of scientific consensus should not be regarded as signifying a certain level of risk, or to be seen to indicate that there are no risks or that the risk is necessarily acceptable. It is not only a lack of adequate information that denotes insufficient information, but also its non-existence, including the existence of conflicting contradictory scientific information and a lack of scientific consensus as regards the efficacy, safety and risks of the technology.[620] Biotechnology is relatively new and there is inadequate scientific evidence in terms of its relevance, safety and even efficacy.[621] The prevailing scientific studies indicate contradictory safety findings, whereby those funded by the biotechnology industry predominantly claim that the products of the technology are as safe as their conventional counterparts.[622] On the other hand, some in the scientific community are sceptical about such findings, while many independent studies claim this technology is too risk-laden.[623] All these factors amplify scientific uncertainties about the safety and the efficacy of biotechnology and its products and justify regulatory approaches that make provision for the consideration of these uncertainties. Therefore, the inclusion of the precautionary principle as the regulatory basis of biosafety in Namibia is commendable. Additionally, from a developing country's perspective, the principle is also welcomed because it imposes the duty of care on those who propose the intervention, which most likely would be the producer of such technologies.[624]

[620] Foster Kenneth, Paolo Vecchia and Michael Repacholi (n 385).
[621] Jeffrey Smith (n 270).
[622] ibid.
[623] Matthias Kaiser (n 283).
[624] Lee Ann Patterson and Tim Josling (n 393).

The precautionary principle imposes strict regulation and liability on those who propose the action and it thus dispenses with the need for establishing the duty of care of those who propose the intervention or the manufacturer.[625] This is an anticipatory and proactive approach towards risk management, which considers scientific risk assessment as only one information source for decision-making and so makes room for socio-economic considerations as well. It does this in an anticipatory manner, bearing in mind the circumstances in which the products are created in addition to the product itself as well as its use.

It is, therefore, evident that, similar to the EU, Namibia has adopted the precautionary principle and thus the regulatory approach underpinned by the precautionary principle contrary to the preventative approach, which is founded on the principle of substantial equivalence discussed in Chapter Four.[626] The latter approach is also akin to the WTO's regime and it is this differential regulatory approach, which constituted the underlying disagreements in the *EC-Biotech Case*,[627] as discussed in the previous chapter. One difficulty that was also examined in the previous chapter, however, is that the precautionary principle is not a straightforward solution. Moreover, neither the Act nor the CPB propose any normative content to guide decision-making in terms of the practical complexities of bringing this principle into operation. Nevertheless, the cases discussed in Chapters Three and Five show that the principle has no legal weight in cases of trade and environment and biosafety conflicts and thus a different dispute resolution approach is needed in such cases.

[625] Gurdial Singh Nijar (n 414) 491.
[626] Sheila Jasanoff (n 29).
[627] Dario Bevilacqua (n 408).

iv. Sound Science: Risk assessment and Management

According to Article 23, the requirements for authorisation involve a proper scientific risk assessment, which provides sufficient evidence that the perceived risk is acceptable and manageable and that the application is in the public interest. Thus, although the regulatory foundation of the Act is the precautionary principle, it invokes risk assessment as the first step in the authorisation process. It obligates that any risk assessment report and risk management plan be submitted to the Council and must:

> (a) comply with such basic requirements as may be prescribed;
>
> (b) be carried out and prepared, at the applicant's own expense, in a scientifically sound manner, by a person who has appropriate expertise in relation to the identification and evaluation of potential risks involved in the type of dealing with a GMO or GMO product as proposed to be authorized by the permit.[628]

Subparagraph (b) contains a number of phrases worth elaborating on here. Firstly, the phrase 'at the applicant's own expense' proposes that the strategies and procedures to monitor any anticipated or potential effects are the financial responsibility of the applicant. In line with the precautionary principle, the burden of proof is thus on the applicant to provide the information on risk assessment and management. Nonetheless, this does not limit the decision-makers to solely considering the information provided by the applicant in reaching their decisions, as the Act provides that the council can acquire additional information through, for instance, independent experts and technical institutions, according to Articles 13 and 24(1). However, it is notable that putting such a responsibility on the applicant will possibly promote responsible scientific and technology advancements and, furthermore, the phrase 'in a scientifically sound manner' implies that emphasis is put on the

[628] Biosafety Act 2006 (Act No. 7 of 2006).

authority of science, while the reference to '… by a person who has appropriate expertise' places reliance on elite experts as policy informants.

In addition to the scientific uncertainties discussed above, one of the major difficulties with the use of scientific risk assessments as a tool for biosafety decision-making is whether such assessments should consider only environmental issues and at what point in the process issues such as human health, socio-economics, ethics and culture are to be taken into account. As noted above, this also raises the question of hierarchy of norms. It is arguable that in developing countries, where there are innumerable socio-economic needs and the related pre-requisites for economic development are prioritised, that economic and trade objectives could be valued at the expense of social and environmental ones.[629] This poses considerable challenges for development as economic returns are habitually not equitably distributed and the broader socio-economic related development issues, as were discussed in Chapter Two, are hardly addressed. Thus, the Act provides leeway for regulators to consider a wide range of information pertaining to both the processes and the products/outcomes of this technology.

It is important to note that the attainment of sustainable biosafety will not only depend on the provision of norms that strike a balance between integration of diverse regulations, but also on who and what type of expertise are involved in decision-making.[630] Therefore, the aim of the following section is to critically assess the institutional arrangements pertaining to decision-making and to what extent such arrangements ensure objective and balanced sustainable biosafety outcomes.

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[629] Michael Faure and Willemien Du Plessis (eds), *The Balance of Interest in Environmental Law in Africa* (Pretoria University Press 2011).
[630] Commission of the European Communities (n 220).

6.4.4 Actors in Biosafety Decision-Making: Implications for Sustainable Biosafety

In the previous chapter, it was concluded that the complexity surrounding biosafety decision-making in the face of diverse national interests and conflicting international trade and biosafety norms, as well as the quality of rulings, would be largely due to those who make such decisions. This is because different disciplinary framings and perspectives also contribute to the plurality of perspectives and scientific uncertainty, also underpinned by the inherent interests of the actors, and all of which have substantial implications for ensuring sustainable outcomes. This was also acknowledged by the above-cited EU Commission, which stated how a:

> '… panoply of conflicting experts' opinions, coming variously from within the academic world, from those with practical knowledge, and from those with direct stakes in the policy issue. These opinions may be based on quite different starting assumptions and quite different objectives. … Increasingly, then, the interplay between policy-makers, experts, interested Parties and the public at large is a crucial part of policy making and attention has to be focused not just on policy outcome but also on the process followed.'[631]

In order to ensure balanced decision-making, it is imperative that the decision-makers be equipped with the adequate skills and knowledge to meaningfully interpret diverse and often-conflicting subject-specific information, as well as public input, while making meaningful deductions from often uncertain and inconclusive scientific reports. Therefore, while decision-makers having a diversity of knowledge is important in order to circumvent the issues of indeterminacy and plurality of perspectives that are inherent to biosafety, this comes with additional challenges. The aim of this section is thus to consider the various actors in Namibian decision-making in order to understand how they will contribute to rulings on sustainable biosafety.

[631] Commission of the European Communities (n 220).

According to Article 5, the Biosafety Council, which is a freestanding statutory body, is the main regulatory institution for biosafety. It is a council established under another statutory institution – namely, the NCRST. This connection is established by Article 5 (2) of the Act, which states that '… the council is deemed to be a council established by the Commission under Article 19(1) of the Research, Science and Technology (RST) (Act no.23 of 2004)'. The RST Act was passed with the understanding that successful innovation is essentially the result of the complex, interactive and integrated processes of different multi-sector stakeholders and needs a well-coordinated system to function effectively.[632] The commission is tasked to coordinate and promote activities and initiatives related to research, science and technology for developmental purposes. Thus, biotechnology could be one of the technologies to be promoted and supported through funding under the RST Act.

In contrast, while the RST Act is promotional in nature, the Biosafety Act is largely regulatory and this might result in legal tensions. This is because of the inherent prejudice that might arise if the same institution has to promote and regulate itself and it remains to be seen how this issue will be resolved. It could be argued, at least in *a priori* terms, that the council is a freestanding statutory body and thus could retain autonomy from the overall parent body. Nonetheless, in practice, whoever provides funding exerts coercive influence, while reporting and accountability lines could be blurred as well. The same can be said about the arrangement for biosafety inspectors.

According to Article 18(1)(b) of the Act, the Biosafety Council can, in executing the functions of inspections, appoint such other persons as are considered reasonable to be inspectors for the purposes of the Act. Article 18(2) indicates that such persons can be staff members of the public service or employees of a statutory body or institution. It further obligates that this should be a consulted upon and negotiated arrangement between

[632] Ministry of Education, '2006 Research, Science and Technology Strategic Plan' (2006) (Unpublished)

the council and the respective ministers or person(s) in charge of the statutory institution where the employee is employed. As mentioned above, these types of arrangements cloud the lines of accountability and might result in ineffectiveness in the execution of vital biosafety functions. For instance, can the council instruct an inspector from a different institution to attend to an emergency biosafety situation, leaving their workstation at short notice? Such questions could probably be negotiated, as stipulated above, but, again, the reality is not always straightforward. While the answers to these questions remain unclear, the fundamental issue of concern in decision-making, with regard to the question of the objective balancing of sustainable development imperatives, lies with the composition of the council as the ultimate body that makes recommendations to the minister.

Article 6 prescribed the membership of the council in terms of the type of expertise needed by the panel and its numbers. It prescribed that the council should consist of seven members from the following fields: environmental issues, including environmental assessment; public health issues, including food hygiene and food safety; animal health and welfare or other related agricultural issues; molecular biology, law, research, science and technology and trade and economy. From the outset, it is evident that these areas of expertise are not exhaustive, and, thus, Article 13 provides for the establishment of expert committees to educate the council about a specific decision. This flexibility in terms of the creation of the *ad hoc* advisory committees to complement the council's aforementioned expertise, is important because varied technical questions must be asked based on, for instance, the types of effects projects have, safety measures and specific species and the scope of time and space in order to gain meaningful perspectives. Therefore, the specific expert communities, and even the individual experts consulted, are critical because the manner in which a specific question is framed determines their advice and the overall outcome.[633]

[633] Silvio Funtowicz and Roger Strandt (n 590) 270.

Moreover, as established in Chapter Four, biosafety is a comprehensive and complex subject which lies at the intersection of many disciplines, including more than simply science. As is also critiqued by Funtowicz and Strandt, such regulations are about more than deducing action from facts and preferences and its knowledge base is not only produced by scientific facts.[634] Similarly, varied representation is important because different disciplinary framings also determine factors such as the ways of mitigating risk and management efforts, so the individual involved in the framing of the problem and devising its solution plays an essential role.[635] Thus, diverse biosafety-related expertise is needed to ensure that different disciplinary views are considered in order to ensure meaningful conclusions.

Furthermore, the Act has been questioned in terms of why the public is not represented on the council through groups, such as consumer protection or civil society organisation. This is critical because such representatives could best handle the non-scientific components of problems. The important role that civil society has played in shaping some of the important international developments in the discourse on biosafety[636] demonstrates that they are important players in such decision-making. Arguably, as discussed above, wider levels of inclusion could be engaged through public participation. However, the requirement that public input should only be sought through written comments with no physical representation of the public in the decision-making process are undermined in the Act, as written inputs might not be given the same weight. Not only are public participation and input an imperative in themselves, but they are foundational elements of the rule-of-law. As

[634] Ibid, 264.
[635] ibid.
[636] Lim Li Ching, 'Civil Society Helps Promote Safety in the use of Biotechnology: Third World Network' in Biosafety Protocol News: Ten Years of Promoting Biosafety in the Use of Biotechnology, A Magazine on the Cartagena Protocol on Biosafety (2013) Issue 11 <http://bch.cbd.int/protocol/outreach/newsletter/bpn-11.pdf> accessed 21 August 2013.

discussed in Chapters Two and Three, they also guarantee a high degree of transparency and accountability.[637] These are essential parameters of the rule-of-law, without which sustainable development is compromised.[638]

The dominance of scientific experts in the council also has further implications regarding the question of scientific objectivity and to what extent scientists in fact retain a balance between their rational and functional interests. Scientific information comes from people and institutions that have a direct stake in these decisions. Therefore, while science informs such decisions, at the same time, the object of those decisions has a direct bearing on scientific practice.[639] Funtowicz captures this well by stating that scientific information and people working in institutions with their own agendas create advice.[640] He further argues that this can affect the content of what is offered through the selection and the shaping of data and, therefore, conclusions and objectivity might well be compromised.[641] Moreover, science can (and probably will) be abused when used as evidence because scientific practitioners and their funders have their own interests and values.[642]

6.5 Conclusion

The Act is the main and the most specific legal instrument on biosafety in Namibia, while there are a number of national laws that have a direct or an indirect relevance to biosafety. The Act recognises these overlaps and attempted to address them through a saving clause that the 'provisions of this Act are in addition to, and not in substitution for, the requirements of any other law.' Again, this clause could be interpreted as the Act subordinating itself to the requirements of other laws in the case of conflicts, contrary to its Constitution, as

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[637] Australian Agency for International Development (n 323).
[638] Stephan Morse, 'Post Sustainable Development' (2008) 16 SD 341.
[639] Commission of the European Communities (n 220).
[640] Silvia Funtowicz, 'Why Knowledge Assessment?' in Angela Guimaraes Pereira, Sylvia Tognetti and Sofia Guedes Vaz (eds), Interfaces between Science and Society (Greenleaf Publishing 2006) 140.
[641] ibid.
[642] ibid.

expounded on earlier in Chapter Six. Thus, while the Act needs to be understood, aligned and implemented in a synergistic manner that will ensure legislative harmony with other relevant laws, this is an elusive call, considering the conflicts between biosafety and trade values and interests. Evidently, the drafters of the Act had difficulty addressing this diversity of issues as is indicated by this carefully crafted precautious law with its expansive scope.

While this is the case, the Act fails to properly advocate for distinct synergies between conflicting biosafety and trade norms, as will be examined in the following chapter. The Act also does not suggest any substantive normative content or prescribe the exact orientation and focus of operationalising important biosafety principles, such as the precautionary principle, that could assist in dealing with the complexities of sustainable biosafety. Moreover, the diverse and the divergent perspectives regarding the risks and benefits of biotechnology in Namibia are amplified by the equally diverse and conflicting interests and values contributing to the adoption of a broad-based conception of biosafety. This indicates that there was no shared understanding of what constitutes biosafety and this resulted in very broad and open-ended provisions that could mean anything to anybody. While this remains the case, it is not clear how the provisions of the Act with its open-ended decision-making parameters will support sustainable biosafety, particularly in the midst of evidence of there being conflicting provisions between the Act and Namibia's international trade obligations under the WTO.

While these concerns remain, it is only when the Act is enforced that the extent to which these conflicts will compromise sustainable biosafety, will be demonstrated. Nevertheless, conflicts of norms are inevitable under biosafety laws in the case of the Namibian law and the CPB with the WTO norms. Chapter Seven will demonstrate how this could be surmounted through the reliance on the principle of mutual supportiveness.

CHAPTER 7: THE PRINCIPLE OF MUTUAL SUPPORTIVENESS IN NAMIBIA AND A CALL FOR THE ESTABLISHMENT OF A SPECIALISED ENVIRONMENTAL COURT

7.1 Introduction

Chapter Five having established that the principle of mutual supportiveness has utility and applicability as a means to pursue sustainable biosafety, it is now prudent to assess its utility and applicability in the Namibian legal system specifically as it pertains to its environmental governance. This chapter, therefore, firstly considers the extent to which the principle of mutual supportiveness may be useful in the pursuit of sustainable biosafety in Namibia. In so doing, it will demonstrate discordances between the Act, the CPB and the WTO – considering mainly those provisions dealing with labelling, socio-economic considerations and scientific risks assessment requirements. Secondly, this chapter determines the applicability and legality of the principle of mutual supportiveness in the Namibian legal system. Thirdly, it analyses how existing environmental governance weaknesses could inhibit the use of mutual supportiveness in Namibia. Thus depriving the country of the benefits of its utility in sustainable biosafety. The section concludes that the Namibian legal system desperately needs to improve its environmental governance through institutional reforms to establish an independent judiciary. This call is validated through a further exposition of weaknesses in Namibian environmental governance, demonstrated by the *Namib Plains Farming & Tourisms Cc and Valencia Uranium and others* as well as the *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism, and others*. Lastly, the chapter ends with an urgent call for the establishment of a specialised court to handle environmental cases, specifically those at the interface of WTO law, such as sustainable biosafety.

7.2 Discordance between the Act, the CPB and the WTO

Before the analysis of the extent to which the principle of mutual supportiveness might prove useful in ensuring sustainable biosafety in Namibia, one must first establish the extent to which the Act is possibly conflicting with

its international obligations under the CPB and the WTO in order to highlight the problem of conflicts. The previous chapter demonstrated the potential tensions that could exist between the social, economic and environmental objectives of sustainable biosafety in Namibia. Here the analysis will examine the extent to which these clashes are problematic and what they mean for sustainable biosafety in Namibia. The aim of this section is, therefore, to assess some of the provisions – in particular the socio-economic and labelling provisions specifically with regard to the inclusion of processed GMO products in the regulatory scope of the Act.

Chapter Five concluded that the scope of the Act is all-encompassing. The Act regulates all living and non-living GMOs, including the products derived from them, but is limited to those, 'which are likely to have an adverse effect on human health (allergenicity and toxicity) or environment', whether living and capable of biological propagation or not. Thus, for a GMO product to be regulated under the Act, it has to be determined whether it is likely to pose adverse effects on human health and/or the environment. This is one major divergence of the Act from the CPB, which limits its main regulatory scope to the transboundary movement of LMOs, which are biologically capable of transferring or replicating genetic material. The regulation of processed products is one of the main causes of contention when analysing the provisions of the Act, for instance its labelling requirements, and this is expounded on below. It is equally important to expound on the complications caused by the wide scope of socio-economic provisions under the Act.

Both the Act and the CPB regulates GMOs/LMOs with 'adverse effects on human health', but they do not define or guide what constitute such adverse effects. For instance, could emotional insecurity or aesthetic discomfort constitute adverse effects on human health? This raises several legal difficulties that might result in conflicts between both the Act and the WTO, while they will equally not get support under the CPB. As discussed in Chapter Five, in the *EC-Biotech Case* the WTO would only align with decisions that were based on scientific

knowledge, notwithstanding the fact that scientific uncertainty inhibits the decisive determination of health and safety risks, as well as environmental impacts. Things such as emotional insecurity or aesthetic discomfort will not stand the WTO scientific test, as they are subjective. This also applies to the host of religious and moral concerns that could potentially be allowed under the socio-economic provisions of the Act. This again could be one of the bases for conflicts between the WTO and the Act, which cannot also be supported by the CPB, due to the limitations discussed in Chapter Four. This is because, for instance, the CPB only includes socio-economic concerns as a result of the direct impacts of LMOs on biological diversity and not the direct impact of an LMO on whatever socio-economic concern. This means that an LMO must first impact biological diversity and because of that impact on biological diversity, a socio-economic concern must arise for Article 26 to be invoked. To determine such complicated causal relations is difficult. More so, when considered in relation to the complexities surrounding the requirements for such decisions to be based on scientific knowledge as per WTO law and the problem of scientific uncertainty. What is also worth mentioning here is that contrary to the Act, the CPB states that parties 'may take into account' socio-economic issues. This is a very weak provision because it implies that they do not need to substantively address them.[643] Thus, this provision stands in direct contradiction to the WTO.

What is further problematic under the decision-making criteria is that Article 25 (4) (b) of the Act also obligates that all biosafety dealings in Namibia must be in the public interest. This Article introduces an additional legal basis for further conflicts between the Act and the WTO, especially when considered in line with its definition of the term 'environment'. The Act defines the environment as:[644]

[643] Debbie Collier and Charles Moitui (n 20).
[644] Alet Greeff, 'Does Namibia's Constitution Provide an Enforceable and Pursuable Environmental Right?' (2012) 4 NLJ 16.

'… the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life …'

This definition orients towards deontological concepts (see Chapter Two) of development, which positions social and human objectives at the heart of sustainable biosafety. While human health issues could potentially find a scientific basis for justification, social issues aligning with more subjective notions of public interest prove difficult to reconcile with the WTO. The first question is what constitutes public interest under the Act, especially when those interests could be so diverse. Nevertheless, while these are difficult questions for the biosafety regulators to deal with, it is worth mentioning that the anthropocentric definition with deontological foundations, as discussed in Chapter Two, underlines the need for complementarity between the social, economic and environmental objectives of sustainable biosafety. What further upsurges the probability of conflict between the Act and the WTO, as mentioned above, is the inclusion of products derived from GMOs specifically with regard to the labelling requirements of the Act.

The Act in Article 32 (1) obligates every permit holder to ensure that any GMO or GMO products are clearly labelled and identified as such, specifying:

(a) the relevant traits and characteristics thereof; and

(b) the requirements for the safe-handling, storage, transport and use thereof.[645]

Similarly, subparagraph (2) states that the packaging and labelling of any GMO or GMO product must comply with such requirements as may be prescribed or specified as permit conditions. While substantive conclusions regarding labelling cannot be drawn from these provisions as they are to be detailed in the regulations,

[645] Biosafety Act 2006 (Act No. 7).

it is already clear that the objectives for labelling must have a strong scientific backing in order to stand the WTO test. For instance, there must be scientific proof that the GMOs are substantially different. Additionally, the TBT, which aims to ensure that technical regulations and norms, including testing and certification processes, do not cause undue obstacles to trade. The TBT could potentially not permit these labelling requirements, as they could constitute unfair discrimination.[646]

The main reason for regulating GMO products under the Act was to ensure human and animal health.[647] Thus, labelling and identification provisions of the Act as a food safety measure could constitute SPS measures. If so, GMO and non-GMO products could be regarded as the same and, if treated differently, this could constitute unnecessary discrimination between 'like products', according to Article 2(1) of the TBT. In the meantime, the question of whether GMOs and their conventional counterparts are 'like products' still lingers on.

Neither the TBT nor the GATT clarifies what 'like products' are, while substantial equivalence has not acquired scientific certainty.[648] Nevertheless, WTO cases clarify that products are 'like' based, firstly, on the physical properties of the product.[649] In this case, it could be based on traits, such as the presence of detectable versus undetectable modified genes, secondly, depending on the extent to which the product is able to serve the same or similar functions, and, lastly, on the international classification of products for tariff purposes.[650] In some

[646] Asif Qureshi and Andreas Ziegler, *International Economic Law* (2nd edn, Sweet and Maxwell 2007).
[647] See also Ministry of Education, Training & Employment Creation, Discussion Document for the Workshop on the 'Finalization of the Draft Biosafety Bill' held on the 3 December 2003 at Safari Hotel, Windhoek, Namibia.
[648] Andrew Green and Tracey Epps, 'The WTO, Science and the Environment: Moving Towards, Consistency' (2007) 10 JIEL 285.
[649] Chee Yoke Ling and Lim Li Ching 'The WTO Agreements: An Introduction to the Obligations and Opportunities for Biosafety' in Terje Traavik and Lim Li Ching (eds), *Biosafety First: Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (Tapir Academic Press 2007).
[650] ibid.

instances, consumer perceptions supported by data and evidence related to the health risks associated with a product could be considered in determining whether products are 'like'.[651] Applying all of the above criteria to, for instance, milled GMO maize meal implies that it could be a 'like' product to its conventional counterpart. However, if substantial differences can be demonstrated, the regulation of GMO products in a trade-restrictive manner could be supported under Article 2(2) of the TBT. This Article deals with legitimate objectives and implies that higher standards could be allowed, *albeit* only with prescribed legitimate objectives such as:

> '… national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are, *inter alia:* available scientific and technical information-related processing technology or intended end-uses of products.'[652]

Considering the history of WTO Panels, it is likely that they would also consider such measures to be against the SPS obligations as it could result in a trade-oriented outcome. If so, this would then set the bar only to the extent that it is supported by scientific information (see Chapter Five's discussion of the *EC-Biotech Case*). Then again, unless there is scientific evidence to substantiate claims of risk and disprove the substantial equivalence test, the possibility of conflicts occurring between the Act and the WTO Agreements remain whatever the objective of the labelling and identification measures may be. Again, it is evident that conflicts are inevitable, mainly between the Namibian biosafety norms and the WTO law. Particularly, the Act's, formulation of the precautionary principle, which gravitates towards the orientation of the CPB, and so the regulatory approach of the Act aligns to the approach underpinned by the precautionary principle. Chapter Four demonstrated that this approach is potentially the basis of conflicts between the WTO and the CPB and by implication the WTO and the

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[651] WTO, *European Communities: Measures Affecting Asbestos and Asbestos-Containing Products: Appellate Body Report* (5 April 2001) WT/DS135/AB/R, para 113.
[652] WTO Agreement on Technical Barriers to Trade, Final Act of the 1986-1994 Uruguay Round of Trade Negotiations.

Act. This means that Namibia's obligations under the WTO would require that all decisions under the Act be substantiated by scientific knowledge, as discussed in Chapter Five between the CPB and the WTO. What then could be the role of mutual supportiveness in the case of Namibian sustainable biosafety?

7.3 Mutual Supportiveness in the Namibian Legal System: Legality and Utility?

The principle of mutual supportiveness in pursuit of sustainable development is not a stand-alone principle as demonstrated in Chapter Five. Also, as it pursue sustainable development as the goal, it is crucial to sustainable biosafety in Namibia and finds legality in as much as it pursues the principle of sustainable development, which is a principle of law in Namibia. Thus, the principle of mutual supportiveness is supplemented by sustainable development as a legal principle in the Namibian legal system. Even so, it is not a straightforward proposition, because for instance its legal status is disputed while it also lacks court recognition. Therefore, it can only serve an interpretive role, filling the gap where the traditional tools of conflict resolution are not useful in the pursued of sustainable biosafety, *albeit* only at the will of the courts to do so. This session will analyse all these aspects with regard to the Namibian legal system.

Sustainable development is a constitutional principle and constitutes the foundation of environmental governance, mainly through its elaboration in the 2007 Environmental Management Act No. 7 as well as the Biosafety Act. It articulates sustainable development as a constitutional principle of state policy aimed at promoting the welfare of the people. It does this through Article 95(l), which states that:

> 'The state shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at – (l) maintenance of ecosystems, essential ecological processes and biological

diversity of Namibia and the utilization of the living natural resources on a sustainable basis for the benefit of all Namibians, both present and future …'[653]

Notably, even though the principles in Article 95 of the Namibian Constitution are not legally enforceable, they are aimed at constituting the normative basis of enforceable laws.[654] This is clarified by Article 101 of the Constitution, which states that these principles are not of and by themselves legally enforceable by any court, but only serve as guides in making and applying laws to give effect to the fundamental objectives of the said principles. The Namibian courts are also required to consider these principles in interpreting the laws that are based on them.[655] Therefore, sustainable development, as one of the constitutional principles under Article 95, has fundamental importance in constituting the normative basis of laws such as those governing biosafety.

Additionally, there is one provision of the Namibian Constitution, which has the potential to create room for the application of the principle of mutual supportiveness in the pursuit of sustainable biosafety in Namibia– Article 91(c). This Article, as also discussed by Kasper, calls for progressive development and innovative ways to create environmental protection,[656] referring to:

'… the duty to investigate complaints concerning the overutilization of living natural resources, the irrational exploitation of non-renewal resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.' [657]

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[653] The Constitution of the Republic of Namibia, Article 95(l).
[654] Alet Greeff (n 644).
[655] ibid.
[656] George Kasper, 'The Uranium rush in Namibia and the Environmental Law Changes Caused' (2010) <http://wwwisis.unam.na/theses/kasper2010.pdf/> accessed 4 March 2014.
[657] The Constitution of the Republic of Namibia, Article 91 (c).

All the aforementioned objectives could be seen to be applicable to certain aspects of sustainable biosafety and, indeed, the fact that the Namibian Constitution supports progressive and innovative ways to handle complaints could also include a search for new ways to foster sustainable biosafety. One such means could be the exploration of the interpretive utility of the principle of mutual supportiveness, albeit its application would depend on its legal status in the Namibian system. What is worth noting here though is that these constitutional provisions indicate that sustainable development is a recognised objective and a legal principle in the Namibian legal system. What is troubling, however, is that the courts rarely attempt to use it as applicable interpretive law,[658] as will be demonstrated below. This is even more often the case when the principle of sustainable development constitutes enforceable obligations under statutes such as the Environmental Management Act No. 7 of 2007.

The Environmental Management Act integrates the objectives of sustainable development as enforceable legislation and thus aims at furthering the objectives of the Constitution, in this case specifically Article 95(l). It states that sustainable development:

> '… means human use of a natural resource, whether renewable or non-renewable, or the environment, in such a manner that it may equitably yield the greatest benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations including the maintenance and improvement of the capacity of the environment to produce renewable resources and the natural capacity for regeneration of such resources.'[659]

The Environmental Management Act is therefore, the applicable and detailed law that gives effect to the aspirations adopted through these principles – namely, those of sustainable development.

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[658] George Kasper (n 656).
[659] Environmental Management Act 2007 (Act No. 7 of 2007).

Furthermore, in its objectives, the Environmental Management Act obligates that dealings relating to the environment are to respect the significant environmental legal principles that are also foundational to sustainable biosafety, specifically, the procedures to get permission, public participation and consultation, the precautionary principle and so on. These principles are set out as follows:

a) ensure that the significant effects of activities on the environment are considered carefully and in time;

b) ensure that there are opportunities for timeous participation of the interested and the affected Parties throughout the assessment process; and

c) ensure that the findings of the assessments are taken into account before any decision is made in respect to activities.'[660]

Article 3(2)(c) states that:

'… the participation of all interested and affected Parties must be promoted and decisions must take into account the interests, needs and values of interested and affected Parties.'[661]

Furthermore, Article 3(2)(k) provides that:

'…where there is sufficient evidence, which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'[662]

[660] ibid, Part I, Para 2.
[661] ibid, Part 2, Para 3.
[662] ibid.

Therefore, these provisions create an obligation to foster sustainable development and its underlying principles as both interpretive and applicable law. What is also worth noting here is that, while these Articles make explicit reference to sustainable development and its underlying principles, it makes no notable direct or indirect reference to mutual supportiveness. In such incidences, it is prudent to consider whether in any substantive elaboration on the notions of sustainable development, one could pick up any direct or indirect reference. Sadly, there is no further elaboration in Namibian environmental governance in terms of how sustainable development should be used as applicable or interpretive law and neither is there any substantive conceptions to guide its usage. This is one of the drawbacks for greater reliance on sustainable development, even though it is enshrined as an important legal objective and principle of law. This also justifies the adoption of sustainable biosafety as a qualitative guide to measure aspirations of sustainable development in the case of the Namibian Biosafety Act, in Chapter Three. Paradoxically though, this void also provides an opportunity for further elaboration on the principle in a manner that calls for mutual supportiveness as one of the innovative means to pursuing its aim, as prescribed by the Constitution, which calls for innovative legal reforms, discussed above. While it remains to be seen how this legal framework will develop, it is important to consider Namibia's engagement with international law, because in the absence of any legal enshrinement, the applicability of mutual supportiveness could be supported via the international legal obligations that Namibia is bound by. However, only to the extent that it can confer legal status for it to be used as an interpretive tool and not to adjudicate against it.

Notably, Chapter Five established how the WTO, CBD and the CPB, of which Namibia is a party, enshrine this principle albeit to different degrees. Therefore, the principle of mutual supportiveness finds its relevance for the Namibian legal system through the incorporation or transformation of international law. However, before such claims could be embraced, it is important to consider how international law finds engagement in the Namibian legal system.

According to the Constitution, international law becomes binding on Namibia once it has been acceded to according to Article 144, which states that:

> 'Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements binding on Namibia under this Constitution shall form part of the law of Namibia.'

Similarly, Greeff concluded from case law that:

> 'By virtue of Article 144 of the Namibian Constitution, Article 14 (3) (d) of the ICCPR forms part of the law of Namibia and, hence, is to be given legal effect. It was also held in the Supreme Court judgment in *Namunjepo & Others v. Commanding Officer, Windhoek Prison & Another* where the court ruled that the whole of the ICCPR had become part of the law of Namibia and, therefore, had to be implemented.'[663]

This is the case, even without a subsequent domestic instrument, which could be problematic for the framework instruments such as the CPB, which will be elaborated on shortly. Similarly, Ruppel acknowledged that by virtue of interpretation of Article 144 '… no transformation or subsequent legislative act is needed.'[664] The only condition is that an instrument must not conflict with the Constitution or any other Act of Parliament, in which case the national instruments supersede international law. However, often the direct application of international law is limited because international law is frequently too general to serve directly as applicable law and needs subsequent elaboration. This is very evident in case of the CPB, as was demonstrated in Chapters Four and Six, because it is a broad framework instrument that needs subsequent elaboration and clarification of its

[663] Alet Greeff (n 644); also see *Namunjepo & Others v. Commanding Officer, Windhoek Prison & Another* [1999] NR 271 (SC).
[664] Oliver Ruppel, 'Third-generation Human Rights and the Protection of the Environment in Namibia' <http://www.kas.de/upload/auslandshomepages/Namibia/HumanRights/ruppell.pdf> accessed 3 May 2013.

provisions, which by themselves might not constitute practically enforceable obligations and thus there was needed a subsequent national law, namely the Biosafety Act.

In addition, besides the Constitutional provision, the Namibian legal system does not have detailed rules governing the relationship between its rules and those of international law. However, as a principle with some degree of elaboration within the international legal system, mutual supportiveness could be used in the Namibian legal system via the obligations imposed by international law, as cited above from Article 144. However as discussed in Chapter Five and above it can only be used as an interpretive tool with limited legal consequences, as there is no court recognition for it in Namibia.

Based on Article 144 Namibia is a party to a number of international legal instruments that have enshrined the principle of mutual supportiveness. In addition, to the WTO, CBD and CPB, Namibia is also a party to treaties, such as the 1998 Rotterdam Convention on the Prior Informed Consent for Hazardous Chemicals and Pesticides in International Trade[665] and the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture.[666] Thus, mutual supportiveness is a principle of international law that has applicability in the Namibian legal system at least as far as it is enshrined in the cited legal instruments of international law to which Namibia has acceded.

[665] Rotterdam Convention on the Prior Informed Consent (n 467).
[666] Food and Agriculture Organization, International Treaty on Plant Genetic Resources for Food and Agriculture (adopted 2001).

The only drawback, as was also discussed above, is that international law does not seem to enjoy priority or superiority over domestic law in Namibia,[667] and this is indicative of the none existence of court recognition for the principle of mutual supportiveness. This is something that might limit the usage of the principle of mutual supportiveness, in sustainable biosafety. By implication, mutual supportiveness has thus to surmount the traditional notions and practices of the Namibian legal system, which needs an urgent overhaul mainly as it pertains to environmental governance. This reinforces calls for progressive innovative legal reforms, including structural as well as normative ones and this aligns with the call for the establishment of an independent specialised court to handle environmental cases, such as biosafety. In order to better substantiate the call for the establishment of an EC, it is prudent to consider the overall environmental governance of Namibia.

7.4 Weaknesses in the Namibian Environmental Governance and Implications for the Application of Mutual Supportiveness

In recent years, the weaknesses in Namibian environmental governance have manifested in a number of court cases, many of which were followed by appeals. The case between *Namib Plains Farming & Tourisms Cc and Valencia Uranium and Others* as well as the *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism, and Others,* are such examples and they illustrate some of the weaknesses of Namibian environmental governance. This section will use these cases to elucidate the extent of the weaknesses in Namibian environmental governance, and so substantiate the call for the establishment of an independent Environmental Court (EC), in the next section. It is worth mentioning here that the previous chapters demonstrated that in international law the resolution of conflicting norms in a manner that promotes sustainable biosafety is elusive and that its horizontal structural set-up contributes significantly to this. In the national legal systems, it is popularly believed that conflicts are easily resolved through neatly defined hierarchies, ranging from the Constitution at the

[667] Michael Bogdan, 'The First Decade of Namibian Law' (1999) 68 NJIL 275.

top of the pyramid, followed by statutes and so on. While this might be the case, sustainable biosafety challenges the efficacy of this hierarchy. The challenges are amplified by the fact that there are complex technological regulations with equally complex economic/trade interactions as well as socio-economic context. In this case, simultaneous integration, as required by sustainable biosafety, tends to be elusive irrespective of the conflict resolution offered by such a hierarchy, as demonstrated in Chapters Four and Five. Thus, the pursuit of sustainable biosafety, presents unique challenges that cannot be easily reconciled by the traditional practices of dispute resolution even in national legal systems, notwithstanding the fact that the question of the extent to which domestic legal systems can handle biosafety and trade conflicts in a manner that promotes sustainable biosafety is not a well-trodden area of legal debate. What Chapter Five illustrated is that there are indications that this problem will likely be replicated at the domestic level.

Additionally, administrative architecture exhibits fragmentation, which might result in disparate isolated handling of sustainable biosafety objectives. Because, for instance, the ministries responsible for environmental affairs implement multilateral environmental agreements, while ministries of agriculture or science and technology often oversee the specific trade ministries' deal with trade agreements and biosafety. Accordingly, this results in the adoption of separate statutes, which often mirror the respective international instruments.[668] In such cases, conflicts might be avoided, but only to the extent that the separate governmental bodies integrate their respective norms at a legislative level in a mutually supportive manner. However, this kind of *ex ante* coordination is largely ineffective, due to the aforementioned fragmented nature of legislative development and the imposition of conflicting and fragmented international norms.

[668] Duncan French (n 25) 357.

The ensuing difficulty then is that in trade-related environmental disputes, the national level judiciaries have to interpret and apply rules and norms from two or more separate but overlapping specialised statutes.[669] This section argues that international law and its guiding principles of normative conflict resolution do not enjoy priority in the Namibian courts. However even if it was so, Chapter Five proved that they do not provide answers to sustainable biosafety, and this supports the imperative for self-reliant legal reforms in order to enhance the pursuit of sustainable biosafety.

The previous Chapter already indicated that the Namibian judiciary suffers from significant normative and structural weaknesses that might further impede sustainable biosafety, which is also indicative why of late its courts are inundated with environmental disputes. While the courts reach timely decisions in such cases, they are handled without due consideration for the substantive environmental issues and are merely adjudicated on procedural grounds, thus undermining overall sustainable development efforts. This was the case in both the *Namib Plains Farming & Tourisms Cc and Valencia Uranium* and *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others* cases.

The *Namib Plains Farming & Tourisms Cc and Valencia Uranium and Others Case* emanated from an application launched in the High Court by Namib Plains Farming and Tourisms Cc against the granting of four extraction permits for ground water to the Valencia uranium mine by the Ministry of Agriculture, Water and Forestry in 2008. At the heart of this case were divergent interests and concerns related to trade/economic, socio-economic and environmental objectives of sustainable development. The permits were granted mainly on the

[669] United Nations Environment Programme, 'Enhancing Synergies and Mutual Supportiveness of Multilateral Environmental Agreements and the World Trade Organization' (28 January-8 February 2002) DESA/DSD/PC2/BP8.

grounds of national economic growth. The complainants cited socio-economic and environmental concerns, and the lack of appropriate scientific knowledge to guide decisions, as the main reasons for their grievances.

Importantly, they also complained about the improper application of the Environmental Management Act, mainly its underlying environmental principles, namely the precautionary principle and public participation. They highlighted that, for instance, the hearing was held on the day that the permit was granted and this indicates that principles, such as public participation, were merely used as window-dressing with no serious intention of considering any issue that arose as a result of outside input.

In addition, the *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism, and Others*[670] case also provides important insights. In this case, the minister overturned the decision to grant the mining and prospecting licenses for phosphate, which were initially granted by the Environmental Commissioner under the Environmental Management Act. This occurred because a private citizen appealed against the decision of the Commissioner. It is worth noting that the minister reluctantly overturned the decision of the Commissioner, mainly (only) because of sustained pressure from the public, civil society and the fishing industry. This was a reversal from his initial open defence of the Commissioner's decision, as reported in newspapers. In the statement of one of the opponents '… the politician (referring to the minister) has already taken sides in this matter by defending the Commissioner's decision',[671] thus questioning the minister's neutrality in the reviewing process.

[670] *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others* [2018] CA 119/2016.
[671] 'Govt Admits Phosphate Blunder' *The Namibian Newspaper* (16 October 2016) https://www.namibian.com.na/157568/archive-read/Govt-admits-phosphate-blunder assessed on 28 March 2019.

Nonetheless, the minister eventually overturned the decision and Namibian Marine Phosphate (Proprietary) Limited then appealed to the High Court, against the decision of the minister. The High Court then set the decision of the minister aside, mainly based on illegality of the decision on procedural grounds.[672] What is worth noting here, is that neither the appellants nor the respondents argued their cases on substantive grounds. Similarly, the court restricted itself to the legality of the procedural aspects that led to the minister's decision, but it did not address the underlying substantive socio-economic and environmental imperatives as the main basis of contention, as was argued by the complainant. Furthermore, this case is also indicative of the prevailing disregard for the rule-of-law, which is reinforced by claims of incompetence and corruption. Following are a number of newspaper extracts proving this.

