

Supplementary Material A

TABLE S5.1 AICHI 2020 BIODIVERSITY TARGETS TRENDS AND CHALLENGES

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Strategic Goals ^a	Targets ^a	Delivery and Status ^b	Issues ^b	Areas of Influence ^c
Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	Target 1 By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Progress being made but at an insufficient rate, low level of confidence that T1 will be met. Achieved by 2020, unlikely.	Increasing knowledge of actions available but limited understanding. Limited coverage of indicators.	Environmental-social; community capacity
	Target 2 By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	Progress being made but at an insufficient rate, medium level of confidence that T2 will be met. Achieved by 2020, possible.	Regional differences and variation. Biodiversity not always fully considered. Evidence in many cases based on poverty reduction.	Environmental-economic
	Target 3 By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.	At one level (i.e., phasing out perverse incentives) no significant overall progress, likelihood of being met by 2020 low. On the flip side good progress regarding the development of positive incentives. However, unlikely to be met at the scale required by 2020.	Very little progress made in phasing out harmful incentives. Increasing recognition of the problem, but lack of action. Good progress made in the development of positive incentives, but still overshadowed by perverse financial/economic instruments	Economic-political; issues of distributive justice, power asymmetries, and extent of market intervention
	Target 4 By 2020, at the latest,	Regarding steps for achieving sustainable	Plans for sustainable production and	Environmental-social; issues of rights and

	<p>Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.</p>	<p>production and consumption: Progress being made but at an insufficient rate. No significant progress on keeping impacts within ecological limits. Low level of confidence that T4 will be met. Achieved by 2020, unlikely</p>	<p>consumption are limited in scope and scale. Natural resource use continues to increase, pushing the envelope of safe ecological limits.</p>	<p>marginalization</p>
<p>Goal B: Reduce the direct pressures on biodiversity and promote sustainable use</p>	<p>Target 5 By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.</p>	<p>Progress on reducing forest loss, but at an insufficient rate. Little or no progress on reducing habitat loss by half or even bringing it to zero. In terms of degradation and fragmentation, we are moving away from target, the situation is not improving. T5 achieved by 2020, unlikely.</p>	<p>Rates of deforestation are slowing overall, still massive regional variation, and rates of reforestation and afforestation are increasing. All biomes continue to be degraded and fragmented.</p>	<p>Environmental-political; issues of balancing risks and benefits</p>
	<p>Target 6 By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries</p>	<p>Progress being made in the sustainable management of fisheries, and in recovery plans and measures for depleted stocks, but the level of progress is insufficient. Little or no progress is being made regarding the impact of fisheries on vulnerable ecosystems and species and remaining</p>	<p>Regional variation in progress, limited data availability. Progress on long-line tuna for example, but still recording a wide array of negative impacts on ecosystems. Over-exploitation continues to be a massive issue at a global scale.</p>	<p>Socio-political; issues of equity and compliance</p>

on stocks, species and ecosystems are within safe ecological limits.	within safe ecological limits. T6 achieved by 2020, unlikely.		
Target 7 By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Progress being made but at an insufficient rate, medium level of confidence that some aspects of T7 will be met. Achieved by 2020, possible, overall unlikely.	Area under sustainable management has increased, with the introduction of sustainability standards occurring and more widespread forest certification and indicator criteria.	Environmental-economic; matters of environmental health and power asymmetries
Target 8 By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	Moving away from target, picture getting worse. Highly unlikely that T8 will be met by 2020.	High regional variation, but overall nutrient levels remain detrimental to biodiversity.	Environmental-political; market failure problems
Target 9 By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	Good progress on identifying and prioritizing invasive species, with some pathways identified and prioritized. Rate of progress remains insufficient but medium level of confidence these may be achieved by 2020. Very slow progress on eradicating or controlling priority species, with few measures in place to prevent introductions. Not likely to be met by 2020. T9 overall unlikely to be met by 2020.	Measures taken in many countries to identify and prioritize lists of invasive species. Some pathways identified by not adequately at a global scale. Eradication regionally variable. Few measures in place that will control the likelihood of species introductions.	Environmental-social
Target 10	Moving away	Pressures and	Environmental-

	By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	from target, situation in many respects is worsening, unlikely that T10 will be met by 2020.	drivers of change in vulnerable marine systems continue to persist and in some regions increase. In some cases there is insufficient information available to accurately assess key aspects of the target.	political; issues of legitimacy in standard setting and associated credibility
Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	Target 11 By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	On target to meet the 17% sub-target. Good progress is being made with regarding to protecting 10% of coastal and marine areas. Some progress is being made with regards to key biodiversity areas, and to ensure areas are ecologically representative, connected and well managed but these need to be speeded up. Overall, T11 is likely to be met by 2020.	Meeting the 17% target for terrestrial and inland waters in on track, extrapolations suggest it will be met, but some issues still remain with inland water. There has been an increase in marine protected areas, and the rate is accelerating, but progress needs to be stepped up if the 10% target is to be achieved. Key biodiversity areas have been identified and protecting those has been progressing, though there has been no progress on ecosystem services per se. Good evidence that conserved areas are being reasonably well managed and that they are connected.	Environmental-Social
	Target 12 By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and	Little or no progress and in some respects moving off target to a worsening situation. Highly unlikely that T12 will be met by 2020.	Amphibian and fish extinctions likely to continue, some prevention of bird and mammal extinctions, but the Red List Index remains in decline. Large regional	Environmental-economic