The Commission:

- "… committed a number of vitiating irregularities by not complying with mandatory provisions of the Act and Regulations"
- "… despite concerns that such mining could pose a grave danger to the marine ecosystem"
- "… in fact did not have the competence to consider the application …"
- "… concedes to a certain extent that it has, albeit inadvertently, omitted to comply with some of the requirements of the Environmental Act"[673]

Additionally, as was the case in the *Namib Plains Farming & Tourisms Cc and Valencia Uranium and Others* case, the complainants particularly drew the court's attention to the precautionary principle in light of the

[672] *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others* [2018] CA 119/2016.
[673] 'Govt Admits Phosphate Blunder' *The Namibian Newspaper* (16 October 2016) https://www.namibian.com.na/157568/archive-read/Govt-admits-phosphate-blunder assessed on 28 March 2019.

non-existence of scientific evidence for the specific scientific assessment. However, the court, similar to the first case, made no mention of it neither did they engage in any substantive considerations nor sustainable development was not even mentioned.[674]

It needs to be asked whether these problems also reinforce the questions surrounding the lack of appropriate technical competence for the generalist judges to deal with complex environmental issues, in the case of Namibia. Kasper also noted that courts in Namibia '…trained and experts in the field of environmental law who are solely entrusted with hearing environmental law related cases…'.[675] While Pring and Pring also acknowledged that generalist judges in ordinary courts lack adequate familiarity with complex environmental laws and principles.[676] Arguably, the prevailing weaknesses in the country's environmental governance is itself a consequence, as well as a contributing factor, to its low administrative capacity and the prevalence of corruption. This is a sorry state of affairs for Namibia's development efforts and it will certainly not stimulate sustainable biosafety. In the end, these challenges will exacerbate the already high inequality and poverty levels, while environmental degradation will be inevitable and all these things will undermine Namibia's developmental state.

Furthermore, one observation worth making here is that this state of affairs will probably lead an aggrieved person to opt to resolve biosafety and trade related conflicts at the international level, even though their issues might emanate from the application of domestic law. This is particularly true due to the coercive influence of

[674] See *Namib Plains Farming & Tourisms Cc and Valencia Uranium and Others* [2008] 1 CA 25/2008 and *Namib Plains Farming & Tourisms Cc and Valencia Uranium and Others* [2008] 1 Judgment (P) A 78/08.
[675] George Kasper (n 656) page 7.
[676] George Pring, and Catherine Pring (n 216).

international law, especially the WTO, as discussed in the previous chapters. Greeff also came to this conclusion after examining the existing weaknesses in Namibian environmental governance, stating that:

> '… instead of instituting legal action in terms of the principles of state Policy, a litigating Party may – and should perhaps – base his/her claims on an international right as contained in an international law or agreement binding on Namibia …'[677]

After all, biosafety and trade conflicts fall within the remit of international law as they both converge around aspects of transboundary trade,[678] even though international law still has to surmount jurisdictional issues. Additionally, international law has no general rule concerning how it ought to be incorporated into national legal systems.[679] In Namibia, it is evident from the discussion above that local courts can adjudicate disputes based on international law once this has been acceded to, but this nonetheless has limitations. While this situation remains, Namibia has to endeavour to comply with their international biosafety and trade obligations, while, at the same time, protecting their own unique varied social, economic and environmental interests. This is particularly the case because Namibia cannot afford to pursue Her varied sustainable biosafety objectives in a disparate manner, given Her fragile environment and high inequality and poverty levels, as outlined in Chapter One.

What then would be the best legal approach to supporting their efforts to address such developmental ills using biotechnology and its natural resources, including the country's varied biological diversity, through a structured and carefully considered sustainable biosafety approach? Considering their developmental objectives

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[677] Alet Greeff (n 644).
[678] For a good overview of weaknesses in environmental governance in Africa, see Michael Faure, Willemien Du Plessis (eds) (n 629); Alet Greeff (n 644).
[679] Even though it proposed principles such as universal jurisdiction and the principle of complementarity, these are highly contested. For an overview on the legal and political difficulties arising from the universal jurisdiction principle and the principle of complementarity, see United Nations, Universal Jurisdiction Principle must be Defined to Avoid Abuse, Endangerment of International Law, Sixth Committee Hears as Debate Begins, 15 October 2014, GA/L/3481 as well as Xavier Philippe, 'The Principle of Universal Jurisdiction and Complementarity: How do the Two Principles Intermesh?' (2006) 88 IRRC 375.

and the underdevelopment of Namibian environmental governance, Namibia stands to benefit from the establishment of an independent environmental court. Moreover, the fact that the Biosafety Act is not fully enforced, eleven years after its adoption, and the prevailing environmental court cases which often end in appeal after appeal, indicates that Namibia more than ever needs a separate environmental court. Such a specialised court will not only review such cases, but will also ensure progressive, innovative development of environmental governance as obligated by its own Constitution, discussed in the previous chapters and required by the pursuit of sustainable biosafety through mutual supportiveness.

7.5 Establishment of an Independent Environmental Court

The global expansion of environmental courts and tribunals have highlighted that sustainable development objectives, such as sustainable biosafety, can only be achieved and maintained through the development of specialist environmental courts. According to Pring and Pring, there are already over 350 specialist environmental courts and tribunals worldwide.[680] The structure of these courts are different depending on factors, such as need, cost and case volumes.[681] With specific focus on the Namibian sustainable biosafety, the following discussion will consider these factors and expound on issues such as the competence, legal basis for establishing the court, structure, character, jurisdiction and the legal consequences of the decisions of the proposed Namibian EC.

When considering the competence of the proposed EC, it is important to note the multidisciplinary and interdisciplinary nature of environmental disputes specifically those at the nexus of biosafety and trade. This requires diverse skills as well as equally multidisciplinary and interdisciplinary inputs in the adjudication process.

[680] George Pring and Catherine Pring (n 219).
[681] Brain Preston, 'Characteristics of Successful Environmental Courts and Tribunals' 26 JEL 365.

Therefore, the EC should be composed of judges with the appropriate multidisciplinary and/or interdisciplinary expertise and backgrounds. For Namibia, highly trained professionals in law and development issues, with appropriate multidisciplinarity, are very rare and the EC should thus have a good mix of interdisciplinarity of highly trained judges in law and science policy. Supporting this type of composition, Pring and Pring also argued that this is the best set-up that provides for different perspectives and insights in the judicial decision-making process.[682] This is ideal for the simultaneous interpretation of both environment/science laws and trade laws in conjunction with national development policies. It will, however, be desirable that such lawyers and scientists have appropriate specialisations from the vast array of legal and scientific disciplines. For instance, the lawyers could be specialised in trade/economic law and/or environmental law, while the science policy makers should be science and technology policy experts and/or environmental scientists with appropriate experience in environmental management and policy. Particularly, noting the importance of the inclusion of social and human oriented normative approaches in the decision-making process, such as Sen's approach discussed in Chapter Two, the EC should have authority to seek independent consultations on social and economic issues, seeing that the judges will be predominantly from the law and/or science fields.

Furthermore, one way in which Namibia can address the shortage of qualified judges is to take full advantage of international judicial training programmes such as the World Bank's programme of judicial capacity building, which also applies to judges from environmental courts and tribunals.[683] In addition, in the short-term, the court could engage in bilateral twining agreements for capacity building and experience sharing with allies who are front-runners in this area. In the long term, these efforts should be augmented through national tailor-

[682] George Pring and Catherine Pring (n 219).
[683] See World Bank, Legal and Judicial Capacity Building Project available via http://projects.worldbank.org/P044810/legal-judicial-capacity-building-project?lang=en assessed on 20 September 2018

made multidisciplinary and interdisciplinary training programmes. In any case, whichever approach Namibia decides to take, it is evident that the country cannot afford for this process to be delayed any further.

Furthermore, in its infancy, the EC could make greater use of and rely more heavily on the rich body of international jurisprudence, as the court develops its own legal rules, principles and body of knowledge. After all, this thesis demonstrates that both the Biosafety Act and the Environmental Management Act enshrine, to some extent, the relevant principles of international law and could, through better interpretation enhanced by the principle of mutual supportiveness, constitute a good starting point for the improvement of environmental governance in Namibia.

On the issue of the legal foundation for the establishment of the EC, it is true that even though the Namibian environmental management system under the Environmental Management Act and the Biosafety Act already possesses the basic legal and administrative requirements to establish such a court, Namibia must incorporate specific legal provisions for the establishment of the EC within its existing legislation. This will ensure appropriate standing and authority for the EC. Such a proposal finds support in both international and national laws, although specific amendments in its existing legislation are necessary. Internationally, for instance, principle 10 of the 1972 Rio Declaration on Environment and Development already has such provisions, for instance under its access rights, which states that:

> ‘Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making

processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.'[684]

The UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) translated Article 10 into a legally binding instrument for 46 European countries, as well as the West and Central Asian countries,[685]and is a good example that could be considered to provide Namibia with a suitable foundation. Moreover, it is not the first time that a specialist court would have been established in Namibia. The Labour Court is one such example, which has been established as one of the Superior Courts of Namibia under Section 15 of the 1992 Labour Act (Act No.6 of 1992).[686] Importantly, the proposed court could be established through a separate Act of Parliament or suitable amendments to the 1990 High Court Act (Act No. 16 of 1990).

The Namibian EC should be decisionally independent and should have an appropriate mandate and authority to deal with disputes related to the environment even those involving matters relating to the incompetence and/or the corruption of state officials, which often undermines the rule-of-law. After all, judicial independence is a characteristic shared by all successful environmental courts and an essential component of any sound environmental justice and governance system.[687]

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[684] 'Rio Declaration on Environment and Development' (n 383).
[685] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (adopted 25 June 1998 entered into force 30 October 2001) 2161 UNTS 447.
[686] Labour Act 1992 (Act No.6 of 1992).
[687] See, for instance, Brain Preston (n 669) and Rob White, 'Environmental Crime and Problem-Solving Courts' (2013) 59 CRIM.

Therefore, the EC should be structured as an Environmental Division of the High Court, which should be responsible for upholding the rule-of-law as enshrined in the various environmental statutes and related obligations imposed by international law. Structuring the EC as part of Namibia's judicial system, which is renowned for its independence from the State, [688] will contribute to the legitimacy of the EC especially in the eyes of its stakeholders and the public. This in turn will enhance public trust, which seems to be an issue in environmental governance. This is necessary in light of the prevailing mistrust between the Environmental Commission, the minister and the public, discussed above.

In order to maintain its independence, as mentioned above, this court should be free to make its own decisions and innovate procedures that remain consistent with changing environmental regulation, which seek to respond to evolving environmental needs, such as the rules relating to sustainable biosafety. This will be one of the important tasks of the court.

Furthermore, the EC should have well-defined jurisdiction in terms of all kinds of jurisdictions be it geographic, subject-matter, or levels of jurisdiction including appellate jurisdiction. What will be best suited for the Namibian EC in its specific legal, political and socio-economic context?

With regard to geographical jurisdiction, it is important to bear in mind the size of the Namibian population versus the physical size of the country and thus the challenges of reach associated with low population density spread over the vast country size. Chapter One stated that Namibia is a geographically vast country with a land

[688] For a good overview on this, see Nico Horn and Anton Bosh (eds), *The Independence of the Judiciary in Namibia* (Macmillan Education 2008).

mass of over 800 hundred thousand square kilometres with barely over two million people scattered over this vast land mass. However, in light of the recent increase in environmental disputes and the social, economic and environmental stakes, it is important that the court have geographical jurisdiction over the whole country. This will mean improved levels of access to justice, as also highlighted under sustainable biosafety in Chapter Three. To ensure that the whole population has access to justice, judges would need to travel all over the country for onsite hearings, for instance. The obligation of legal access to even the most socio-economically disadvantaged is consistent with the constructive role of the law in developing and advancing the public participation principles of sustainable biosafety, as discussed in Chapters Three, Four and Five. Similarly, Chapter Three concluded that these provisions also safeguard the inclusion of the social objectives of sustainable biosafety. What could then be the subject jurisdiction of the EC?

Typically, the ECs globally have broad subject-matter jurisdiction inclusive of all disputes related to environmental quality and those at the nexus of development laws, including land use. Therefore, ideally the Namibian EC could benefit from broad subject-matter jurisdiction. The only drawback is that the land question in Namibia is a highly sensitive issue and currently attracts increased political interest as was also reiterated by the Deputy Prime Minister.[689] Therefore, notwithstanding the fact that the weaknesses in the environmental governance also negatively affect the land, it might not be possible to assign broad subject-matter jurisdiction to the EC in the current political atmosphere as it relates to the land question in Namibia. It is thus advisable to restrict the EC's subject-matter jurisdiction to disputes predominantly relating to the quality of the environment, such as pollution control and natural resource conservation including those that are at the nexus of other

[689] 'Land a sensitive issue- Nandi-Ndaitwa' *The Namibian Newspaper* (01 August 2017) via https://allafrica.com/stories/201708020460.html assessed on 28 March 2019

development issues. Notwithstanding the fact that environmental courts in the Australian states of New South Wales and Queensland, as well as the Umweltsenat (Environmental Senate) of Austria, have been successful in comprehensively integrating their jurisdictions over environmental quality and development laws, including land use.[690] After all, these issues are interconnected and interlinked and this approach aligns with the call for comprehensive integration of the sustainable biosafety objectives, as discussed in Chapter Four. In addition, supporting the value of inclusive subject-matter jurisdiction, countries such as Ireland, New Zealand and Sweden, who initially had partial jurisdiction, are now moving towards comprehensive inclusion of all issues relating to environmental quality, including land.[691] Similarly, Kenya, which is one of the few African countries with an operational environmental court, have, in recognition of the inherent limitations of partial jurisdiction, established a new Environment and Land Court under its 2010 Constitution to comprehensively deal with these issues.[692] Therefore, Namibia should carefully consider this issue, irrespective of the sensitivities surrounding the land issue. Nonetheless, to circumvent the possible delays in the establishment of the EC, for now perhaps it must exclude the land issue, just to get the ball rolling.

Furthermore, another factor that needs consideration is the issue of levels of jurisdiction for the proposed EC. It is common that many ECs globally have multi-level jurisdiction of reviewing both first and second instance cases e.g. Sweden and New Zealand.[693] They typically act as first instance review courts for all environment related cases and second instance review or appeal courts for disputes arising from the decisions of administrative bodies, where some environmental harm has manifested and/or social or economic harm related to an

[690] George Pring and Catherine Pring (n 219).
[691] See Brain Preston (n 669) and George Pring and Catherine Pring, 'Decision Making in Environmental Law' in Lee Paddock, Robert Glicksman and Nicolas Bryner (eds) *Vol. II, Elgar Encyclopaedia of Environmental Law Series* (2016).
[692] See Donald Kaniaru, 'Environmental Courts and Tribunals: The Case of Kenya' (2012) 566 ELR 572.
[693] George Pring and Catherine Pring, *Environmental Courts and Tribunals: A Guide for Policy Makers* (2016) https://wedocs.unep.org/bitstream/handle/20.500.11822/10001/environmental-courts-tribunals.pdf?sequence=1 assessed on the 24 September 2018.

environmental dispute. It is thus proposed that the EC should have multi-level jurisdiction because this kind of comprehensive approach would provide the most effective means of ensuring access to justice under a regime plagued by maladministration of the law and corruption.

On its first instance review jurisdiction, the proposed EC should review all cases pertaining to environmental protection at the interface of development related issues, if the court determines there are sufficient grounds to do so. These could be disputes arising from harm due to non-compliance with permit conditions, while any aggrieved or concerned person or institution could bring cases to the EC when there is established harm whether social, economic or environmental. This could also present an opportunity for those who have genuine concerns e.g. NGOs for the environment who cannot otherwise defend themselves, to bring cases to the court.

On the appellate reviews, Article 80 (2) of the Namibian Constitution, which accords the High Court with appellate status, can be extended to provide the same powers to the EC, so that it will have appellate jurisdiction for the decisions of the administrative bodies.[694] This would ensure that proceedings are handled expeditiously, conveniently, fairly and authoritatively.[695] In addition, it would introduce an additional checks and balances procedure to enhance accountability. Therefore, for the second instance review cases, proceedings pending before the Environmental Commission or the Biosafety Council will be transferred to the EC if one or more of the following grounds are met (*section 20, 1990 High Court Act (Act no 16 of 1990)*):

(b) Interest in the cause, bias, malice or corruption on the part of the presiding judicial officer.

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[694] Namibian Constitution, Article 80(2)
[695] Sam Amoo (n 566).

(c) Gross irregularity in the proceedings.

(d) The admission of inadmissible or incompetent evidence or the rejection of admissible or competent evidence[696]

While these provisions establish a good legal basis for appeal grounds, the list is not exhaustive. It does not cover all possible scenarios that could be appealed against or the decisions and/or lack thereof of the administrative bodies. For instance, when there is demonstrated environmental damage or strong scientific bases for potential risks linked to a case under administrative review by the administrative bodies. Also, could NGOs or concerned private citizens launch an appeal to the EC? Notably this was the case in the *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others* dispute. The fisheries industry mainly had economic concerns while the private citizens emphasised the environmental and socio-economic concerns. This is therefore indicative that the EC, similar to the Labour Court, will need an elaborate legal instrument to address all possible scenarios.

Furthermore, comprehensive multi-level jurisdiction presents the most effective means of ensuring access to justice under a regime plagued by maladministration of the law and corruption, as demonstrated above. What is already evident here is that such a comprehensive multi-level approach could result in the court being flooded with cases, while many of them could be frivolous lawsuits, which could result in excessive court activism and delays.[697] In such cases, the EC should use its authority to dismiss and/or penalise vexatious, abusive or otherwise

[696] High Court Act 1990 (Act No. 16 of 1990) of the Parliament of Namibia.

[697] Aust. L Ref Comm'n (1996).

improper cases. This multi-level jurisdiction will maintain judicial hierarchy in the cases of appeals against the decisions of the EC to the Supreme Court, as per current practice. It is important to note that in some countries such as Thailand, the decisions of the EC are appealed to a higher EC.[698] While this might be a better option, because of the complexities that might arise if a decision of the expert court is appealed and overturned by a generalist Supreme Court, practically, such an approach will not be possible for a resource poor country like Namibia, at least not now.

Before addressing the question of standing, it is important to note that standing issues are typically prescribed by legislation via court rulings and/or interpretations, but these provisions can be significantly restrictive in environmental cases. Determining standing where there is a causal link between the harm and an activity or non-action, is easy. However, it becomes a problem when the causal link is not clear and/or where the risks are anticipatory, especially where there is a lack of scientific information to support perceived risks (see previous chapters). When addressing the question of standing in cases of biosafety, one must consider whether the harm has occurred due to a genetically modified organism's impact on biodiversity or as a result of the direct impact of the genetically modified organism for instance, when it causes diseases. These questions need to be clarified in the Namibian biosafety regulations in order to surmount the challenges of standing in this regard. As discussed in Chapters Three and Four, this will be challenging for disputes relating to biosafety more so for Namibia who still has to elaborate on these issues in the subsequent implementing Regulations (still to be developed under the Biosafety Act).

[698] George Pring and Catherine Pring (n 693).

Therefore, it would be advisable that in the case of first instance reviews, the standing rules of the EC be open to any person who suffered actual harm as well as those who are directly involved in a dispute arising from decisions of the Biosafety Authority or the Environmental Commission. This however, has some limitations. For instance, in cases where environmental harm occurred due to non-compliance with permit conditions, narrow standing rules would restrict those who are concerned about the environment, from bringing an action. This is particularly true in cases where the authorities involved in monitoring non-compliance, fail to do so. The *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others*, also arose under similar circumstances. The complainant in this case was a lobbyist NGO, who was not directly involved in the application of the permit but had a genuine concern for the environment as well as long term socio-economic concerns. This is specifically valid when there is lack of public trust in the decisions of the environmental authorities. This is the case in Namibia as demonstrated above from the public comments. Therefore, the Namibian EC should have three criteria of standing under which it can review cases. The first category is the persons who suffer actual harm. Secondly, those who are directly involved in a dispute arising from decisions of the Biosafety Authority or the Environmental Commission. Thirdly, private citizens including NGO's who have a genuine concern for the environment. The question of whether a case can only be brought before the EC when the actual harm has occurred, also needs consideration. Therefore, should cases also be based on precaution of anticipated risks or only when the actual harm has already occurred. These can be either precautionary, before actual intervention as was the case in the *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism, and Others* as well as in cases where the actual environmental harm has already occurred and environmental safeguards are needed against further damage. The approach underpinned by the precautionary principle, discussed in Chapter Four and adopted by the Biosafety Act, discussed in Chapter Six, supports precaution even in cases where the risks are anticipated; therefore, cases before the EC can be based on the precautionary principle. In order to refine and address the complexities surrounding these standing rules for biosafety, the EC should address the interrelated issues between the standing rules and liability and redress. The 2011 Kuala Lumpur

Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety[699] could constitute a good normative basis for this purpose, in the case of sustainable biosafety.

The Kuala Lumpur Supplementary Protocol on Liability and Redress is an accompanying legal instrument of the CPB and provides international rules and procedures in the field of liability and redress relating to living modified organisms. [700] Thus, it contains norms on liability and redress that are related to standing. For instance, Article 4 on causation obligates the courts to establish a causal link between the damage and the living modified organism. [701] However, it is a procedural instrument and does not set substantive guides as it does not, for instance, define harm and leaves such questions to be addressed by domestic law. The EC should also engage in the innovative progressive development of its liability and redress regime in order to refine its standing rules for sustainable biosafety, while the need remains to have the same for other environmental issues under its jurisdiction. This brings the discussion to the question of enforcement.

In order to be effective, the EC should have adequate enforcement powers, including powers to continue to have jurisdiction over the case after ruling in order to monitor compliance. It is proposed that the decisions of the EC be standing and should thus override the decisions of the administrative bodies. Importantly they should be enforced through traditional methods, namely fines and/or jail terms based on the nature and severity of the damage, as prescribed by the applicable legislation in the specific case. Importantly, imposition of remedial measures to remedy the damage should be considered. The relevant normative instruments of international law could inform this. Notably in the case of biosafety, the Supplementary Protocol on Liability and Redress has

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[699] Secretariat of the Convention on Biological Diversity, *Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety* (2011) ISBN: 92-9225-324-7.
[700] ibid.
[701] ibid.

important interlinkages to the enforcement powers of the EC. For instance, Article 5 prescribed response measures in cases of damage while Article 8 and 9 deals with financial limits for redress and right to recourse, respectively. [702]

Extra-legal measures aimed at protecting and maintaining judicial independence, such as the circumstances of appointments and conditions of service relating to remuneration, security of tenure, pensions and manner of appointment, should be carefully considered. This is because they have implications for maintaining judicial independence, including the impartiality and dignity of judges.[703] It is impossible to elaborate on the full extent of these implications, but it should be noted that the President of the Republic of Namibia currently appoints the High Court Judge, who then appoints the other judges, including the judges who sit in the specialist labour court. Although this appointment procedure seems to be working well, it may need to be adapted in light of the specialised technical expertise required of environmental court judges. As the fundamental objective of the environmental court is to provide a judicial system with a high level of expertise, Namibia will have to consider how it can provide a substantial number of judges with the requisite legal and scientific technical expertise.

Additionally, it is important that, in reviewing cases the EC should consider both substantive and procedural grounds, because only then can the EC engage fully with principles of international law specifically the principle of mutual supportiveness in the case of sustainable biosafety. After all, sustainable biosafety is based around both procedural and substantive considerations as per its definition in Chapter Three.

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[702] Secretariat of the Convention on Biological Diversity (n 699)
[703] Sam Amoo (n 566).

7.8 Conclusion

Chapter Five demonstrated that there are conflicting norms between the Namibian biosafety law and its trade obligations under the WTO. It demonstrated that the requirements such as those on labelling and socio-economic considerations enshrined in Namibian biosafety law conflict with WTO obligations. Moreover, it concluded that in such circumstances, there are difficult regulatory scenarios relating to sustainable biosafety. Even though the principle of mutual supportiveness has utility and applicability as imposed by international law obligations on Namibia, when it is considered in the context of current environmental governance, the usefulness of this principle for sustainable biosafety is compromised. There are considerable governance weaknesses in the administrative and judicial branches ranging from competency questions, disregard for the rule-of-law and corruption complaints, at least in the administrative arm. These problems require urgent consideration in order to safeguard Namibia's environment and socio-economic status, as argued in Chapter One. This thesis proposes that strengthening Namibia's judicial system by establishing an independent specialist EC would curb most of these weaknesses such as instances of corruption and the unconcealed disregard for the rule-of-law. Moreover, it will ensure that various types of freedom and empowerment of humans through guaranteed rights and opportunities whilst safeguarding accountability. These aspects are all central to sustainable biosafety, as discussed in Chapters Four and Five.

It is proposed that the EC should be decisionally independent and established within the High Court structure as one of its specialised divisions. Appropriate standing reinforced by judicial independence would then address complaints about corruption and safeguard the rule-of-law. This is because the utility of legal formalism could be employed to contain arbitrary practices in the administration of environmental law, while ensuring that highly technical and complex environmental disputes would be handled appropriately. It would also create room for judicial hierarchy in the cases of appeals, as the decisions of this court could be appealed to the Supreme Court, as per current practice.

Due to the politically sensitive nature of the land issues in Namibia, it is not desirable to include it under the subject-matter jurisdiction of the proposed EC, although best practice denotes otherwise. This is because with land use included, the proposed EC sadly might not get broader political support in Namibia and the idea would die before it is born. Notwithstanding the fact that Namibia urgently needs to establish an independent, specialised EC dealing with environmental related development issues including land use.

CHAPTER 8: CONCLUSION

Namibia is facing major difficulties in the integration of the CPB in a manner that promotes sustainable biosafety. This is mainly because sustainable biosafety presents complex governance challenges, more so, those that arise at the interface of biosafety and trade norms and is reinforced by the normative conflicts in international law. Moreover, this thesis concluded that the weaknesses within Namibia's own legal system, further exacerbates the challenges of achieving sustainable biosafety.

Trade agreements frequently require the amalgamation of environmental regulations across trading-States in order to open up market access. While this has utility, it presents numerous legal problems when States adopt unilateral environmental measures, as was the case in the *Shrimp-Turtle Case* and the *EC-Biotech Case*. In addition, trade and biosafety conflicts are inevitable because by its design, biosafety is potentially restrictive in support of the conservation of biological diversity and environmental protection, while trade rules are geared towards the promotion of trade and thus the use of natural resources for economic purposes. The underlying objectives of the two regimes are the basis of normative tensions between them. On the contrary, there is no specific legal instrument that address social and human objectives, similar to the specialised trade and biosafety/environment sub-systems in international law and this further compromises sustainable biosafety, when its basic tenet is the simultaneous integration of these three objectives.

The rationale for sustainable biosafety is that biotechnology regulations (biosafety), specifically in the framework of the trade-oriented KBE, is in line with the objectives of the international trade regime and narrowly aims at the rapid, unhindered uptake and dissemination of technologies.[704] Chapter Three outlined that modern

[704] Standley Metcalfe, 'University and Business Relations: Connecting the Knowledge Economy' (2010) 48 Minerva 5.

day biotechnology also requires safety regimes to ensure environmental, social, human and animal health and wellbeing in addition to economic growth. These broad and highly interlinked objectives are difficult to reconcile. This is exacerbated by the divergent private versus public economic interests as set against the broader unique country context, which further complicates biosafety. Nevertheless, considering the potential benefits that biotechnology offers, appropriate solutions need to be pursued to mitigate the risks while maximising the benefits. This thesis established that sustainable biosafety offers a reconciliatory framework within which this balance can be pursued. However, there is currently no definition of sustainable biosafety and this thesis provided a definition derived from sustainable development, as the most preferred objective and principle of law.

This thesis defined sustainable biosafety as an approach underpinned by better decision making of the integrated social, economic and environmental aspects to ensure a harmonious resolution of conflicts, while preserving the interests of future generations. It concluded that such pursuits should be underpinned by both procedural principles such as public participation and advance informed agreement as well as substantive obligations pursued through risk assessment provisions supported by principles such as the precautionary principle in cases when the science is uncertain. Chapter Five and Seven established that it is when these principles fail to reconcile substantive conflicts that the principle of mutual supportiveness provides both rational and functional utility. In this regard, sustainable biosafety provides a point of orientation and convergence of the conflicting norms, in the application of mutual supportiveness, which this thesis proposed as the conflict resolution means in biosafety and trade conflicts.

The principle of mutual supportiveness calls for the harmonious interpretation and joint reinforcement of all the objectives of sustainable biosafety. It encourages synergies through *ex ante* legislative and administrative coordination as well as *ex post* synchronisation through harmonious interpretation of the conflicting norms. It

imposes a duty to pursue good faith interpretations in order to resolve conflicts to pursue a legitimate objective in this case sustainable biosafety. It value mainly lies in the fact that it is a non-intrusive means of conflict resolution that allows the different regimes to focus on their core areas, while promoting synergies through the simultaneous pursuit of underlying unifying objectives, in this case sustainable biosafety.

Chapter Five and Seven concluded that the principle has demonstrated efficacy in Namibia, but there is need for further legal reforms in order to enhance its legal status in Namibian environmental governance. This is also true for unifying norms, such as sustainable development and by implication sustainable biosafety, which has different orientations, meanings and the disputable legal status in international law and by implication in the Namibian legal system. This state of affairs in international law also result in the imposition of divergent and often conflicting obligations. The same applies to the principle of mutual supportiveness, which has no significant legal standing in both the WTO and the CPB and so in Namibia.

Furthermore, this thesis concluded that the persistence of the problem of conflicting biosafety and trade norms in international law is indicative that they will eventually translate into the Namibian legal system. This will greatly undermine self-reliant legal reforms such as sustainable biosafety and thus national development efforts. For Namibia, this greatly inhibits Her efforts to transition to a knowledge-based economy, as already demonstrated by the delay in full enforcement of its Biosafety Act. These delays when considered against the objectives of sustainable biosafety, is worrisome and aligns with TWAIL claims about the negative impacts of international law, which inhibits the positive role of law in development. For Namibia, the absence of enforcement of the law has already resulted in the unregulated spread of products of biotechnology in Namibia, largely from neighbouring South Africa who have embraced biotechnology without segregation and/or labelling. Therefore, while it is business as usual for international law, countries such as Namibia have to pursue the best possible

solutions, to ensure its sustainable biosafety efforts under such circumstances. Only then can Namibia use biotechnology for economic growth as required by its KBE objectives while ensuring social and environmental protection, at the same time. In the pursuit of a more in-depth understanding and to devise the best possible solution, this thesis considered mutual supportiveness by exploring its utility, legal standing and applicability both in international law and in the Namibian legal system, specifically as it relates to biosafety. Chapter Seven demonstrated that the principle of mutual supportiveness has utility, applicability and legal standing only as an interpretive tool with no legal consequences in the case of Namibia.

The principle of mutual supportiveness gains legal standing in the Namibian legal system, as an interpretive tool, although without legal consequences, at least in as much as it is part of treaty law that binds Namibia. Its utility is also limited by the fact that it similar to other principles of international law does not enjoy court recognition. This is further weakened by the shortcomings in the Namibian environmental governance. This state of affairs impose the need for further legal reforms, as it does not support sustainable biosafety objectives. More co because, Chapter Six on the analysis of Namibia's Biosafety Act concluded that Namibia's regulatory approach and scope deviates from WTO law in similar ways to the CPB, and thus conflicts are inevitable.

The analysis of the Namibian Biosafety Act in Chapter Six concluded that Namibian biosafety law is based on the approach underpinned by the precautionary principle and has a broad scope, while its decision-making parameters are equally comprehensive. While sustainable biosafety deals with multifaceted objectives, this all-encompassing law is indicative of the conflicting interests and concerns that prevailed during its development. Moreover, the wide scope of the Act, and the diversity of the decision-makers involved, as described in Chapter Six, when considered in light of the nation's diverse interests and conflicting international obligations,

presents a very complex regulatory scenario that might lead to negotiated decisions, which could, in turn, compromise sustainable biosafety.

Particularly, the direct consequences of this comprehensive scope is that the decision-makers are also diverse. While this might be justifiable due to the need for interdisciplinary inputs in such decisions, it brings into play additional regulatory complexities such as the inherent differences in disciplinary framings and perspectives, which contribute to uncertainty in the decision-making process. In addition, one should not overlook the stakes of individual actors and how it compromise their objectivity. This problem has equally been acknowledged by the European Commission as discussed in Chapter Six. Therefore, Namibia's regulatory approach should consider how best to circumvent issues of indeterminacy arising from the plurality of perspectives that are inherent in the diversity in the composition of its decision-makers.

Furthermore, it is important to note here that Chapter Six also concluded that the outcomes of the Biosafety Act were significantly influenced by the developments in international law and further analysis indicated that the Act embraced norms that speak to its unique socio-economic circumstances, that go over and above the scope of the CPB. It concluded that while its objectives and regulatory approach are in line with Namibia's international obligations under the CPB, it might not with the WTO. What is specifically different from the CPB is that the Biosafety Act also has capacity-building dimensions in its objectives aimed at supporting the implementation of the principle of public participation and the right to choose. Even though this aligns with Sen's framework of development as human freedom discussed in Chapter Three, that considers capacity building as an enabler to participation, such provisions when considered in the framework of the WTO, prove problematic, as concluded in Chapter Six.

Particularly, the Namibian Biosafety Act insists on the case-by-case consideration of each GMO, which is based on the recognition that specific factors, such as the socio-economic and environmental context in which the GMO is to be used, could require different criteria based on the specifics of the biotech product in question as well as context-specific socio-economic and health considerations. This is also in line with the conclusions of Chapters Three and Four, that the pursuit of sustainable biosafety is first and foremost determined by the quality of procedural obligations on a case-by-case basis before substantive considerations. However, the regulatory challenge is that the case-by-case procedure implies substantial volumes of regulatory activity because the Act covers a very broad scope of activity, as well as applicable subject areas, which include processed products. This will add to the volume of the already constrained administration and judiciary once the law is fully enforced. In addition, the regulation of products specifically amplifies the regulatory difficulties and biosafety and trade disputes that could arise in such circumstances. This will be so when considered against the principle of substantial equivalence and the prevailing scientific limits to prove and/or disapprove the equivalence test. This will also apply to the labelling provision of the Act when it will be applied to processed products. These technical regulatory challenges will be reinforced by Namibia's capacity constraints. In addition, Chapter Six demonstrated that Namibia currently only has a limited biotechnology industrial presence and could not rely on it to close the technical gap. Industry could then provide the much-needed technical regulatory services, particularly since the State has limitations in this area. However, Chapter Two demonstrated that this is a highly contested terrain as the gap between industrial self-interest amplified by scientific curiosity could compromise the objectivity needed to promote sustainable biosafety.

Additionally, this thesis concluded that what further complicates the problem of regulating GMO products is that there are no guidelines in Namibian law neither international law about what 'like products' are and neither has substantial equivalence been defined. In addition, the TBT testing and certification processes could constitute undue obstacles to trade and thus result in unfair discrimination rulings. Therefore, even though the objectives

and the norms of the Namibian Biosafety Act conform to the overall objectives of the CPB, its provisions, such as those on regulating products and specifically on labelling, could violate international trade obligations. Mainly, the Act's requirements of scientific risk assessments, as a decision-making tool, is problematic to the extent that science is certain, in which case the precautionary principle should apply, something which has been the underlying basis of contention in the *EC-Biotech Case* because of the differences in the regulatory approaches of the WTO and the CPB.

While the precautionary principle is the foundational guide in the decision-making process under the CPB, its orientation and meaning are compromised when it is considered in the framework of the WTO. This is because in the CPB's orientation it is a legal principle of law that imposes precaution when the scientific knowledge is uncertain in order to meaningfully guide safe decision-making. However, in the WTO's orientation it is considered an approach that has some substantive value but not a legal principle. Augmenting these different orientations is the meaning and purpose assigned to scientific information in the two regimes. Chapter Five concluded that even though the WTO court does not engage substantively with scientific knowledge, it considers it objective and purpose, while there is ongoing scientific uncertainty surrounding the safety, risks and even the efficacy of biotechnology. This is demonstrated in the *EC-Biotech Case* ruling whereby the WTO court ruled a predominantly environmental case on narrow SPS measures without any regard to the environmental and social dimensions of the case. The court relied solely on its own norms and so undermine the reality of scientific uncertainty, because it's does not engage substantially with it. By implication, as long as there is no meaningful convergence between these two divergent orientations of the precautionary principle in international law, these conflicts will also undermine the utility of mutual supportiveness.

Chapter Seven, demonstrated that, while sustainable biosafety will encounter challenges due to the existing weaknesses in the broader environmental governance, the call for the establishment of a one stop

specialised environmental court will address the problem of fragmented approaches to biosafety as such cases will be handled by one court. Chapters Six and Seven demonstrated that Namibian environmental governance exhibits substantial administrative and judicial weaknesses that might further hinder sustainable biosafety. Chapter Seven also demonstrated that there is no substantial environmental jurisprudence in Namibia, which is also indicative of the weaknesses as demonstrated in Chapter Seven through the cases of *Namib Plains Farming & Tourisms Cc and Valencia Uranium* and *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others*. Analysis of these cases highlighted that even though they were argued narrowly on the legality of the procedural grounds they had clear substantive grounds because of the social and environmental concerns that were inherent to the both cases. Nevertheless, many voices echoed sentiments that bordered on the incompetence of the court and the corruption in the administration, as reasons for the disregard of the substantive concerns. Specifically, the analysis of the two cases, namely the *Namib Plains Farming & Tourisms Cc and Valencia Uranium* and *Namibian Marine Phosphate (Proprietary) Limited & Minister of Environment, Tourism and Others* highlighted several other weaknesses in Namibian environmental governance. One such weakness is the inability of generalist judges to engage with technical environment and trade disputes.

In addition, while international law has dealt with sustainable development and its associated principles, including sustainable biosafety, the Namibian courts did not engage with international law or its principles even when they could serve, at least, as normative tools to guide sustainable substantive outcomes in these two cases. By implication, there was also no consideration or mention of mutual supportiveness. What could particularly be a drawback for sustainable biosafety is the disregard for the rule-of-law and the mistrust in the regulators by the public. When considered against the conclusions of law and development literature in Chapter Two, this demonstrates that Namibia still grapples with one of the fundamental requirements of development, which is the existence of a functional and respected rule-of-law.

In order to address these weaknesses and so promote sustainable biosafety, Chapter Seven argued that Namibia urgently needs an Environmental Court, as a decisionally independent division of its high court. After all, Chapter Two through the theoretical lens of the law and development theory has demonstrated that isolated legal reforms, in this case the Biosafety laws, reduce the effectiveness of law in development endeavours. Moreover, the notion that everything is interconnected and interdependent within the realm of law is a well-known cliché.

In particular, the court will ensure that complex and highly technical environmental law cases are handled competently in a manner that promotes sustainable biosafety. Additionally, similar to the classical liberal theory of the second phase of law and development, as seen in Chapter Two, the separation of powers or judicial independence could then be one way to restrain the dominant State, especially when allegations of corruption are recognised as also contributing to the parlous state of affairs in Namibia's environmental governance. The utility of judicial independence in this regard, is premised on the notion that judges are objective and rational and can restrain the political, and at times arbitrary, State and its legislators.[705] Thus, by relying on legal formalism, the judiciary could ensure at least the trustworthiness and predictability of the law.[706]

Therefore, the court needs to be carefully designed to accord it appropriate authority and mandate. It is proposed that the court should have appropriate multi-level jurisdiction to review first instance cases when harm has occurred, including environmental harm, as well as second instance jurisdiction to review cases against the decisions of the administrative environmental authorities. The second instance review cases can be brought to the court by those directly involved in the case before the administrative bodies, but also any aggrieved or concerned person can bring a case to the court, in some specified cases. This could be for instance in cases where harm has

[705] Kennedy Duncan, (n 85).
[706] David Trubek and Alvaro Santos (n 41), 6.

occurred whether social, environmental or economic. Notably any person or NGOs can bring a case to the court on behalf of the environment, which otherwise could not do so on its own behalf. Claims in such cases can also be based on anticipated or perceived risks provided they can be substantiated by appropriate scientific knowledge or if the case of scientific uncertainty is clearly demonstrated. The only problem is the persistence of scientific uncertainty. The court then has to develop guidelines and standards for the assessment of what appropriate scientific knowledge would be. This is indicative of the need for progressive legal development, which the court has to undertake, as part of its functions.

Furthermore, in order to consider the multidisciplinary nature of the cases to be reviewed the court must consist of a mix of highly trained lawyers and scientific policy makers. It is the existence of multi and interdisciplinary knowledge gaps in the judiciary that mainly justifies the establishment of this court. Such ta echnically competent court would also ensure that mutual supportiveness, which is specifically useful in cases of sustainable biosafety, would be improved and used. Moreover, this thesis argued that Namibia does not have to start from scratch and could learn from those ECs already in place internationally, while taking advantage of capacity building and support programmes of international organisations, such as the World Bank.

From a national development perspective, the EC is urgently needed because of its role to ensure the essential human and social safety nets against the side effects of the narrow economic growth orientation of KBE, which could worsen the already high inequality and poverty levels in Namibia, contrary to the ideals of sustainable biosafety. Thus, the costs of environmental and socio-economic risks could be more expensive in the end both for current and future generations.

In conclusion, all these deductions on the important role of biosafety law in ensuring sustainable biosafety, is indicative that, similar to the conclusions from the law and development theory in Chapter Two, it has both instrumental and deontological roles in achieving sustainable biosafety. The fact that an independent court is called for to safeguard, amongst other things, the 'rule-of-law' also reinforces the important role of a functional rule-of-law in enabling sustainable biosafety. Therefore, in its instrumental role, biosafety law is a tool to mould the intended sustainable biosafety outcomes, while enabling fundamental rights and empowerment. Thus, biosafety law serves as an enabling framework, which facilitates and supports the simultaneous realisation of the diverse sustainable biosafety objectives, both in the instrumental and deontological sense.

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