	sustained.		differences in extinction threats, rates and levels of prevention.	
	Target 13 By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	Good but insufficient progress is being made on maintaining the genetic diversity of cultivated plants, farmed and domesticated animals, while little or no progress has been made in relation to maintaining the genetic diversity of their wild relatives. Good, but again, insufficient progress in developing strategies to ensure that genetic erosion does not occur. The likelihood of T13 being met by 2020 is minimal although some subcomponents may be met if the progression rate improves.	Collections of plant genetic resources continues, but constraints remain regarding long-term support for the conservation of local crop varieties. Regarding farmed and domestic animals there are increasing activities dedicated towards conserving breeds in their productive surrounds and via gene banks. Conservation of wild relatives beyond ex situ facilities is very poor. The FAO Global Plans of Action for animals and plants is a highly encouraging development.	Social-political; issues regarding access to resource and gender in developing regions of the world.
Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services	Target 14 By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	Little or no progress has been made with regards to safe guarding essential ecosystem services that contribute to important components of human-wellbeing. And in relation to accounting for the needs of woman, indigenous	Massive variation across ecosystem services, many of the important ecosystems that supply these essential services continue to be in decline and a state of degradation and fragmentation. Poor communities and women especially continue to be disproportionately affected by the loss	Environmental-social; issues of gender and distribution, class and geopolitics

		people, and poor communities we are moving away from the target and the situation is getting worse. Highly unlikely to meet T14 by 2020.	of provision of ecosystem services.	
	Target 15 By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	Little or no progress has been made with regards to ecosystem resilience and carbon stocks, however, progress towards restoration of 15% of degraded lands has been much more positive if still insufficient. Parts of this target may well be met by 2020, but overall, it is not likely that T15 will be met in full by 2020.	There still continues to be a net loss of carbon stocks from many forested areas in tropical regions. There are many restoration programmes under way, operating at different scales and in different ecosystems but it is difficult to assess whether these are sufficient to meet the 15% target.	Economic-political
	Target 16 By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	Highly likely that this target has or is about to be met.	Nagoya Protocol entered into force in October 2014, likely that the Protocol in those countries that have so far ratified it is operational.	Environmental-social
Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building	Target 17 By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national	In many cases policy developments are either on track or good progress is being made, but in some areas not with sufficient	Up to 40% of Parties for which information was available would have completed their NBSAPs by October 2014 in line with the Nagoya Protocol coming in to force.	Social-political

biodiversity strategy and action plan.	speed. It is likely that parts of this target have been met, but that problems lie with implementation and effectiveness.	It was expected that this figure would rise to 90% by the end of 2015. Degree of implementation and effectiveness is variable.	
Target 18 By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	Some good progress being made, but in many areas not enough and not at a sufficient rate. However, if progress increases then T18 may well be met by 2020.	International procedures underway to promote, strengthen and recognize traditional knowledge and customary sustainable use, as well as to enhance the capabilities and capacity of local and indigenous communities to participate at all relevant and meaningful levels.	Environmental-social; marginalisation of cultural diversity
Target 19 By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	On track to achieve the level of knowledge regarding biodiversity status and changes and to facilitate knowledge sharing and transfer and to apply this. Likely that T19 will be met in whole or in part by 2020	Considerable efforts are being made to deliver information and knowledge of the science of biodiversity to the relevant decision makers. Increasing improvements in data gathering, acquisition, access, management and dissemination.	Social-political

<p>Target 20 By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.</p>	<p>Progress is being made with regards to identifying and mobilising funding sources, but it is occurring at an insufficient speed and scale, and confidence is not high that the requisite levels of funding necessary for implementing the Strategic Plan for Biodiversity will be met by 2020.</p>	<p>Limited information of many funding sources, especially domestic ones.</p>	<p>Economic-political</p>
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a <https://www.cbd.int/sp/targets/>

b Source: Secretariat of the Convention on Biological Diversity, 2014. Global Biodiversity Outlook 4: A mid-term assessment of progress towards the implementation of the Strategic Plan for Biodiversity 2011-2020. Montreal.

c Source: Hill, R., Dyer, G.A., Lozada-Ellison, L-M., Gimona, A., Martin-Ortega, J., Munoz-Rojas, J., Gordon, I.J., 2015. A social–ecological systems analysis of impediments to delivery of the Aichi 2020 Targets and potentially more effective pathways to the conservation of biodiversity. *Global. Environ. Chang.* 34, 22-34

In this paper Hill et al., assess progress towards the Aichi targets using six pair-wise axes developed from a social-ecological framework, the meaning of these axes is as follows: