Critical Ecosystem Partnership Fund
Long-term Vision for the Indo-Burma Hotspot

Robert Mather, Daniel Constable, Nguyen Duc Tu, Vanny Lou, Jake Brunner, Adam Starr, Supranee Kampongsun, Angela Cadena Joehl, Latsamay Sylavong, Greg Martin and Zhang Yan

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Summary

The Critical Ecosystem Partnership Fund (CEPF) facilitates the development of credible, effective and well resourced civil societies able to deliver improved biodiversity conservation, enhanced provision from healthy ecosystems of services important to human wellbeing, and greater alignment of conservation goals with public policy and private sector practices. CEPF focuses its investments in the biodiversity hotspots: Earth's biologically richest and most threatened regions. Biodiversity hotspots have at least 1,500 vascular plant species confined to them, and have lost more than 70 percent of their original primary vegetation.

CEPF is not intended to be a permanent presence in each hotspot but to define and work towards an end point at which civil society transitions from its support with sufficient capacity, access to resources and credibility that it is able to respond effectively to future conservation challenges. Experience to date shows that, in most hotspots, reaching a point at which civil society can transition away from CEPF support takes longer than five years, which is the typical duration of a single investment phase.

To inform decision making about the duration and types of investments needed to reach a point at which it can withdraw its support with confidence, CEPF is commissioning a series of "long-term visions". These documents set clear transition targets, which individual investment phases will work towards, guided by detailed investment strategies set out in "ecosystem profiles": shared analyses and conservation strategies prepared with input from local stakeholders and other experts. At the end of each investment phase, progress towards the targets in the long-term vision will be evaluated, and an updated ecosystem profile prepared to guide investment over the next phase, if still needed.

A framework for preparation of long-term visions was adopted by CEPF's Donor Council in June 2014. According to this framework, the five conditions that need to be met in order for a hotspot to transition away from CEPF support comprise:

1. Global conservation priorities and best practices for their management are documented, disseminated and used by public and private sector, civil society and donor agencies to guide their support for conservation in the hotspot.
2. Local civil society groups dedicated to global conservation priorities collectively possess sufficient organizational and technical capacity to be effective advocates for, and agents of, conservation and sustainable development, while being equal partners of private sector and government agencies influencing decision making in favor of sustainable societies and economies.
3. Adequate and continual financial resources are available to address conservation of global priorities.
4. Public policies, the capacity to implement them, and private sector business practices are supportive of the conservation of global biodiversity.
5. Mechanisms exist to identify and respond to emerging conservation challenges.

The IUCN Southeast Asia Group (Asia Regional Office) was contracted by CEPF to prepare a draft long-term vision for the Indo-Burma Hotspot. The process, conducted between July and November 2015, included review and synthesis of secondary information as well as consultations with more than 100 key stakeholders. After compiling contextual background information, criteria and targets were set for each of the five transition conditions, in consultation with the participating stakeholders. For each target, milestones were set for each five-year phase, and key actions to meet them were suggested. A theory of change was then proposed, articulating the assumptions underpinning the long-term vision, and highlighting anticipated exceptions to the overall approach. Finally, a set of recommendations were made for strategic investments that CEPF might make in order to make accelerated progress towards a transition point in the Indo-Burma Hotspot.

The draft long-term vision underwent a thorough peer review process during 2016 and was revised accordingly. The finalized document was submitted to the CEPF Donor Council for endorsement in 2017.

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Acronyms

ADB	Asian Development Bank
AEC	ASEAN Economic Community
AIIB	Asian Infrastructure Investment Bank
ASEAN	Association of Southeast Asian Nations
ASEAN-WEN	ASEAN Wildlife Enforcement Network
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPA	community protected area
CSO	civil society organization
CSR	corporate social responsibility
DASTA	Designated Areas for Sustainable Tourism Development Public Organisation
DNP	Department of National Parks
EIA	environmental impact assessment
ENV	Education for Nature-Vietnam
FA	Forestry Administration
FDI	foreign direct investment
FFI	Fauna & Flora International
FiA	Fisheries Administration
FLEGT	Forest Law Enforcement, Governance and Trade
GDP	gross domestic product
GEF	Global Environment Facility
GMS	Greater Mekong Sub-region
GONGO	government-organized NGO
GPP	Governance & Professional Practices Program
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
LMCM	Lancang-Mekong Cooperative Mechanism
MoE	Ministry of Environment
MoNRE	Ministry of Natural Resources and Environment
NGO	nongovernmental organization
NPA	non-profit association
ODA	Official Development Assistance
PAC	protected area committee
PFES	payment for forest ecosystem services
PNPCA	Procedures for Notification, Prior Consultation and Agreement
RECOFTC	Regional Community Forestry Training Center for Asia and the Pacific
SEA	strategic environmental assessment
TPBS	Thai Public Broadcasting Service
USAID	United States Agency for International Development
VPA	Voluntary Partnership Agreement
WCS	Wildlife Conservation Society
WTO	World Trade Organization
WWF	World Wide Fund for Nature

1. Background

1.1 Socio-economic and Political Context in the Indo-Burma Hotspot

Four major driving forces are shaping the future of the Indo-Burma Hotspot: demographics; economic development; regionalization; and climate change. The development and adoption of new technologies can act as either a brake or an accelerator on each of these drivers. This unfolding transformation has profound implications for the ecology of natural ecosystems, the survival of species and the management of natural resources to meet the growing needs for water, energy and food in the hotspot. It also poses significant challenges to the ability of civil society organizations (CSOs) working on conservation issues in the hotspot to respond at the required scale and intensity.

1.1.1 Demographics

Sometime in 2008, for the first time in human history, more than 50 percent of the global population was living in towns and cities. Humans are increasingly becoming urban creatures, geographically divorced from the natural world that feeds and fuels them. City-dwellers are expected to increase from 3.9 billion in 2014 to 6.4 billion in 2050. This trend will be most dramatic in Asia: the world's most populous continent. Today, almost 60 percent of the people in Asia are still rural farmers but, by 2050, Asia will be almost as urbanized as Europe. While already large cities like Bangkok may grow into even larger "mega-cities", the rate of urbanization will be even faster in second and third tier cities and towns. In many parts of the hotspot, urban and peri-urban expansion is resulting in loss of prime agricultural land and natural ecosystems, notably wetlands.

At the same time as people are moving to cities, the demand for farm labor is declining, as agriculture becomes commercialized and mechanized. The countryside is expected to become relatively depopulated as people (especially young people) move to urban centers. This phenomenon is already clear in Thailand, where the average age of farmers is increasing. A similar pattern is also emerging in China and Vietnam. Over the next 20 years, similar trends are expected in Cambodia, Lao PDR, and Myanmar, as the economies of these countries further develop. As farms consolidate and become more mechanized due to higher capital investment, there may be opportunities to bring more land under some form of conservation management. This could include restoration of natural forests on farmland with unclear legal title (as is happening in Thailand now) or could involve promotion of various forms of agro-forestry in buffer zones and corridors adjacent to protected areas.

Demographers agree that we are heading toward not just a more urbanized world but also a more gray-haired one. With a median age of 44.6, Japan is the world's most elderly country today. By 2050, however, most Asian countries will have reached a similar, or even more advanced, degree of aging than Japan currently has. For example, the median ages of the populations of China and Vietnam are expected to change from 34.9 and 26.9, respectively, today to 45.0 and 41.6 by 2050. The dependency ratio (percentage of people 65 or over compared with those of working age) will more than treble in China, Thailand and Vietnam in this period. In an aging world, the percentage of women in the workforce will increase in those countries where it is currently not equal to that of men, and there will be more competition between countries to attract skilled young foreign workers.

1.1.2 Economic Development

Not only are the demographics of the world's population shifting, so too is the distribution of wealth. A massive shift is underway in the economic center of gravity of the world from West to East. The world's three biggest economies today are the United States (gross domestic product (GDP) of US$17 trillion), China (US$10.3 trillion), and Japan (US$4.6 trillion). In 2050, they will be China (forecast US$61 trillion), India (forecast US$42 trillion), and the United States (forecast US$41 trillion). With China and India growing into their positions as two of the world's three leading economic powers,

their influence on the Indo-Burma Hotspot, and particularly on Myanmar, which shares borders with both of them, will become increasingly important, especially in terms of shifting geopolitical alliances, trade, foreign investment and natural resource extraction.

Over the past 25 years or so, the governments of the Indo-Burma Hotspot introduced market-oriented economic reforms, lowered trade barriers, and encouraged foreign direct investment (FDI). In Cambodia, China, Lao PDR and Vietnam, the transition from socialist to free-market economies heralded an era of rapid GDP growth, at rates of 5 to 10 percent per annum. This was accompanied by accelerated commodification of public goods, including land and natural resources. In Thailand, which embraced free-market economic policies earlier, rates of GDP growth were lower, at around 5 percent per annum. In Myanmar, the process of economic transformation is still at an early stage. The government has introduced a series of liberal economic reforms since 2011, which have encouraged a steady increase in FDI into the country. Much of this has targeted natural resources sectors.

The rapid GDP growth rates that were observed across much of the hotspot during the past 25 years enabled dramatic reductions in absolute poverty rates (Table 1). Per capita incomes increased 10-fold during this period across the hotspot as a whole. To a large extent, this growth was driven by strong investment in the oil and gas, mining, hydropower, forestry, textile and tourism sectors. Growth of these sectors was supported by the development of large-scale infrastructure, the unrestricted use of natural resources, and regional economic integration. By the mid-2000s, Indo-Burma Hotspot countries had acceded to the Association of Southeast Asian Nations (ASEAN) Free Trade Area, signed bilateral trade agreements with the United States, and signed or begun accession negotiations with the World Trade Organization.

Table 1: Area, population, per capita GDP and poverty incidence of Indo-Burma Hotspot countries

Country	Area ($km^{2)}$	Population (millions)	Population per km^2	Per capita GDP (US$)*	1992 Poverty (%)	2011 Poverty (%)
Cambodia	181,035	15.3	84	3,259	45	23
China	9,596,960	1,364.7	142	13,439	20	2
Lao PDR	236,800	6.7	28	5,320	56	34
Myanmar	678,500	53.4	78	1,740**	N/A	N/A
Thailand	514,000	67.7	131	14,551	9	1
Vietnam	329,560	85.8	260	4,012	64	17

*2014, adjusted for Purchasing Power Parity. **Estimate. Sources: ADB, IMF and World Bank.

One significant impact of the economic development of the last quarter-century has been expansion of the middle class. This group is driving increased consumption of goods and services, including energy-intensive ones (e.g., air conditioning units, automobiles, refrigerators, etc.). This, in turn, is contributing to a massive increase in demand for electricity and other forms of energy. Another aspect of the growth of the middle class with implications for biodiversity conservation is growth in consumption of wildlife, high value timber and other natural products believed to confer “status” on the consumer.

1.1.3 Regional Integration

(i) Greater Mekong Sub-region Economic Cooperation Program

The Greater Mekong Sub-region (GMS), which comprises Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and China’s Yunnan province and Guangxi Zhuang autonomous region, has very similar borders to the Indo-Burma Hotspot. Regional initiatives, such as the GMS Economic Cooperation

Program of the Asian Development Bank (ADB), have played an important role in enhancing connectivity of economies through the promotion of catalytic project investments. Since its establishment in 1992, this program has enabled billions of dollars of investment in road, airport and railway improvements, power generation and transmission infrastructure and other projects aimed at improving transport and communication links, and facilitating movement of goods and services. The GMS Regional Investment Framework, adopted in 2013, identifies a pipeline of more than 200 priority investment and technical assistance projects across 10 sectors, which will require an estimated investment of more than $50 billion between 2013 to 2022 (ADB, 2015).

(ii) ASEAN

In 2013, ASEAN had a population of 630 million and a combined GDP approaching US$2.4 trillion. GDP growth is projected at 5 percent per annum over the next five years. In 2015, the ASEAN Economic Community (AEC) was established, with the aim of creating a single production and distribution base where products can be manufactured distributed and sold anywhere throughout ASEAN. The ultimate intention is to transform ASEAN into a region with free movement of goods, services, labor and capital, along the lines of the European Union. Currently, small and medium enterprises make up 96 percent of all businesses in Southeast Asia and provide about 85 percent of the region's employment, while accounting for 50 percent of ASEAN GDP. Only 24 percent of ASEAN's trade is within the bloc. However, the ASEAN middle class is expected to rise from 190 million in 2012 to 400 million by 2020. Taken together with planned closer regional integration, this presents formidable opportunities for economic development.

To facilitate regional economic integration, transport connectivity will be enhanced throughout the region. An ASEAN highway network is a priority, while improved maritime links, high speed railway links, and a "free skies policies" are also being promoted. This will all help facilitate intra-ASEAN trade, which is expected to exceed US$1 trillion by 2020. Central to this process is the ASEAN Master Plan on Connectivity, which guides investments in road, rail and port infrastructure, as well as supporting initiatives that ease existing border restrictions.

ASEAN has free trade agreements with other major economies in the Asia-Pacific Region, including China, India, Japan, South Korea, Australia and New Zealand. The promise of market opening has also increased wider international interest in ASEAN as an investment destination. In 2013, the regional bloc attracted US$122 billion in FDI, equivalent to 8 percent of FDI globally (ASEAN and UNCTAD, 2014). The availability of low cost labor in some of the countries is a comparative advantage.

At the time of writing, there are indications that the ASEAN economic miracle may not be as robust as has sometimes been assumed. China's slowing economic growth and stock market devaluation is having a knock-on effect, reducing demand for goods and natural resources from Southeast Asia, which, in turn, is hitting demand for Chinese exports from the ASEAN region.

(iii) Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

Politically and economically, the cultures of the Indo-Burma countries have long been influenced by the states to the west (now Bangladesh, India and Sri Lanka) and to the north (China). These countries act as a trade link between South and East Asia, helping to keep a flow of goods and ideas moving through the region (Wade, 2009). Myanmar, which for the last four decades has acted as a buffer between East/Southeast Asia and South Asia, is rapidly transforming itself into a bridge between the regions (Myint-U, 2011). Recognizing this connectivity, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) aims to further integrate the region. BIMSTEC includes the countries of Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand, which collectively account for 20 percent of the world's population and a combined GDP of

more than US$2.5 trillion. The main objective of BIMSTEC is to promote technological and economic cooperation among member countries, including in sectors with a potentially large environmental footprint, such as tourism, agriculture, fisheries and transport.

1.1.4 Climate Change

Over geological time scales, climate change is nothing new. However, the current speed of change is unlike anything seen before, and will affect all ecosystems (IPCC, 2014). The impacts of climate change will affect the coastline, through rising sea levels, saline intrusion, acidification, changes in wind speed and direction, and storm surges (Woodruff and Woodruff, 2008). The impacts will also affect agricultural land, through changing rainfall patterns and temperatures. The built environment will be impacted through increased magnitude and frequency of floods and changes to water supply. Human health will be affected through increased likelihood of emerging infectious diseases and invasion of harmful non-native species. Many other aspects of human well-being will also be impacted (Groves *et al.*, 2012). Climate change also appears to be increasing the frequency and power of extreme natural events, often leading to natural disasters (Anderson and Bausch, 2009).

In the Indo-Burma Hotspot, temperature increases are expected to reach between 3 and 5 degrees centigrade by the end of the century. Some pockets with the region are expected to experience much greater warming, including the basin of the “3S Rivers” (Sesan, Srepok, Sekong) in northeastern Cambodia, and the Mekong Delta of Cambodia and Vietnam. Similarly, precipitation is expected to increase between 3 and 18 percent, with the highest increases in the traditionally wet areas of the Annamite Mountains and the plains between Vientiane and Pakxe. In addition, the rainy season is projected to start about two weeks later, and the transition between the rainy to the cool dry season will similarly be delayed by 1 to 3 weeks, whereas the transition period from the hot dry to the start of the rainy season will start about 1 week earlier (USAID Mekong ARCC, 2014).

Of growing importance at a time of rapid climate change, protected areas contribute to both climate change mitigation and adaptation. On the mitigation side, old-growth forests continue to accumulate carbon at a faster rate, in both trees and the soil, than the new forests that are sometimes advocated as a climate change mitigation measure (Luyssaert, 2008; Pan *et al.*, 2011; Stephenson *et al.*, 2014). On the adaptation side, natural forests, in mountains, along watercourses and coasts, and in the sea, help increase resilience to extreme natural events. For example, healthy mangrove forests can help to prevent and lessen damages from storm surges, and can also be effective in protecting against the most extreme events, such as tsunamis, if in coastal belts at least 150 meters wide (Dahdouh-Guebas *et al.*, 2005).

In global climate negotiations, increasing attention is being given to the role of forests in combatting climate change. In Cambodia, Lao PDR, Myanmar and Vietnam, land-use change, including deforestation, represents the largest source of greenhouse gas emissions. Without urgent steps to better manage forests, such as by directing agricultural expansion to already degraded lands, hotspot countries may fail to meet their Nationally Determined Contributions agreed at the United Nations Climate Change Conference in Paris in December 2015. This may also limit their access to forest carbon funding mechanisms offered by donor countries.

1.2 Civil Society in the Indo-Burma Hotspot

The last decade has witnessed an increase in campaigns and protests about dams, mines, and economic land concessions across the Indo-Burma Hotspot. As urban dwellers and rural communities become increasingly connected by mainstream and social media, developments that do not give due consideration to social and environmental impacts are provoking mounting public concern and media coverage. This period has also seen the growth in number, capacity and credibility of CSOs working on environmental issues and responding to the concerns of affected communities. Although,

conservation efforts in the hotspot countries continue to be dominated by governments, and political space for civil society remains limited, experience from other parts of the world demonstrates that CSOs can play important roles in promoting sustainable development. These include bringing global best practice to local contexts, testing new approaches that respond to emerging challenges and opportunities, catalyzing partnerships among different actors to address complex problems, and bringing attention to the social and environmental impacts of development plans and policies. Capable, credible and adequately resourced CSOs are an essential element if future development in the hotspot is to balance economic goals with biodiversity conservation and human wellbeing.

With the partial exceptions of China and Thailand, civil society's involvement in biodiversity conservation in the hotspot countries over the last decade has been dominated by international nongovernmental organizations (NGOs). The involvement of international NGOs has largely been supported by international donor funding, from a mix of public and private (philanthropic) sources. As the economies of the hotspot countries grow and they gradually become recognized as middle-income countries, Official Development Assistance (ODA) is expected to be withdrawn, as donor agencies shift focus to lower income countries. While this process is occurring at different rates in different countries, and although some philanthropic funding for conservation is expected to remain available, international NGOs active in the hotspot will find it increasingly difficult to maintain their programs at current levels.

As international donor funding for conservation in the hotspot plateaus and then declines, the need for local sources of funding will increase. This trend is already observable in China, Thailand and (to a lesser extent) Vietnam, with the emergence of corporate social responsibility (CSR) programs, local private foundations, philanthropic giving by high net worth individuals, and "crowd sourcing" of donations from the general public. With changes in attitudes towards wealth and consumption, the introduction of tax incentives, and greater public engagement with environmental issues, the local funding landscape for conservation in the hotspot could potentially change dramatically over the coming decades. Local CSOs are likely better placed to take advantage of these new opportunities than are organizations perceived as being "foreign". If past trends are a reliable indicator of the future direction of the hotspot's conservation movement, international and local CSOs will occupy complementary roles, with a considerable degree of cooperation and mutual support. Local CSOs will tend to focus on conservation approaches that have a direct link to human wellbeing (e.g., community-based natural resource management, indigenous rights, etc.), while international NGOs will tend to focus on approaches the require specific technical expertise (e.g., species and habitat management, combating wildlife crime, natural capital accounting, etc.).

1.2.1 Cambodia

Since the start of modern conservation efforts in the late 1990s, biodiversity conservation in Cambodia has involved both local and international CSOs, working in collaboration with counterparts from government agencies. Currently, conservation programs in the country remain heavily dependent on the role of international NGOs, while conservation-focused local NGOs remain limited in number, capacity and influence. This general picture, however, masks a significant growth in the number and capacity of Cambodian nationals working in the conservation field, as well as the growing number of CSOs involved in broader issues of environmental protection and indigenous rights. Continuing to strengthen the organizational capacity, governance and accountability of local NGOs and other CSOs, including people's movements, is critical for long-term sustainability of the conservation movement in Cambodia.

In Cambodia, it is felt that local CSOs have no real engagement in the policy process, and they have limited access to policy development compared with international NGOs and donors, who participate in the regular meetings of the technical working groups constituted by ministries to solicit input into policy. More recently, preparation processes for regulations and policies have provided some room for

contributions from local civil society but, in general, this has been very limited. There is a need to demonstrate, through some specific cases, that it is possible for local CSOs and communities to engage effectively in policy consultation processes. Providing information to the public is important, to increase their understanding and participation, and to empower local people to participate directly in consultations themselves, well informed about the likely impacts of development projects in their areas. Strong consideration of indigenous rights is of particular importance, as indigenous people are among the most vulnerable stakeholders, and must be adequately and fully informed, prepared, and involved in decision making, if development is to proceed in a sustainable and social just manner.

Long-term conservation education programs are very important in this regard. Because of its history of genocide and decades of under-investment in education, shortage of human capital affects the development of civil society, as it does many aspects of life in Cambodia. There are a large number of CSOs recruiting from a relatively small pool of appropriately skilled individuals, for whom they must compete with private companies and government agencies. A very effective master's degree program on biodiversity conservation has been established at the Royal University of Phnom Penh, in collaboration with Fauna & Flora International (FFI), but the number of graduates does not come close to meeting the demand. Conservation issues need to be clearly integrated into formal educational curricula at all levels, so as to inform and inspire younger generations to contribute in a positive way to conservation efforts. Many NGOs conduct awareness raising events on special days for water, wetlands, biodiversity, environment and so forth but little has been done to systematically integrate environmental concerns into the formal school curriculum, and thereby help ensure that the next generation is more environmentally aware. Moreover, dissemination of research into different environmental issues in Cambodia to local communities is important for their involvement and participation in conservation efforts.

Managed by the network organization Cooperation Committee for Cambodia, and supported by a range of international donors, the NGO Governance & Professional Practices Program (GPP), a voluntary accreditation system for NGOs in Cambodia, has been running since 2004. It is one of only two self-regulatory systems operating in Southeast Asia. The GPP strengthens internal governance structures and operations of local organizations via a comprehensive training system and accreditation, setting a universal standard to achieve and maintain. Although the Cambodian GPP itself is voluntary, it has been used successfully to increase standards by making it an essential or obligatory condition of support by many donors. The GPP is generally held in high esteem and a source of pride by the organizations accredited, who see it as an important step towards creating a more independent and effective civil society.

One recent development with regard to the operating environment for civil society in Cambodia is the introduction of the 2015 Law on Associations and NGOs. This has raised concerns about freedom of expression and access to information for Cambodian civil society. The long-term implications of this law are not yet clear, however, as much depends on how the law is interpreted in practice.

1.2.2 China

In China, CSOs are growing in number. According to incomplete statistics, there are currently more than 3,000 organizations actively taking various roles in Chinese society, among which around 500 organizations are involved in environmental protection or biodiversity conservation. Seventy percent of these organizations are local, among which just a few organizations implement activities nationwide. Other CSOs active in the environmental sector include international NGOs, and domestic private and public foundations. There are also more than 25 domestic private or public foundations.

National NGOs in China are mostly government-organized NGOs (GONGOs), which is a special format of organization in China. GONGOs are normally organized by one or more governmental agencies specialized in a related field, such as poverty alleviation, rural education, health or welfare.

GONGOs can be national or local but are more often found at the national level. With access to government support, the capacity of GONGOs tends to be significantly stronger than that of grassroots (i.e., non-government affiliated) NGOs, although, in most cases they are still weaker technically than the leading international conservation organizations. Aside from GONGOs, the capacity of local NGOs in China is relatively weak in terms of institutional structure, financial sustainability, professional know-how, human resources and clear goals and strategies.

Most local NGOs are at the stage of "doing things for the sake of doing things", without a clear analysis of how their actions address the root causes of environmental problems. Many NGOs' understanding of the policy environment is insufficient, meaning that their interventions tend not to be policy relevant or timely enough. Local NGOs also face high turnover of staff, and retention of the most talented staff is made difficult by their inability to offer stable employment and competitive salaries. More support is needed for training and building capacity on strategic actions, as well as on specific professional knowledge, strategic planning and long-term development goals, and communications and public engagement.

In the Chinese part of the Indo-Burma Hotspot, as elsewhere in the country, the government plays a very strong role in environmental management and biodiversity conservation. Other than for GONGOs, the space for civil society is presently somewhat restricted, and collaboration between CSOs and state agencies is often weak. In addition, limited English language skills within Chinese CSOs limits their access to international funding opportunities (except in cases, such as CEPF, that allow applications in Chinese), exposure to global best practice and ability to network with peer organizations in neighboring countries.

1.2.3 Lao PDR

Lao PDR has one of the smallest civil society sectors among the hotspot countries. According to the Lao CSO directory, there were only 74 registered organizations as of 2014, most of which were very new. This is in large part due to the fact that the legal basis for registration of local CSOs was only put in place in 2009. Only a handful of local CSOs have an explicit focus on biodiversity conservation. These nonprofit associations (NPAs), as they are termed in Lao PDR, mostly assist the government to work with local communities, especially in remote areas. In the biodiversity conservation field, NPAs are actively contributing to community-based resource management, for instance through the promotion of community forestry and community fisheries. In recent years, with the support of World Wide Fund for Nature (WWF) and several local CSOs, more than 300 fish conservation zones have been established throughout the country.

During the early phase of the NPA decree, from 2009 to 2012, the government initially seemed supportive of the emergence of civil society. More recently, this direction seems to have been reversed and NPAs are faced with a reduction in operating space. This is reflected in new restrictions on registration, receipt of funds and working at local levels, including a requirement to register and seek approval for implementation of each specific activity, even when an overall memorandum of understanding has already been concluded. Other major challenges include finding ways to involve NPAs and other forms of civil society in National Economic and Social Development Strategy Plan preparation and implementation, defining a role for NPAs in the decentralization process, and engaging with the private sector.

Very few NPAs have sufficient funds for their operating costs. The grants they are able to access are typically limited in both value and duration. It is also observed that there is some confusion among NPAs about whether they can be presented as community groups, community village organizations or even companies; the government recognizes NPAs as associations. The profile of NPAs can be increased through cooperation with international NGOs and other partners, and they have demonstrated ability to undertake field-level conservation activities. Nevertheless, they still need significant support in terms of capacity building, particularly with regard to core institutional capacity.

Public awareness of the role of NPAs and support for their activities is limited, and local media portrayal of environmental issues focuses very much on the role of government.

1.2.4 Myanmar

After decades of relative isolation from the rest of the world, change is occurring in Myanmar at a rapid pace. With recent political reforms, including, in November 2015, the first openly contested elections since 1990, development aid is flowing into the country, accompanied by numerous international NGOs and donors seeking to repair years of neglect in areas such as education, health, livelihoods, environment and law. There are strong links between natural resource management and food security in Myanmar, where 70 percent of the population are rural and depend on their immediate environment for food, fuel, and livelihoods. Local CSOs have a significant role to play in supporting and empowering these communities. There are growing numbers of local NGOs and CSOs. Many of them are organized into membership-based networks, such as the Myanmar Environment Rehabilitation-conservation Network, which came into being after Cyclone Nargis. However, the largely undeveloped local civil society sector has limited understanding and experience of the governance and management requirements for effective and efficient organizations. The young age and fragility of the sector, lack of independence from government of some CSOs, poor management of projects, and little effective long-term influence or outcomes all present significant challenges (IUCN, 2014).

A limited number of CSOs in Myanmar have a specific focus on biodiversity conservation. Almost all organizations registered at national, state/division or township levels address a mix of issues. In part, this is a symptom of CSO agendas being set by donor priorities. By adopting broad strategies in order to take advantage of multiple funding opportunities, CSOs may benefit from having a more holistic approach and the flexibility to respond to emerging issues. Conversely, they may lack credibility in the eyes of donors and government, and find it hard to develop strong technical expertise in specific fields or to maintain institutional knowledge of those fields.

Many of the more established national organizations are led by former government officers, and mirror the structures, practices and attitudes of their former institutions, albeit on a smaller scale. This dynamic can stifle creativity and lead to resistance to adopting international best practice. Many organizations are new and lack the basic requirements to receive international donor funding (e.g., an organizational bank account). Conversely, those organizations that do meet international donor requirements for funding risk being stretched to or beyond capacity, as donors are tempted to award them increasing amounts of more funding without carefully evaluating the impacts on the organization. There is a significant risk of donor funding, delinked from other forms of support, entrenching weak financial management and unaccountable governance, and thereby having the opposite impact on the capacity development of local CSOs than intended. There is a pressing need to diversify the pool of CSOs receiving donor funding. This can be achieved through targeted capacity building, and encouraging newly registered groups to partner with established organizations to meet donor requirements for registration, reporting and financial management.

Standards of accountability are low at many CSOs and commonly limited to donor-required project monitoring, reporting and financial management. Transparency in decision-making processes is rare and top-down leadership common (frequently with the founder as the main decision maker). Many CSOs display patterns of governance and management that create and sustain dependency on a few individuals, because of limited knowledge storing and sharing. Formal and meaningful space for women in decision making is often lacking, with little in the way of dispute resolution, sexual harassment policies or fair and equal work policies in place. In a country with Myanmar's history and short development cycle, it is not surprising that CSOs find it hard to recruit suitably qualified and experienced staff.

While donors and stakeholders are grappling with these problems, many are already turning their attention to supporting local organizations through small grants for capacity building and training in governance and organizational management. Although this is, in itself, promising, attempts in other countries to "build governance capacity" through one-off or sporadic training events have often not been effective, due to a lack of consistent standards and the follow through. It seems appropriate, therefore, to start a discussion on what is needed in the areas of governance and management to build local CSOs into strong and sustainable organizations that can deliver effective and efficient programs for Myanmar and its people.

1.2.5 Thailand

Thailand has a well developed national NGO sector that has evolved steadily since the 1970s. Early, well known NGOs, such as the Population and Community Development Association, which was hugely successful in family planning and community development work, have continued to thrive. Government restrictions and controls on NGOs are rather limited, and they are essentially able to work on any issues they choose throughout the country. There are several categories of NGO registration that are possible under Thai law, ranging from rather simple, loosely structured groups or networks, through associations, to the highest level of registration: foundations. Foundations that fulfil certain additional criteria can also become eligible to offer tax deductions to companies and individuals who make donations to them: an obvious benefit for long-term fundraising. The government and private foundations have established a variety of grant schemes for civil society; the fact that local language applications are accepted makes them easily accessible to local CSOs.

Because of the less restrictive operating environment for civil society in Thailand, a number of organizations and programs with a regional focus are based out of the country, such as EarthRights International, International Rivers' Southeast Asia Program, and the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC). There is also a clear trend in Thailand for the country offices of international NGOs to eventually become localized and established as national NGOs. This has happened with several NGOs working on sustainable development issues, such as CARE (now registered as Raks Thai Foundation) and WildAid (now registered as FREELAND Foundation).

Many Thai NGOs include work on the environment and natural resource management as one element of their overall work on strengthening community development, poverty alleviation and rights-based development approaches. On the other hand, relatively few have a specific focus on biodiversity conservation. Those that do include some well known, respected and effective organizations with considerable experience, such as the Seub Nakhasathien Foundation. The first real conservation NGO in Thailand, Wildlife Fund Thailand, has unfortunately closed its doors, amid internal disputes.

This leads the discussion to one of the key weak points of Thai NGOs. Many of them are established by charismatic individuals and thrive for a certain period under the leadership of these individuals. However, they frequently seem to encounter challenges with long-term institutional development and succession planning. In some cases, the original charismatic leader refuses to relinquish control and let others start to take over when they should. In other cases, the leader loses interest in the organization before it is robust enough and other colleagues are ready to take over. To address this and related issues, Khon Khaen University has recently developed a training program for institutional development and strengthening of NGOs and other CSOs in Thailand, which is being supported by the United States Agency for International Development (USAID). This program is illustrative of the close cooperation between Thai academics and CSOs, which has been a significant factor in supporting the development of the latter.

One area where Thai NGOs have a strong track record in is environmental education. This includes both integrating environmental education across the formal school curriculum in different subject areas, and delivering hands-on outdoor activities through youth camps in national parks and other

natural areas. Two interesting successful long-term models are the Chao Phraya Barge Program, and the Bang Pu Nature Education Center. The Chao Phraya Barge Program was started by the Thai NGO Magic Eyes in the 1990s. It provides three-day-two-night educational trips up the Chao Phraya River from Bangkok for schoolchildren, to learn about the river, water management, pollution, river ecology, biodiversity, and traditional riverside culture. The Bang Pu Nature Education Center was established in 2002, in an area of mangroves and mudflats one hour's drive from Bangkok to provide easy access to nature for city dwellers. Initially a project of WWF Thailand, it is now managed by an independent Thai NGO, the Foundation for Environmental Education and Development, and supported financially by the private sector. The center offers educational visits for groups of schoolchildren to learn about coastal habitats, migratory shorebirds and development issues.

1.2.6 Vietnam

In Vietnam, the role of civil society has evolved considerably over the past 25 years. In the 1990s, the participation of civil society in biodiversity conservation in Vietnam was dominated by international NGOs. Currently, the number of national and provincial NGOs working on conservation is greater than that of international NGOs, and growing each year. Most Vietnamese NGOs working in the environment field register as "non-state scientific and technological organizations" under the auspices of an entity such as the Vietnam Union of Scientific and Technology Associations. This gives them a quasi-indepenendent status. The legal basis for the establishment of "true" independent local NGOs is not yet in place. The Law on Associations, originally drafted more than 15 years ago, has not yet enacted; the most recent attempt, in November 2016, saw the bill shelved by the National Assembly. Local NGOs also face controls on access to funding, through the permitting and project approval process established by Government Decree 93/2009/ND-CP.

In spite of these constraints, CSOs are increasingly able to raise their voices and influence policy. The government's attitude towards CSOs is shifting (for example, it has introduced policies on socialization of environmental protection) and society as a whole has become more aware and accepting of the role of CSOs. The exhaustion of natural resources and other environmental problems are becoming obvious, citizens are aware of the need for nature conservation and environmental protection and, therefore, support the work of CSOs in these aspects. There is also a clear change in public attitudes, in the sense that more and more people (especially young people and middle class urbanites) are now participating in voluntary activities and charitable giving. For example, a recent call by IUCN for volunteers for marine turtle nesting beach protection was met with an overwhelming response. Also, the Vietnamese NGO Education for Nature-Vietnam has developed a national network of nearly 6,000 volunteers, organized into 15 clubs in major cities, to help combat the illegal trade in wildlife. Furthermore, Vietnamese media are reporting on environmental problems with greater openness, frequently eliciting positive responses from government. As a result of the above, the CSO community is growing in number, capacity and influence.

A good example of the role of Vietnamese CSOs in social criticism and helping to advance transparency in natural resource management is the case of the Dong Nai 6 and 6A hydropower dams. Public concerns, expressed via CSOs, on the negative impact on these dams on the Dong Nai River ecosystem, and Bau Sau Ramsar Site within Cat Tien National Park in particular, were heeded and the dam proposals revoked.

Individual CSOs actively participate in public policy development in certain sectors (including energy, water management and mining) as social critics and informants. Over the last five years, coordination among local CSOs has been improving. For instance, Oxfam has been supporting civil society coalitions working on land, water, extractive industries and other issues, while the Vietnam Rivers Network has been coordinating efforts related to river conservation. There also appears to be a growing interest among academics in supporting CSOs with analysis or lending voices to campaigns, which could be beneficial to their legitimacy and credibility in the eyes of government.

In addition, CSOs are now proactively approaching the private sector to promote the adoption of more environmentally friendly business practices. For instance, some CSOs are working with business associations to develop social and environmental standards for companies working in natural resource sectors with large environmental footprints, such as mining. CSOs are also implementing activities for environmental impact research, acting as “watchdogs”, and providing criticism on business practices. In particular, some CSOs are involved in strategic environmental assessment (SEA) and environmental impact assessment (EIA) or building capacity for local communities to participate in these processes.

Nevertheless, parts of the government still have negative views of CSOs and try to constrain their activities, especially in “sensitive” parts of the country, such as the Central Highlands. Decentralization in Vietnam leads to differences in interpretation of policy among provinces, and, as such, CSO activities may be welcomed in one province but prohibited in another. Some provinces are relatively progressive in their attitudes towards CSO participation. Ha Tinh province, for example, recently called for stakeholder consultations on the development of a provincial master plan for environment, climate change and biodiversity conservation.

At the same time, conservation NGOs are facing a wide range of challenges, including that Vietnam is now no longer considered a priority country for ODA. Also, a shift in donor investment towards a greater focus on climate change issues means that funding for species and habitat conservation is now more limited. Although the 2013 Law on Science and Technology technically allowed for CSOs to apply for state funding, most are effectively unable to approach state funds for biodiversity conservation. Moreover, unlike in Thailand, Vietnamese tax law makes no exemptions for charitable giving to public-interest activities, foundations and NGOs.

1.2.7 Approaches to Building Civil Society Capacity

Several promising models for building capacity of local NGOs exist in the hotspot that could be built upon. One example is IUCN’s coastal resilience program Mangroves for the Future (MFF). Since 2006, the MFF grants facility has awarded over 260 grants in 11 countries, including four in the hotspot: Cambodia; Myanmar; Thailand; and Vietnam. The MFF grants facility offers small, medium and large grants to support initiatives that provide practical, hands-on demonstrations of effective coastal management in action. Before grants are awarded, MFF provides project cycle management training for all prospective grantees, to help strengthen their skills in this area. Each country manages its own MFF program through a National Coordinating Body, which includes representation of government, NGOs and the private sector. Participation of local NGOs in this body provides them with opportunities to engage with government on policy issues. Grant implementation is also monitored by joint missions, which also involve both government and NGOs, providing opportunities for the NGO participants not only to learn from work at other sites than their own project but also to engage with government representatives and share perspectives on what they have seen in the field. In this way, NGOs also start to understand the different way in which the government agencies see the issues.

Another model for civil society capacity building is mentoring of local CSOs by international NGOs. Under this model, the international NGO works in collaboration with one or more local CSOs to jointly develop and/or implement conservation projects and, in the process, helps (or intends to help) build their capacity. This approach has met with varying degrees of success, and successful examples seem to be outweighed by examples of unrealized goals. The reasons for mentoring relationships failing to achieve desired results are as varied as the organizations themselves but a common theme seems to be that genuine change is disruptive of power relationships, which tends to threaten the interests of those people with the most vested in the status quo, who tend, in turn, to be the people on whose support change depends. Nevertheless, there have been some qualified successes. For instance, IUCN worked with the Thai NGO Sustainable Development Foundation from 2011 to 2014, to implement a coastal resilience project. As part of this project, Sustainable Development Foundation

developed its financial management systems and reporting to a point where they met donor standards.

The GPP voluntary accreditation system for NGOs in Cambodia, described above, provides a comprehensive training system and accreditation, setting a universal standard for CSOs to achieve and maintain. Something similar could be replicated in other countries of the hotspot. Another example is the Khon Khaen University Faculty of Social Science program to strengthen the capacity of CSOs, funded by USAID. While initially targeting mainly Thai CSOs, in future, it is intended that this program will support CSOs from neighboring countries as well.

1.2.8 The Role of the Media

The impacts, risks and conflicts associated with rapid economic development, coupled with widespread corruption and examples of land-grabbing and asset-stripping by influential actors, are provoking mounting public concern and media coverage in the Indo-Burma Hotspot. As individuals and communities become increasingly connected by TV, radio, the internet and social media, they have a growing influence on government decision making: an influence that the media magnifies. In China, Myanmar, Thailand and Vietnam, the national media reports on environmental issues increasingly freely. In Cambodia and Lao PDR, the international media has played this role up to now, although, more recently, the Cambodia media has been more open in reporting issues of forest destruction and encroachment.

Examples from Thailand and Vietnam, in particular, show that growing national media coverage of environmental issues, going hand in hand with increasing public awareness and concern about a deteriorating environment, tends to create public support for what CSOs are trying to achieve, while creating an atmosphere in which the government needs to be seen to respond to these issues. In Vietnam, the government response has been to give more space for civil society. In Cambodia, it is not clear if this will be the case. Currently there is considerable concern about the implications of the new Law on Associations and NGOs, which seems intended to give the government more control over the activities of Cambodian civil society. In China, the government's response to increasing media coverage of environmental issues has not necessarily translated into more support and political space for NGOs. In Lao PDR, public concern for and media coverage of environmental issues are both in their infancy, and very far from influencing government reaction. In Myanmar, the development situation is dynamic but there are some positive signs that public concerns can be openly expressed and issues openly reported in the media. In some cases, at least, this is believed to have contributed to planning decisions favorable to conservation, such as the postponement of the proposed Myitsone hydropower project. Whether the voice of civil society through the media is loud or quiet, there are indications from all hotspot countries that the government may, in fact, be listening.

A good case study of the combined impact of local civil society and national media efforts to address an environmental issue in the Indo-Burma Hotspot comes from the Chinese-backed navigation improvement scheme on the Mekong in the early 2000s. The scheme, which involved blasting of shoals and rocky stretches of the river, was halted along the Thai section of the river in Chiang Rai province. Initial concerns were raised and maintained by a concerted two-year campaign led by the local NGO Rak Chiang Khong, which was subsequently supported by other other NGOs. Media in all Mekong countries frequently reported on the project but only in Thailand did the media strongly support the NGOs' cause and actively call for a halt to the project (Weerapong, 2007). Unfortunately, 10 years later on, the Lancang-Mekong Development Plan is calling for improves to navigation along the Mekong River from the Golden Triangle to Luang Prabang, involving development of three cargo ports and removal or reduction of 146 rapids and shoals. This would have even greater impacts on the river ecology than the original project.

The Thai Public Broadcasting Service (TPBS) is the first publically funded truly independent broadcast media organization in the Indo-Burma Hotspot. TPBS has introduced to Thailand the concept of

“citizen journalism”, whereby some basic training and provision of basic equipment allows local people to report on issues from their own community. These reports are then aired on national TV news. With the widespread availability of relatively low-cost, user-friendly video recording equipment that can produce footage of acceptable quality for national TV, this approach has potential for wider application in the future.

Social media campaigns, on platforms such Facebook and YouTube (and local equivalents in China), are also showing that they can be useful in helping local civil society address environmental issues in the hotspot. For example, a campaign in Thailand in 2014-2015 highlighting the importance of parrot fish in preventing algal smothering of coral resulted in five major supermarket chains ending sales of parrot fish in their stores (P. Manopawitr, pers. comm.).

1.3 Sustainable Conservation Financing

Despite major support from international donors, national budget allocations remain one of the most important sources of financing for conservation in the Indo-Burma Hotspot, especially for protected areas (CEPF, 2012). All the countries of the Indo-Burma Hotspot have developed substantial protected area networks (see Table 2). Nevertheless, important gaps in the protected area system remain, and the region's coastal and marine ecosystems, in particular, are poorly represented. Protected area investments have often been targeted, in particular, towards conventional protected areas, and have been skewed towards capital costs, such as roads and buildings. In particular, little funding tends to be available for routine maintenance, essential equipment or activities that are fundamental to operational conservation management (e.g. Emerton *et al.*, 2003).

An additional concern is that many protected areas are "paper parks", with very little active management on the ground. Across the region, protected areas are under threat from a broad range of land use and development pressures. Since 2010, in Cambodia alone, WWF’s PADDDtracker website records more than 90 cases of protected areas being downsized or downgraded, mainly through diversion of land for economic land concessions and other incompatible activities (WWF, 2017). The ecosystem services provided by these protected areas make numerous economic, social, cultural and practical contributions to human well-being, justifying the continued efforts to enhance their effective management as a means of supporting adaptations to changing conditions (McNeely *et al.*, 2009; McNeely and Suksawang, 2017).

Table 2: Forest cover, land use and population distribution in the Indo-Burma Hotspot countries

Country	Forest Cover (%)	Agriculture (%)	Protected Areas (%)	Urban Population (%)	Rural Population (%)
Cambodia	56.5	32.0	26.2	20	80
China	22.2	54.8	17.0	56	44
Lao PDR	67.9	10.3	16.7	35	65
Myanmar	48.2	19.2	7.3	33	67
Thailand	37.2	41.2	18.8	34	66
Vietnam	45.0	35.0	6.5	32	68

Source: World Bank (2015).

The Indo-Burma Hotspot is especially rich in species (see Table 3), although many are threatened with extinction (see Table 4). In fact, analysis of the IUCN Red List reveals the hotspot contains the highest densities of threatened species on the planet (IUCN, 2014). According to stakeholders

consulted during the preparation of the CEPF ecosystem profile for the hotspot, the single greatest threat to biodiversity is hunting and trade of wildlife (CEPF, 2012). In recent years, the illegal trade in wildlife and timber has grown tremendously and now represents a major sector of organized crime. Countries of the Indo-Burma Hotspot are recognized as key parts of this global illegal trade, representing both source countries and transit and major consumer market countries, depending on the species in question.

Table 3: Species richness in the Indo-Burma Hotspot countries

Country	Plants	Mammals	Birds	Reptiles	Amphibians	Fishes
Cambodia	8,000	212	536	176	63	955
China	30,000	581	1,244	376	284	3,862
Lao PDR	9,000	178	731	186	77	585
Myanmar	7,000	257	1,061	156	156	1,043
Thailand	12,000	294	942	325	141	2,276
Vietnam	9,628	231	889	296	162	2,536

Sources: Chen *et al.* (2009), McNeely and Suksawang (2017).

Table 4: Globally threatened species in the Indo-Burma Hotspot (with percentage of species in taxon threatened)

Country	Plants	Mammals	Birds	Reptiles	Amphibians	Fishes
Cambodia	35 (0%)	37 (17%)	26 (5%)	19 (11%)	3 (5%)	40 (4%)
China	573 (2%)	74 (13%)	93 (7%)	44 (12%)	89 (31%)	135 (3%)
Lao PDR	41 (0%)	45 (25%)	23 (3%)	16 (9%)	5 (6%)	55 (9%)
Myanmar	61 (1%)	46 (18%)	44 (4%)	29 (9%)	0 (0%)	40 (4%)
Thailand	152 (1%)	57 (19%)	47 (5%)	27 (8%)	4 (3%)	96 (4%)
Vietnam	205 (2%)	54 (23%)	44 (5%)	41 (14%)	17 (10%)	73 (3%)

Source: IUCN (2014).

Support for the recurrent costs of extensive protected area systems and actions necessary for conservation of threatened species represents a significant government commitment to sustainable financing of biodiversity conservation. This is clearly the case already for China and Thailand, and, to some extent, for Vietnam. However, government spending on protected area management and species conservation is still extremely limited in Cambodia, Lao PDR and Myanmar.

Over the longer term, well managed protected areas can also be a source of direct revenue generation for the government. As an example, Thailand's protected area network now covers around 22 percent of the country and government direct expenditure on protected areas is estimated at between US$30 million and US$50 million per year. Thailand's national parks receive millions of visits each year and the revenue from tourist entrance fees alone to all Thai national parks amounts to around US$24 million per year. It is important to continue strengthening and monitoring the management effectiveness of national parks, and guiding re-investment of this income in a manner that ensures quality recreation and educational opportunities are provided for increasing numbers of visitors, in ways that are compatible with and support conservation of the core biodiversity and ecological values of the protected areas.

After government budgets, the next largest source of conservation investment in the hotspot is currently bilateral donors, most notably the European Union, Germany and the United States (CEPF, 2012). These donors have tended to fund nationally executed projects, often as part of broader programs of sectoral support, although some have delivered significant support via international NGOs. Examples include the US$9.6 million KfW-supported Carbon and Biodiversity Project, led by WWF, the US$8 million USAID-supported Asia Regional Response to Endangered Species Trafficking project, led by FREELAND Foundation, and the US$20 million USAID-supported Supporting Forestry and Biodiversity project, led by Winrock International.

The third largest source of conservation investment in the hotspot is multilateral donors, particularly the Global Environment Facility (GEF), the Asian Development Bank and the World Bank (CEPF, 2012). Like bilateral donors, these donors have also tended to favor nationally executed projects, especially since the GEF's adoption of the Resource Allocation Framework in 2005 and, subsequently, the System for Transparent Allocation of Resources. Nevertheless, significant amounts of multilateral funding continue to be made available to civil society, for example through the GEF Small Grants Program managed by the United Nations Development Programme. The fourth traditional source of conservation investment has been philanthropic foundations, foremost among which have been the MacArthur, Margaret A. Cargill and McKnight Foundations, and the Blue Moon Fund. Although these foundations have mobilized fewer resources by amount, they have been more accessible to civil society with fewer restrictions on their use.

In spite of significant achievements with individual initiatives at specific project sites or dealing with specific issues, the overall trend over the last decade has been one of continuing (and, in places, accelerating) biodiversity loss. Moreover, although the Indo-Burma Hotspot has been the focus of significant conservation investment, the majority has been directed to government-led initiatives. As such, limited access to funding has been a constraint on the emergence of an effective, credible civil society conservation community. Specifically, of the four main "traditional" sources of conservation investment (government budgets, bilateral donors, multilateral donors and philanthropic foundations), only the GEF Small Grants Program and the philanthropic foundations have targeted their support principally to civil society, whereas civil society has found it increasingly difficult to access the other sources.

Over the last two decades, development donors have been an important source of funding for CSOs engaged in biodiversity conservation, especially for projects aiming to provide alternative livelihoods for communities involved in unsustainable use of natural resources. While CSOs are likely to continue to approach development donors for funding, the relative importance of this source can be expected to decrease over the next decade, as development donors scale down their programs in hotspot countries (except for Myanmar). At the same time, development funding for livelihood activities at the community level is becoming less relevant, because biodiversity loss is increasingly being caused by drivers at other levels.

1.3.1 Cambodia

In Cambodia, the balance, in terms of mobilizing conservation finance, among the global donor community, the national budget, and the private sector, needs to be improved. Compared with other hotspot countries, Cambodia's dependence on international donor support for conservation is particularly pronounced. This situation is not sustainable, as the priorities of international donor agencies are subject to change and many donors are unwilling to make the lasting commitments to covering the recurrent costs necessary to ensure enduring conservation success on the ground. Local and international CSOs need to pay more attention to convincing the government, as well as private companies in natural resource sectors, to contribute more towards conservation. Using conservation and poverty linkages to advocate for increased government spending on conservation could be one strategy to achieve this.

Donors also want to ensure that local government can integrate conservation priorities into their investment plans more. The government uses commune development plans and investment plans to allocate funds from the state budget to each commune to cover conservation and protection of priority natural resources. However, although this mechanism exists, the budget allocations from the national government are insufficient to have a measurable impact. Civil society needs to challenge the prevailing government position that it does not have enough money to support conservation in a substantial way.

1.3.2 China

In China, eco-compensation is proving to be an important approach for transferring funds from beneficiaries of ecosystem services to local people living in the area where those services are generated. In the model used in Hainan province, payments are made directly to the debit cards of individual community members. While of great value for conservation, it is not likely that schemes like this could become a sustainable financing mechanism for CSOs.

1.3.3 Lao PDR

Access to funding sources for conservation CSOs in Lao PDR is very difficult, because they are new and still gaining experience and capacity, including in negotiation and dialogue processes and working with international donors and private companies. Consequently, they survive on small and short-term funding sources, which are unsustainable. Significant investments are still required to enhance the capacity and credibility of newly established CSOs, including by supporting their ability to raise funds from other sources.

Clearly defined sustainable financing mechanisms for CSOs do not yet exist in Lao PDR, although the government is discussing possibilities for their establishment. The desired outcomes from the preparation of sustainable financing mechanisms are focused on getting access to substantial, long-term funding for conservation, while at the same time ensuring that large companies take responsibility for the social and environmental impacts of their business.

One concept is for companies in natural resources sectors (such as energy and mining) to provide funds for biodiversity conservation, through establishing an environmental protection fund or community forest fund, purchasing carbon credits or other mechanisms. Some pilot examples and experiences are currently being applied in some areas, like watershed management for hydropower projects (e.g., Nam Theun 2 hydropower project, Theun-Hinboun hydropower project, etc.), and biodiversity offsets for mining and hydropower projects (e.g. Sepon mine, Nam Ngiep 1 hydropower project, etc.). There is potentially large funding available if this concept is implemented effectively. However, it can be expected to prove controversial with some CSOs, which may be unwilling to accept funding from companies with a large environmental footprint.

The Lao government is currently revising the Water Law, to provide for the establishment of a “water fund” based on polluter-pay principles. Developers in the hydropower sector must already contribute to the Environmental Protection Fund for forest conservation, which includes conservation of biodiversity, including terrestrial wildlife and aquatic species, among its goals. To ensure that CSOs are able to reap the benefits, there will be a need to invest in their preparedness to engage in the various forms of sustainable financing mechanism currently being developed in Lao PDR.

1.3.4 Myanmar

In comparison with other countries in the Indo-Burma Hotspot, there are relatively few examples of sustainable financing from Myanmar. This is reflective of the fact that, until recently, the country was the subject of international sanctions, which placed restrictions on both ODA and private philanthropic funding to the country. The most advanced sustainable financing initiative in Myanmar is the Tanintharyi Nature Reserve Project, under which three companies make payments to the Forest

Department as compensation for the impacts of the Yadana gas pipeline, which cuts through forest in the south of the country.

1.3.5 Thailand

In Thailand, a portion of government revenues from so-called “sin taxes” on alcohol and tobacco is used to fund a number of “Public Organizations”. These publicly funded entities basically operate independently from the government and, therefore, have greater flexibility in the way they manage funds and implement activities. The Biodiversity-based Economy Development Organisation provides funding support to local communities and community-based organizations in developing new products or adding value to existing products derived from non-timber forest products: mostly organic foods, medicines and cosmetics. The Designated Areas for Sustainable Tourism Development Public Organisation (DASTA) provides support to local authorities, local NGOs and community groups to develop nature and culture-based tourism activities in designated provinces. This can include support for direct conservation action, as for example in Loei province, where the local NGO Loei Foundation for Conservation and Sustainable Development recently received a grant from DASTA to support a farmer tree-planting scheme in the buffer zone of Phu Luang Wildlife Sanctuary.

The Thai government has also established the Thai Research Fund, which provides grants to individuals and local CSOs/NGOs to conduct conservation and development activities that have a research component. While this is a useful addition to funding opportunities, it will never be a source of long-term sustainable financing for individual NGOs. There is also some scope for CSOs to collaborate with the Department of National Parks (DNP) and request funding support from the income that DNP derives from tourism revenues, by developing a joint project with a protected area. This opportunity will be easier to take advantage of by those CSOs that have an existing track record in collaborating with DNP in park management activities. Under a policy first advocated by WWF Thailand and introduced about a decade ago, each individual park has its own Protected Area Committee (PAC), which provides a formal platform and mechanism for local stakeholder involvement in park management. In late 2015, DNP embarked upon a review of 10 years of experience of PAC implementation across the country, to draw out lessons learned and best practices for further application.

1.3.6 Vietnam

In Vietnam, a number of sustainable conservation financing mechanisms are under development. These provide opportunities to offset the overall decrease in the state budget for conservation. Payment for Forest Ecosystem Services (PFES) schemes, under which payments from users of ecosystem services (such as hydropower dam operators) are collected and distributed to forest owners (such as communities or state forest enterprises), have been developed in provinces throughout Vietnam. While most of the funds are allocated to forest development and management, some can be targeted to biodiversity conservation. For example, under PFES schemes in Quang Nam and Thua Thien-Hue provinces, hydropower dam operators and other users of ecosystem services are contributing to the costs of employing community forest guards under a WWF-supported project, with measurable conservation benefits. Ecotourism is another potential source of sustainable financing for conservation, and the government is currently considering a proposal to increase entrance fees to protected areas and use the revenue for conservation.

For these and other proposed sustainable financing mechanisms, it is difficult to see how they could lead to sustainable financing for CSOs, since the majority of revenue is retained by protected area management boards, local people’s committees or other state entities. To date, CSOs have had very little success in accessing state budgets for funding, although the 2013 Law on Science and Technology made this possible, at least in theory. At the present time, therefore, many Vietnamese CSOs remain dependent on international donor funding, while exploring other, more innovative sources of finance, such as donations from private companies and individuals. While some CSOs

have had some limited success with this approach, there remain a number of significant barriers, including a lack of trust in CSOs' ability to manage funds and deliver results on the part of the private sector, and the absence of a favorable tax regime to incentivize charitable giving.

Development of a membership has been tested as an option for revenue generation by a few NGOs but with limited success thus far. It seems that the increased environmental concerns being expressed by the public and increased willingness to participate voluntarily in environmental activities, has still not stretched as far as willingness to provide direct financial support to CSOs. The private sector has also been approached by a few CSOs in Vietnam, for example ENV has developed a private sector membership program. However, most of the companies involved do not yet pay enough attention to real biodiversity conservation issues but rather prefer CSR activities that improve their public image, such as environmental clean-ups and tree planting.

1.3.7 Partnerships with the Private Sector

There are examples from all six countries in the hotspot of support for conservation initiatives from private companies. Examples include the Toyota Environmental Activities Grant Program and the Ford Motor Conservation and Environmental Grants. There are also a growing number of foundations established by national companies in the hotspot countries, which tend not to be independent from the parent company. While, in some cases, these may be seen as just providing good public relations while still supporting the core business agenda of the company, many are actually supporting worthwhile conservation work. For example, the "Thai Love Forest" Foundation (Thai Rak Pa) established by EGCO (a company with a diverse portfolio in electricity generation, including fossil fuels, hydropower and solar energy) has made significant investments in nature education and community livelihoods at Doi Inthanon National Park.

In summary, a number of innovative funding sources have been explored over the last decade by conservation-focused CSOs in the Indo-Burma Hotspot. None of these is currently widespread but several have good potential for wider adoption. The most significant investments, from the point of view of level of resources, are investments by extractives companies in relation to the Sepon mine in Lao PDR and the Yadana gas pipeline development in Myanmar, which bear the characteristics of biodiversity offsets. Looking forward, this is an approach with great potential in the hotspot, and one that CEPF and other funders could help to promote through carefully targeted pilots. Another potentially very significant non-traditional source of conservation funding has been PFES mechanisms, supported by energy generators and water utilities. The best known example in the hotspot is in Lao PDR, where the Nakai-Nam Theun Watershed Management Protection Authority is funded through transfer payments from the Nam Theun 2 hydropower project. Other pilot PFES projects have been implemented in China and Vietnam, where they have already informed sub-national and national guidelines.

1.4 Public Policy in the Indo-Burma Hotspot

1.4.1 Regional Policy

The countries of the Indo-Burma Hotspot are becoming increasingly interconnected by development of roads, railways and powerlines, lowering of trade barriers, visa-free travel, and a host of trans-national investments. With the recent creation of the AEC, regional economic integration is expected to accelerate. Nevertheless, development planning by national governments continues to take place in relative isolation. Whether at local, national or regional level, development decision making is rarely transparent or inclusive of stakeholders. Major investment decisions are often influenced by powerful interests that prioritize short-term economic benefits. This has led, among other things, to significant impacts on the natural resource base and ecosystem services upon which tens of millions of poor people still depend.

ASEAN has been outstanding in the developing world in promoting regional stability and security. However, the challenge for ASEAN right now is that the ambitions of its proponents may surpass their capacity to deliver. There is a lack of putting the collective interests of ASEAN ahead of the national interests of member states. A recent survey revealed that only three percent of commitments made among ASEAN Member States are ever implemented. There is no central mechanism to enforce compliance and no properly functioning dispute-resolution mechanism. There is continuing tension between the rules-based community implicit in the AEC and the "ASEAN Way" of doing things based on mutual respect, non-intervention in neighbors' domestic affairs, and freedom from external interference (Sathirathai, 2015).

There is a significant risk that transnational crime and non-traditional security threats may increase, due to the increased connectivity that comes with regional economic integration. The success of the AEC will, in part, be determined by the ability of member states to create adequate safeguards against new and evolving security challenges. In Southeast Asia, illegal trafficking of people, drugs money, wildlife and counterfeit goods amounts to a conservatively estimated US$100 billion per year. As border controls are changed and relaxed as part of the regional economic integration process, criminal groups will be able to expand operations unless adequate safeguards and practical solutions are put in place. This will include the need for real-time intelligence sharing between government agencies (Douglas, 2015).

1.4.2 Economic Investment Policies of China in the Hotspot

China is a leading trading partner for all other countries in the hotspot, and is rapidly emerging as a major source of FDI, capital and tourist arrivals. Bilateral trade and investment have been boosted by the implementation of the China-ASEAN Free Trade Agreement signed in 2010. In the first half of 2015, the 10 ASEAN member states collectively imported US$160 billion of Chinese goods, around the same value as Japan, South Korea and Taiwan combined. Chinese companies and state-owned corporations are involved in more than 50 large hydropower projects in Southeast Asia as contractors, investors, regulators and financiers (Urban *et al.*, 2013).

The recently established Asian Infrastructure Investment Bank (AIIB), a Chinese-led initiative, is expected to become a significant source of funding for infrastructure development in the Indo-Burma Hotspot. It is assumed that the AIIB will offer loans with fewer social and environmental conditions than the ADB, World Bank and other traditional sources of development finance. With 57 founding member countries and initial authorized capital of US$100 billion (two-thirds of the capital of the ADB), the AIIB aims to have a simpler internal review and risk assessment system to hold down costs and cut red tape. The bank will also minimize costs by having only a handful of field offices and between 500 and 600 staff (about one-sixth the number of ADB). In its infancy, it is likely to operate like an investment bank, funding only commercially sound projects, working on public-private partnerships were feasible, and charging interest rates slightly higher than those charged by peer institutions.

In addition to establishing the AIIB, the Chinese government has launched the "One Belt One Road" initiative to spur economic growth along the overland Silk Road economic belt and maritime Silk Road that connects China with Southeast Asia, Africa and Europe. China's planned investments in railway networks will enable China to reach every sea around Eurasia, with potentially huge economic ramifications. Furthermore, in November 2015, the Chinese government set up the Lancang-Mekong Cooperation Mechanism (LMCM), in response to the Lower Mekong Initiative of the United States. Participation in the LMCM is restricted to the six hotspot countries, without any participation of development partners, and financing comes from Chinese investment banks. The level of financing committed to the LMCM means that it already dominates similar regional initiatives, such as the Mekong River Commission (MRC) or the Greater Mekong Sub-region Economic Cooperation Program of the ADB. The mechanism may bring some new opportunities for advancing environmentally sustainable economic development, however. For instance, it brings together all

development sectors under a single initiative, and gives full membership to China and Myanmar, which are only dialogue partners, not full members, of the MRC.

1.4.3 Economic Investment Policies of Japan in the Hotspot

The current strategy for Japanese support to Cambodia, Lao PDR, Myanmar, Thailand and Vietnam during 2016–2018 is set out in the New Tokyo Strategy 2015 for Mekong-Japan Cooperation (MOFA, 2015). This strategy emphasizes the development of industry, regional economic integration, sustainable development, and coordination with various stakeholders, including relevant NGOs. In July 2015, Japan signed an agreement with Thailand and Myanmar to jointly develop the Dawei Special Economic Zone. There is also considerable investment by Japanese private companies in the hotspot. The Japanese Chambers of Commerce in the hotspot countries have more than 2,000 members.

1.4.4 Economic Investment Policies of the United States in the Hotspot

Between 2008 and 2014, trade between the United States and the Mekong Region increased by 40 percent. As part of the broader efforts by President Barack Obama to support Southeast Asia, the United States launched the Lower Mekong Initiative, to create a shared vision of growth and opportunity that recognizes the role of the Mekong River as an economic engine, and respects its place in the environment, as well as the Sustainable Mekong Energy Initiative, to encourage redirecting investments to innovations in renewable energy (Kerry, 2015).

1.4.5 Bilateral Economic Investment Policies within the Hotspot

In recent years, bilateral investment from China, Thailand and Vietnam has been increasingly important in the expansion of roads, mines, industrial plantations, and hydropower projects in the emerging economies of Cambodia, Lao PDR and Myanmar. FDI from Thailand into these countries has grown by an average of 33 percent per annum since 2007 and has now reached US$7 billion per year. Exports from Thailand to these countries reached US$21 billion in 2014 and the country is also seen as a springboard for companies from other ASEAN countries wishing to invest in Lao PDR, Myanmar and Vietnam.

The new patterns of trade and investment relationships that are emerging among hotspot countries are complex but can be likened to hubs and spokes, in which the more advanced economies of Thailand and Vietnam are the hubs and the less developed economies of Cambodia, Lao PDR and Myanmar are the spokes. This pattern unavoidably results in an unequal distribution of costs and benefits, with the spokes receiving lower benefits than the hubs, with which they have a more dependent trade relationship, and bearing greater social and environmental costs (Areethamsirikul, 2012).

1.4.6 National Sectoral Laws and Policies

In Cambodia, policy makers and planners have tended not to give high priority to biodiversity conservation or to integrate the values of natural ecosystems into policy making. Against this backdrop, the ongoing development of a new Environmental Code is a source of optimism, especially the unprecedented level of stakeholder participation in the public policy process that has been possible. Nevertheless, enforcement of existing policies and regulations in Cambodia is still an area of weakness. Strong engagement of civil society and citizens with various conservation issues remains important to create pressure for policy enforcement.

One issue faced by Cambodia, in common with other countries in Indo-Burma, is that the mandate for biodiversity conservation is split among multiple government agencies. Specifically, there is a division

of responsibilities among the Ministry of Environment (MoE) and the Fisheries Administration (FiA) and Forestry Administration (FA) of the Ministry of Agriculture, Forestry and Fisheries. The institutional divides among these public agencies create competition for resources. To some extent, this problem is being resolved by the recent restructuring of Cambodia's protected area system, which has consolidated management of the system under MoE. The final implications of this restructuring are, as yet, unclear. In any case, the weaknesses of the system will not be addressed overnight. For instance, the 2014 National Protected Area System Strategic Management Framework prepared by MoE states that 84 percent of designated protected areas are ineffective, in particular because of the lack of management plans, shortages in skilled staff, and insufficient budget allocations.

As of May 2014, there were 191 economic land concessions in Cambodia, of which 106 overlapped with protected areas under MoE management and another 85 overlapped protected forests under FA management (since transferred to MoE). In March 2012, the Prime Minister abolished commercial fishing lots on Tonle Sap Lake in favor of family fishing and fisheries conservation. This decision effectively abolished overnight a system that had been in place for generations. While the handing over of the huge Tonle Sap fisheries resources to local communities seems inherently desirable from a development perspective, without adequate support for community fisheries arrangements, there are concerns from some observers that this could result in the type of resource free-for-all characterized as the "tragedy of the commons". To avert this risk, CSOs began to test and refine diverse approaches to community fisheries management. The experience from these pilots is informing the development of an enabling policy environment, through the Technical Working Group on Fisheries established under FiA with support from the European Union.

Many policies of the government of Lao PDR promote biodiversity conservation but the institutional arrangements relevant to some aspects of biodiversity conservation are still evolving or are not very clear. Various conservation functions are split between institutions, like the Ministry of Natural Resources and Environment (MoNRE) and the Ministry of Agriculture and Forestry, and then further split among central, provincial and district levels. In some cases, divisions of responsibilities are not yet clearly identified and implemented and, sometimes, there is some overlap of roles and responsibilities. Development of laws in Lao PDR is led, in each case, by the relevant sectoral agency, and then endorsed by the National Assembly. The National Assembly is also responsible for approving large development projects. However, dissemination of information about large development projects and their impacts is limited and public knowledge about them remains low.

The government of Myanmar has taken steps toward establishing the policies, legislation, and regulations necessary to manage the country's natural resources, including the National Environmental Policy, the National Sustainable Development Strategy, the Forest Policy Statement, the Wildlife Protection and Protected Area Law, and the Environmental Law, which provides the general framework for environmental management. Their widespread and consistent implementation has not yet happened, however, due to a lack of financial and human resources and, in many cases, political will at various levels. Moreover, standards and mechanisms for sustainable development planning, such as EIA, benefit sharing, open disclosure, community consultation and co-management, still need to be developed and introduced.

There are many constraints to effectively managing Myanmar's threatened species and ecosystems. These include the sheer size of the country (Myanmar is the largest country in mainland Southeast Asia), limited human and financial resources, inaccessibility of many areas (for both logistical and security reasons), weak land tenure, and low knowledge and capacity of key stakeholders. Low levels of knowledge about natural resource management at the community level is compounded by patchy agricultural and forestry extension services, which tend to focus on raising overall production goals rather than ensuring environmental sustainability or community participation. If more complex issues, such as climate change, are to be tackled effectively, local natural resource management issues need

to be addressed. The practice of simply handing management rights to communities for forests and other natural resources without adequate training and support is likely to lead to disappointment and poor long-term results.

In 2015, Thailand passed a new Coastal Resources Management Law (the drafting of which was initiated following the Indian Ocean Tsunami of December 2004) and a revised Fisheries Law, as well as other legal instruments to control Illegal, Unregulated and Unreported (IUU) fishing. A revision of the National Parks Law is also in progress. Taken together, these new and updated laws provide a complete overhaul and modernization of the legal framework for natural resource management in the country.

In Vietnam, there is a similar dynamic of overlap and competition between different line ministries as described for Cambodia and Lao PDR. In this case, the key actors in conservation are MoNRE and the Ministry of Agriculture and Rural Development. Vietnamese law makes provision for EIA and Strategic Environmental Assessment (SEA) but implementation of both is weak. There are circulars to guide use of EIA/SEA in different development sectors but very few EIAs have included effective biodiversity assessments. In addition, biodiversity conservation is not specifically mentioned in most sectoral development strategies in Vietnam, at national and provincial levels. These strategies might include general provisions on environmental protection but, even then, it is unusual for conservation measures to have a dedicated budget allocation or monitoring and evaluation plan.

1.4.7 Community Outreach and Co-management Approaches

Collaborative management, or co-management, has often been promoted as a means to bridge the gap between protected area managers and local stakeholders. Co-management can be defined as a continuous problem-solving process, rather than a fixed state, involving extensive deliberation, negotiation and joint learning within problem-solving networks (Carlsson and Berkes, 2005).

In general, across most of the Indo-Burma Hotspot, the policy and legal framework for co-management of protected areas is unclear, weak or sometimes non-existent. In Cambodia there is a well developed system of community protected areas (CPAs), under which communities living inside national parks and wildlife sanctuaries are given certain rights and responsibilities over defined portions of these areas. Similar arrangements for community fisheries and community forests exist under FiA and FA, respectively. In Lao PDR, there is also clear provision for community use of natural resources within designated protected area management zones. By contrast, the National Park Law in Thailand does not allow for any community use and has no clauses that permit or support co-management arrangements.

In Vietnam, there is no legal provision for CPAs, although a small number of initiatives are currently piloting this model, with the intention of informing policy reforms. Co-management models have been more widely piloted in different contexts but these have not yet been amplified through national policy implementation. Another limitation to the implementation of co-management in Vietnam is that it remains, to some extent, a top-down approach. Responsible government agencies and/or NGOs have tended to impose the concept of co-management on local communities rather than responding to demands from the grassroots level for shared governance and management of natural resources.

Parr *et al.* (2013) reviewed co-management systems field tested at sites in northern Vietnam and central Lao PDR, to describe how different components of multi-level co-management were being implemented and were strongly aligned with the approach proposed by Carlsson and Berkes (2005). The authors recommended further investigation into the development of working groups on different fields of protected area management, including law enforcement, community outreach/engagement and sustainable livelihoods, in order to create institutional linkages between grassroots communities,

other local stakeholders and protected area co-management committees. Both “fortress” protected area management, as well as integrated conservation and development projects have been tested in the hotspot, and both approaches have been shown to have shortcomings. Multi-level co-management approaches may offer a way forward and should be examined in more detail. Periyar Tiger Reserve, a Centre of Excellence in India, offers a good example (Parr, 2015).

Many interventions to stem wildlife poaching have overlooked insights into human behavior offered by social sciences. Southeast Asia suffers from the world’s highest rate of wildlife decline, due mainly to poaching, yet there is little scientific attention on behavior change, and few evaluations of the effectiveness of different approaches at stemming poaching. One exception was an initiative at Kuiburi National Park in Thailand led by WWF, which used social-psychology principles to design a community outreach program aimed at reducing poaching. This initiative featured 116 outreach events, combined with regular monitoring of wildlife populations, over a six-year period. The outreach events aimed to build trust, raise awareness, motivate, offer opportunities for action, increase perceived behavioral control of villagers, and generate social pressure against poaching. The hypothesis was that behavioral change would occur when these conditions converged. Results showed that poaching pressure dropped by a factor of four across the park. Patrol effort was statistically unrelated to poaching effort or wildlife trends, while outreach efforts were identified as the main driver of a significant decline in poaching that initiated the recovery of hunted species within the national park. This was one of the first demonstrations that scientifically designed and proactive outreach activities might suppress poaching and initiate wildlife recovery in the Indo-Burma Hotspot (Steinmetz *et al.*, 2014).

1.4.8 Implementation of International Conventions

All of the countries of the Indo-Burma Hotspot are signatories to the World Heritage Convention, the Convention on Biological Diversity (CBD), the Ramsar Convention, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). However, Vietnam is the only one that has signed the 1997 United Nations Convention on Non-navigational uses of International Water Courses, which came into force in late 2014. Over the longer term, this convention could provide a basis for managing transboundary rivers in addition to the Mekong.

<u>CBD</u>

All the countries of the Indo-Burma Hotspot have recently updated or are in the process of updating their National Biodiversity Strategies and Action Plans, taking into account the Aichi Targets of the Strategic Plan for Biodiversity 2011-2020. Lao PDR has also embarked upon two pilot Provincial Biodiversity Strategy and Action Plans.

<u>CITES</u>

With regard to dealing with the illegal wildlife trade, the ASEAN Wildlife Enforcement Network (ASEAN-WEN) has had some successes. Thailand and Vietnam, in particular, seem committed to this, at both the policy and the implementation levels. Having hosted two CITES Conferences of the Parties over the last decade, and taken a leading role in ASEAN-WEN, Thailand is making significant efforts to address the illegal wildlife trade in the region; the government passed a specific law in 2015 to help better control the illegal ivory trade. Thailand is also taking the lead in engaging neighboring countries in trying to address the illegal rosewood trade issue, and hosted a transboundary dialogue on the issue in December 2015.

World Heritage Convention

The Indo-Burma Hotspot contains five natural UNESCO World Heritage Sites. The first to be inscribed was Huay Kha Khaeng-Thung Yai Naresuan in western Thailand, in 1991. In 2005, a second natural World Heritage Site in Thailand was inscribed: the Dong Phaya Yen-Khao Yai Complex. In Vietnam, three natural World Heritage Sites have been inscribed to date: Ha Long Bay in 1994; Phong Nha-Ke Bang in 2003; and the Trang An Landscape Complex in 2014. A tentative list of seven potential natural World Heritage Sites has been developed for Myanmar, and several other countries have developed proposals to add sites to the World Heritage List.

Ramsar Convention

In November 2010, Lao PDR ratified the Convention on Wetlands of International Importance (commonly known as the Ramsar Convention) and designated two Ramsar sites. This completed the picture of all Indo-Burma Hotspot countries being parties to the convention. Presently there are 26 designate Ramsar sites in the Indo-Burma Hotspot, while other sites meet the criteria but are not yet designated. The Indo-Burma Regional Ramsar Initiative (IBRRI) is promoting regional collaboration, setting common management standards, building capacity, and sharing best practices among the countries in the hotspot. The IBRRI aims to supporting the effective implementation of the Ramsar Convention among the Contracting Parties by supporting the coordinated implementation of the objectives of the Strategic Plan of the convention**.**

Mekong Agreement

The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (commonly known as the Mekong Agreement) was signed in April 1995 by the governments of Cambodia, Lao PDR, Thailand, and Vietnam. The agreement, which sets out a framework for collaboration among the four countries for sustainable development, utilization, conservation and management of the water and related resources of the Mekong River basin, led to the creation of the MRC. The two other riparian countries, China and Myanmar, are not members of the MRC but have the status of “dialogue partners”. The MRC has provided an important forum for joint planning for conservation and sustainable development of the resources of the basin. In recent years, however, development of hydropower dams on the lower Mekong mainstream has stretched intergovernmental cooperation to breaking point (see following section).

1.5 Large Footprint Sectors: Challenges and Opportunities

1.5.1 Energy Sector

Hydropower

Globally, wetland ecosystems provide a huge variety of benefits to local livelihoods and the economy, estimated at US$14 trillion/year (Constanza *et al.*, 2011). There is probably nowhere in the world where this is more true than in the Indo-Burma Hotspot, where people have depended on wetlands since the first cultivation of rice in the Mekong River Basin over 6,000 years ago. Indo-Burma contains several large rivers, including the Red/Hong, Mekong/Lancang, Chao Phraya, Thanlwin/Salween/Nu and Ayeyarwady. The lower Mekong basin alone supports the largest freshwater fishery in the world, producing more than 2.1 million metric tons of fish per year (close to 20 percent of the world’s freshwater fish yield). It also supports the highest diversity of freshwater fishes anywhere in the world other than the Amazon (ICEM, 2010). More than 60 million people live in the Lower Mekong Basin, and their livelihoods and food security are intextricably linked to the river, with more than 60 percent of the economically active population having water-related occupations (MRC, 2011).

The extensive floodplains and deltas of the Red/Hong, Mekong/Lancang, Chao Phraya, Thanlwin/Salween/Nu and Ayeyarwady Rivers represent some of the most important and productive floodplain systems in Asia. The aquatic resources they produce are extremely important for food security, livelihoods, poverty reduction and economic development in the hotspot. This is especially the case in Cambodia, where citizens consume 40 kilograms per person per year of freshwater fish and other aquatic resources, accounting for 76 percent of animal protein intake for the population as a whole. The economic value of freshwater fish and other aquatic products is estimated at US$1 billion/year in Cambodia at point of first sale; this estimate excludes all multipliers, such as value-added processing, employment generation and exports (IFReDI, 2013).

To develop the AEC as anticipated and achieve national growth targets over the coming decade, significant increases in energy supply are required. Of all the energy options available for development in the Indo-Burma Hotspot, hydropower is the one that is likely to have the most significant direct impacts on species and ecosystems. The dramatic intensification of hydropower poses a major risk to freshwater ecology and fisheries production, severing connectivity between spawning and feeding grounds and shrinking wetland habitats (Ziv *et al.*, 2012). The proposed Sambor dam on the Mekong mainstream in Cambodia alone is predicted to reduce yields of fish and other aquatic animals by between 16 and 31 percent, or by around 100,000 to 180,000 metric tons per year (IFReDI, 2013).

A recent review shows that, while the countries of the Lower Mekong Region have all made progress towards developing a governance structure for the management of hydropower development, there is not yet a comprehensive legal framework and there still is little cohesion among the organizations that manage it. Throughout the region, therefore, in spite of the existence of legislative and other administrative frameworks, weaknesses remain in enforcement and regulatory capacity. Moreover, the lack of vertical and horizontal coordination among agencies involved in natural resource use and management coupled with limited human capacity hinders the effectiveness of the institutional environment (GIZ, 2015).

In addition to the development of a cascade of dams on the upper Mekong/Lancang River in China, which began in the early 1990s, recent years have seen significant controversy emerging around the planned development of dams on the lower Mekong mainstream. The first formally proposed hydropower dam on the lower Mekong mainstream was the Xayaburi dam in northern Lao PDR. Very little was known of the ecology and biodiversity of this stretch of the river, or the extent to which local people were dependent on river-related resources for food and livelihood security. In this situation, it was effectively impossible to assess the impacts of the dam on local ecology and local livelihoods accurately, develop appropriate mitigation measures, and assess appropriate compensation for affected communities accurately. It was also impossible to know to what extent the dam would have transboundary impacts on the downstream countries: Cambodia; Thailand; and Vietnam.

For these reasons, the SEA of Mekong Mainstream Hydropower commissioned by the MRC recommended a 10-year moratorium on mainstream hydropower development so that more research and studies could be undertaken to address these and other gaps in knowledge and understanding (ICEM, 2010). Unfortunately, the riparian countries were unable to reach consensus on this recommendation, and the government of Lao PDR moved ahead with notifying the other MRC member countries of its intention to construct the Xayaburi dam. This was the first test case submitted to the MRC's Procedures for Notification, Prior Consultation and Agreement (PNPCA). The public consultations carried out under the six-month PNPCA process were limited to information sharing by the dam proponents, with little or no opportunity for stakeholders in the affected downstream countries to have meaningful input into decisions concerning the project. Nevertheless, in a region where multi-stakeholder deliberation in decision-making is not the norm, the PNPCA process did provide an opportunity for wider scrutiny and debate on the future of the Mekong River (Whitehead, 2011).

In April 2011, at a Special Session of the MRC Joint Committee in Vientiane, member countries could not come to a common conclusion on whether or how to proceed with the project. In December 2011, the Lao delegation to the MRC stated that the government considered that it had fulfilled all obligations under the 1995 Mekong Agreement, that the six-month PNPCA process had ended and that, based on this, it was "convinced that the project will have insignificant trans-boundary impact", and asked for understanding and support in developing hydropower including on the Mekong mainstream.

During 2012, concerns expressed about the dam's construction by the major Mekong development partners, citing the potential impacts to the fisheries and sedimentation flow downstream developed renewed momentum. This resulted in the construction company incorporating some design changes in an attempt to allow fish migration and address the sedimentation issue, although there are no examples of these kinds of design features working successfully on any other large river in Asia. In spite concerns raised by Cambodia, Vietnam, the development partners, media and civil society throughout the region, the ground-breaking ceremony for the Xayaburi dam took place on November 7, 2012. Construction continues apace.

After successfully initiating construction of the first large hydropower dam on the lower Mekong mainstream, the Lao government subsequently made clear its intention to move ahead with the Don Sahong dam, close to the Cambodian border. Widespread concern had been expressed by scientists and NGOs about potential impacts of the Don Sahong dam on migratory fish, the small population of Irrawaddy Dolphins at the Lao-Cambodia transboundary deep pool area, and the neighboring Stung Treng Ramsar site in Cambodia. Discussions between MRC member countries about which MRC processes the dam should be subject to did not manage to reach agreement at the Joint Committee level in 2013, and were referred to the council (i.e. ministerial) level for further discussion. At the MRC Council meeting in Bangkok in June 2014, the Lao government confirmed that it agreed to have the Don Sahong considered through the PNPCA process. Little appeared to have been learned from the unsatisfactory PNPCA process for the Xayaburi dam though, and the process again ended in disagreement between Lao PDR and its neighbors. The Lao government announced its unilateral decision to proceed with the dam, and construction began in January 2016.

Vietnam has also invested heavily in hydropower, including along tributaries of the Mekong River but especially in the basins of the Red and Black Rivers in the north of the country. Major hydropower plants include Tri An (400 MW), Hoa Binh (1,920 MW), Yaly (720 MW), and Son La (2,400 MW). As of 2013, installed hydropower capacity provided 40 percent of the electricity supply in Vietnam. Economically exploitable large hydropower plant capacity is believed to be in the range of 19 to 21 GW, of which Vietnam has already constructed dams with a combined capacity of 13.7 GW (equivalent to around 70 percent of the total). Although total power production will grow rapidly until at least 2030, hydropower will make up a progressively smaller proportion, falling to around 25 percent by 2020 and 15 percent by 2030 (Tang The Hung, 2014).

Electricity demand in the country is projected to roughly triple between 2010 and 2030, greatly exceeding current generation. Vietnam aims to increase total electricity generation capacity to 150 GW by 2030, nearly the total amount of capacity in Southeast Asia that existed in 2011 (Energy Outlook 2013). Vietnam has developed significantly more hydropower than its neighbors. This has allowed Vietnam to greatly increase power production, and provide water for irrigation but it has also raised concerns about environmental and social impacts. As it moves forward, the country may be more open to enhanced conservation and moderation with regard to hydropower.

In 2012-2013, Vietnam experienced, for the first time, a wide range of water debates, ranging from the Mekong mainstream dams to the dams constructed or planned for construction in Vietnam. A number of dam-related incidents happened in the country, such as the leaking of the Song Tranh dam in

Quang Nam province, which raised public concern about dam safety and national water management. The plan for construction of two hydropower dams along the Dong Nai River near Cat Tien National Park also attracted the attention of the public, especially water and environmental activists, and two proposed dams were subsequently scrapped in a landmark victory for Vietnam's environmental movement.

Hydropower in Cambodia is relatively undeveloped, with the first large hydropower plant (193 MW) having been built only in 2011. Cambodia presently imports the majority of its electricity from Thailand and Vietnam, and is dependent on diesel imports for generating much of the remainder. The country is moving ahead with plans to exploit some of its estimated 10,000 MW of potential hydropower capacity. Of this amount, 90 percent is within the Mekong River basin, roughly evenly split between the Mekong mainstream and its tributaries. Since 2011, several hydropower plants have been constructed, including Kirirom I (12 MW), Kirirom III (18 MW), Kamchay (193 MW) and Lower Russei Chrum (338 MW). Several other dams have been proposed for areas within the Cardamom Mountains, including the 108 MW Cheay Areng dam in the Cardamom Mountains, which became the focus of intense environmental activism by local communities allied with concerned members of the public in Phnom Penh and other cities.

In Cambodia's northeast, dams have also been proposed in the basins of the Sekong, Sesan and Srepok (the "3S") rivers. Here, the construction of the Lower Sesan 2 dam (400 MW) has already started. This is another highly controversial project, which has been assessed as having the worst tradeoff between reduced fisheries production and power generation among the 27 tributary dams in the 3S basins that potentially may be built before 2030 (Ziv *et al.*, 2012). By itself, the project is estimated to cause a drop of 9.3 percent in fish biomass throughout the entire Mekong Basin.

Like all countries in the hotspot, Myanmar is looking to rapidly expand its manufacturing base for economic growth, which will require a substantial increase in electricity production. Myanmar has large reserves of oil and gas (although limited infrastructure to use them economically) and a number of rivers suitable for the production of hydropower. The World Energy Council estimates the hydropower potential of Myanmar's four main rivers (i.e. the Ayeyarwady, Chindwin, Sittaung and Thanlwin) at 100,000 MW. In 2013, Myanmar had only 2,780 MW of installed hydropower capacity (equivalent to about 3 percent of the combined hydropower potential of its four largest rivers. Gas and coal-fired power stations contributed only 996 MW and 120 MW respectively. Hydropower, therefore, accounts for over 70 percent of Myanmar's current electricity supply.

The recent economic opening of Myanmar has led to surging demand for electricity, meaning that the country will have to greatly increase power production. Hydropower is a ready option for making up part of this increase in generation capacity. Even as the adverse environmental, social, and cultural effects of poorly planned and regulated hydropower dam construction are being felt in other countries in the region, there is a proliferation of plans to utilize Myanmar's extensive hydropower potential. At present, at least 41 hydropower projects are being considered for the country, with a total installed capacity of more than 40,000 MW. Those that are built will be implemented by joint ventures and build-operate-transfer arrangements involving foreign and local companies and the Ministry of Electric Power, according to the National Energy Policy drafted by National Energy Management Committee. China is assisting with the funding of many of these planned projects, while other projects are being studied by companies from India, South Korea and Thailand. Many of the new projects will be implemented in Shan State, with others in Mandalay Division and Kachin State (JICA, 2014; www.burmanet.org 6 March 2015).

As a transboundary river, the Thanlwin/Salween/Nu has attracted the lion's share of attention from regional civil society groups working on hydropower advocacy. Many of these groups belong to the Save the Salween network, which, in turn, has connections to the Save the Mekong network working

to promote alternatives to mainstream dam development on the lower Mekong. Another river that faces threats from hydropower development is the Ayeyarwady: Myanmar's largest river and most important commercial waterway, which provides ecosystem services critical for the livelihoods of millions of people. Civil society groups, affected communities, concerned citizens and other stakeholders came together in opposition to hydropower development on the Ayeyerwady when plans emerged to develop the massive 6,000 MW Myitsone dam at the confluence of two of the river's major tributaries. In 2011, Myanmar's President Thein Sein suspended the project, citing environmental and community concerns. Since then, however, 19 other dams have been built in Myanmar, and the ADB counts another 59 hydropower projects under consideration (the exact status of these is unknown). Six dams have been proposed for the Thanlwin River alone, which would add 15,000 MW of generating capacity.

With one or two notable exceptions, significant hydropower has been developed on all the major rivers in Thailand, since the 1960s. Over the years, opposition to hydropower from local communities, environmental activists and conservation NGOs has grown steadily. The most celebrated victory for conservationists was in the 1980s, when plans to construct the Nam Joan dam were shelved. The reservoir of this dam would have inundated the core area of Thung Yai Naresuan Wildlife Sanctuary: an area that, together with the contiguous Huay Kha Khaeng Wildlife Sanctuary, was subsequently recognized as Thailand's first natural World Heritage Site in 1991.

On the other hand, protesters were not able to prevent the construction of the Pak Mun dam on the Mun River (a tributary of the Mekong), which was completed in 1992. The much heralded "fish ladder" to aid fish movement around the dam proved almost totally useless, and subsequent long-term studies showed that almost 50 percent of native fish species disappeared from the river upstream of the dam. A quarter of a century later, protests by affected villagers still continue.

Two other long-standing dam proposals are still the subject of intense debate. The Keng Sua Ten dam on the Mae Yom River in Prae province, which would flood one of the last remaining stands of lowland golden teak forest, has been proposed since the late 1980s and has consistently been vigorously objected to by local residents. The Mae Wong dam has similarly been proposed by local and national politicians on many occasions, sometimes as a hydropower dam and sometimes as an irrigation reservoir. Most recently, after the devastating flooding of Bangkok in 2011, the Mae Wong dam proposal emerged once again, this time as a flood-regulation dam. High-profile public opposition was led by the Seub Nakasathien Foundation, including a protest march of around 450 km from the proposed dam site to Bangkok. A major concern is that the dam would flood the lowland floodplain forest of the Mae Wong River: an area that recent camera-trapping studies have shown is being repopulated by tigers spreading out from Huay Kha Khaeng Wildlife Sanctuary following effective management measures there. A recent study concluded that the suggested benefits of the Mae Wong dam would likely be outweighed by negative impacts (IUCN Thailand National Committee, 2015).

In the face of strong domestic opposition to hydropower, the Electricity Generating Authority of Thailand has shifted its strategy to sourcing electricity from hydropower investments in neighboring countries, such as the Nam Theun 2 and Xayaburi dams in Lao PDR, and the proposed dam cascade on the Thanlwin River in Myanmar. Needless to say, this is influencing investment decisions on hydropower capacities in these countries.

Coal

A new round of proposals for development of large coal-fired power plants is also an additional challenge for the hotspot. In Thailand, there is strong local opposition to a proposed coal power plant on the Andaman Sea coastline in Krabi province, and an associated deep-sea port in the Krabi River estuary (a Ramsar site), where coal would be imported to fuel the power station. In Myanmar, substantial grassroots opposition has been rallied by civil society against proposed coal power plants

on the coast. Similarly, proposed new large coal-fired plants in coastal Cambodia and Vietnam do not seem to have attracted strong opposition from civil society or the general public.

Nuclear Energy

Among the hotspot countries, China has the most advanced nuclear energy sector, with 10 active plants and others under construction. Four active nuclear power stations are located in the Indo-Burma Hotspot: two in Guangdong; one in Guangxi; and one on Hainan. In addition, a third power station in Guangdong is currently under construction. Vietnam has advanced plans to generate nuclear power, and may have the first of at least four planned nuclear power stations coming on line in the next decade. Two of these plants use Russian technology, and two Japanese. Thailand is also considering constructing nuclear power plants but is facing strong opposition from civil society.

Renewable Energy and Energy Efficiency

With a strong economic growth outlook, it makes sense to diversify the energy mix in Indo-Burma and develop greater use of renewables. There is a great opportunity right now to adopt energy strategies that provide affordable energy for all without resulting in exponential increases in greenhouse gases. The renewable energy sector is a growth industry that can create a lot of new jobs while minimizing environmental impacts. In the coming decade or two, new “disruptive” technologies will positively affect the uptake of large-scale renewable energy solutions, as prices drop below those of conventional power generation (Kohalmi-Monfils, 2015). With decentralized generation and storage systems available at increasingly affordable cost, micro-grids could and should become a more common feature across Indo-Burma, particularly in large areas of Cambodia, Lao PDR and Myanmar, where national grids have not yet penetrated, access to electricity for all is not yet a reality, and energy costs are high (diesel-generated electricity in Cambodia is currently one of the most expensive electricity supplies in the world). In the more developed parts of the hotspot, “smart grids” could replace one-way transmission, as consumers increasingly become producers as well.

For the first time, in 2014, Thailand launched a program that makes it profitable for home and business owners to install roof-top solar systems and sell the electricity to the grid on a 25-year contract. By the end of 2015, Thailand had more installed solar capacity than the rest of Southeast Asia combined. However, this was still only equivalent to around 4 percent of Germany’s installed solar capacity, so there is clearly significant room for further expansion.

Another area of opportunity is increasing the overall efficiency of energy consumption. Countries in the Indo-Burma Hotspot currently consume more than twice the amount of energy per unit of GDP than the average for OECD countries. Japan has a remarkable experience in energy efficiency, which Indo-Burma would do well to learn from, having held energy requirement per unit of GDP constant since 1973 despite an expansion of GDP of two and a half times (M. Horie, pers. comm.).

1.5.2 Agro-industrial Plantations

Since 2003, Cambodia and Lao PDR have awarded a large number of concessions for agro-industrial plantations (i.e. economic land concessions). In recent years, concessions have mainly been awarded to foreign investors to develop export-oriented agricultural and forest products (MRC, 2010). For example, by 2007, Lao PDR had granted concessions to 123 large plantations covering 165,794 hectares (MPI, 2008). In Savannakhet province alone, more than 20,000 hectares have been granted for sugarcane, 21,000 hectares for cassava, and 30,000 hectares for eucalyptus plantations, with extensive rubber plantation leases also approved in recent years. Similar but more pronounced trends have been observed in Cambodia. Cassava is emerging as a crop with major impacts on forest cover due to increasing demand from industry, especially for bio-fuel.

1.5.3 Rubber

Global demand for natural rubber has increased rapidly in the past decade, driven particularly by China's economic emergence. Natural rubber is preferred for many products, with 70 percent of global production being used for tires (Clay, 2004). Southeast Asia (including parts of southwestern China) is the epicenter of global rubber cultivation, accounting for 84 percent of the total global area in 2012. Rubber was first planted in state-run plantations in Malaysia, Indonesia, and southern areas of Thailand, Vietnam, Cambodia and Myanmar, and subsequently adopted into smallholder agroforestry systems 10 degrees either side of the equator (Clay, 2004). From the 1950s onwards, development of high-yielding clonal varieties in China, which tolerate long dry seasons, less sunshine and temperatures as low as –1°C (Priyadarshan *et al.*, 2005), facilitated a wave of rubber monoculture expansion as far north as 22°N (Clay, 2004), making cultivation possible in northern parts of the hotspot. Expansion was compounded by replacement of rubber with oil palm across Malaysia and Indonesia, coupled with the ability of rubber to grow on a wide range of soil types, including low-fertility areas unsuitable for more profitable crops, such as cacao, coffee and oil palm (Priyadarshan *et al.*, 2005). Global consumption of natural rubber is expected to increase from 10.7 million tons in 2010 to 18 million tons by 2024, in response to which the governments of most hotspot countries intend to increase cultivation (Warren-Thomas *et al.,* 2015).

A recent report by WRI showed that, between 2001 and 2014, the average rate of tree-cover loss in the Lower Mekong countries increased by more than five times the rate in the rest of the tropics. The rate of increase in loss of tree cover was higher in Cambodia than anywhere else in the world (with the rate of loss increasing by 14.4 percent during this period). Vietnam was ranked ninth in the world, with tree-cover loss accelerating by 6.1 percent in the same period. Although Cambodia's tree-cover loss peaked in 2010, it remains extremely high: the country lost four times the area of tree cover in 2014 as it did in 2001. The report established a strong correlation between forest loss in the Mekong and global rubber prices, indicating that, as commodity prices increase, forest conversion tends to follow. Between 2008 and 2011 alone, the area planted with rubber in Cambodia increased from 108,000 to 188,000 hectares (Petersen *et al.*, 2015).

Compared to its neighbors, Lao PDR is a relative late-comer to rubber production. Until the mid-2000s, rubber development remained modest in northern Lao PDR, consisting mainly of smallholders and development by individual investors hailing from the immediate borderlands between China and Lao LDR. Beginning in 2004, however, northern Lao PDR saw a rapid influx of Chinese rubber companies, most of which were supported by Chinese government subsidies and entered into contract farming schemes with local farmers. Rubber plantations have also expanded rapidly in recent years in southern Lao PDR, where the model has tended towards large concessions awarded to Vietnamese companies and joint ventures.

With limited domestic demand, the Lao rubber sector is inextricably linked to the rubber sectors of China and Vietnam, which provide financing, technology and marketing, as well as market demand for the final product. This gives Chinese and Vietnamese investors considerable influence over the trajectory of rubber development in Lao PDR (Hicks *et al.*, 2009). Some industry experts predict that rubber cultivation will expand to 300,000 hectares by 2020 (Douangsavanh *et al.*, 2008). The trends evident in the Lao rubber sector are in keeping with overall trends in the country's agricultural and natural resource sectors. A number of steps can be taken to improve the policy and regulatory framework governing the development of rubber and other cash crops in Lao PDR, including land-use planning at the national, provincial and local levels, as well as finalizing the land allocation process.

1.5.4 Coffee

The Indo-Burma Hotspot is responsible for around one-fifth of global coffee production, with the majority coming from Vietnam. Climate change is impacting coffee production in three ways. First, increasing temperatures make plants more susceptible to disease. Second, the coffee rust (*Hemileia vastatrix*) fungus, which causes dramatic reductions in yield, is able to move to higher elevations as temperature increases, where it can attack the less resistant Arabica varieties. Third, as coffee can only survive within a narrow temperature range, increasing temperatures are reducing the available land that is suitable for coffee growing. It has been estimated that, by 2050, the area of land suitable for coffee may decrease by 50 percent and that this reduction will be particularly pronounced in Southeast Asia.

This could have profound implications for increasing pressure on forest conversion at higher altitudes in the Indo-Burma Hotspot, as coffee production seeks to shift to higher elevations to escape increasing temperatures and the rust fungus. Important watershed forests in the highlands of Lao PDR, Myanmar, Thailand and Vietnam may come under increasing pressure from conversion to coffee production to higher altitudes. Strategies to address this could include development of alternative livelihoods for some coffee-producers, and large-scale promotion of mixed systems, including shade-grown coffee.

Vietnam has emerged as the second largest exporter of coffee globally (after Brazil), and the majority of this is produced in the Central Highlands, especially Dak Lak and Lam Dong provinces. The increase in coffee cultivation has helped bring in significant investment and provided much needed economic opportunities to an impoverished area. However, expansion of coffee and other cash crops is also driving over-extraction of groundwater (which makes up 55 percent of irrigation water in the Central Highlands) and clearance of biologically rich forest. This typically occurs through a chain of events in which agricultural lands are acquired from ethnic minority households and converted to coffee plantations, pushing households that rely on shifting cultivation into forest fringes, and ultimately resulting in deforestation (Meyfroidt *et al.*, 2013). Although the direct cause of most deforestation in the Central Highlands in recent decades was clearance for shifting cultivation, it appears that the expansion of coffee and other value crops was partially, if not mainly, responsible for this trend.

1.5.5 Oil Palm

While not nearly as widespread in the Indo-Burma Hotspot as coffee, oil palm is very prevalent in southern Thailand and a growing driver of deforestation in Cambodia. It is also being promoted on an industrial scale in southern Myanmar, where it represents a threat to some of the most extensive areas of lowland evergreen forest remaining in the hotspot.

1.5.6 Maize

Maize has been an important cash-crop in the hotspot for the past 50 years and a staple in subsistence agriculture for longer, especially among ethnic minority communities living in upland areas. Maize cultivation has been implicated in deforestation in upland areas of Lao PDR, Thailand and Vietnam, although the degree of emphasis that should be placed on traditional systems of upland agriculture in explaining deforestation patterns in the highlands of Indo-Burma is contested. What can be said with some confidence is that the peoples who have traditionally inhabited the highlands of the hotspot practice a wide diversity of upland agriculture systems, which exhibit varying degrees of environmental sustainability and defy simplistic characterization.

With increasing affluence and changing consumption patterns within and outside of the region, there is growing demand for animal protein, which has led, among other things, to rapid growth of the

animal feed industry. As a result, several parts of the hotspot, especially northern Thailand, are witnessing what could be called the "second generation" of maize-related forest encroachment. Thailand's agri-business conglomerates have been purchasing ever greater quantities of maize, providing an impetus for farmers to cultivate ever larger areas, leading seemingly to inexorable forest encroachment. In Nan province, for example, 128,000 hectares have been planted with maize and nearly 90 percent of maize farms overlap with forest reserves established in 1988. At the same time, Thai companies are extending maize cultivation into neighboring parts of Cambodia and Lao PDR, through a combination of economic land concessions and contract farming schemes. One of the major companies, CPF, is putting in place a traceability scheme for its maize supply chain to ensure that it only purchases maize from farmers with legal land title deeds. Such schemes create opportunities for "greening" the animal feed supply chain, by requiring farmer to meet environmental standards, including restrictions of forest conversion.

1.5.7 Timber

The Indo-Burma Hotspot is in the midst of a deforestation crisis. Forest loss by 2030 is projected to reach 30 million hectares, with the region labelled as one of 10 global "deforestation fronts" (WWF, 2015). In addition to the expansion of plantation agriculture described in the previous sections, this wave of deforestation is being driven by demand from the wood-processing industries in China, Thailand and Vietnam. Following floods and other environmental disasters, all three countries introduced strict controls on logging in natural forests, and turned to other hotspot countries, especially Lao PDR and Myanmar, as sources of raw material.

A significant proportion of the products of wood-processing industries in the hotspot countries is exported to Europe, Japan and North America. This provides opportunities to promote more sustainable practices through market pressure. For instance, the EU Timber Regulation, which came into force in March 2013, requires European companies that import timber and timber products into the EU to demonstrate that they were produced in compliance with all laws in the country of harvest. To assist timber-producing countries reduce illegal logging, the EU introduced the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan in 2003. A key element of the FLEGT Action Plan is a series of Voluntary Partnership Agreements (VPAs) between the EU and timber-producing countries, which set out commitments and actions from both parties to halt trade in illegal timber. The EU concluded negotiations on the VPA with Vietnam in May 2017, and negotiations are ongoing with Lao PDR and Thailand (EC, 2017). Similar restrictions are imposed on timber imports to the United States, under the 1900 Lacey Act, which was amended in 2008 to prohibit import of products made from illegal timber (USFWS, 2017).

Although Myanmar still retains some of the largest and most ecologically intact tracts of forest remaining in the hotspot, the country's deforestation rates are among the highest in the hotspot. The country lost a total of 1.7 million hectares of forest between 2001 and 2013. Forest loss has accelerated in recent years, doubling from 97,000 hectares per year pre-2009 to an average of 185,000 hectares per year since (FAO, 2010; Hansen *et al.*, 2013). The rapid expansion of agri-business plantations for various commercial crops, including rubber, sugarcane and oil palm, is the main threat to existing forests (WWF, 2015). Illegal logging is also a significant driver of deforestation, and Myanmar's forests have been heavily impacted by commercial logging. Myanmar is one of the main targets for illegal logging due to its stock of valuable species, notably its prized teak (*Tectona grandis*) and rosewoods (*Dalbergia* spp.). In an effort to slow the rate of forest loss, Myanmar enacted a log export ban in April 2014. Yet investigations by the Environmental Investigation Agency revealed that the cross-border trade continues, supplying raw materials to China's huge wood processing industry. This goes against the stated policy of the Chinese Government to respect the forestry laws of other countries and oppose illegal logging (EIA, 2015a).

An unpublished report prepared by WWF claimed that, in 2013, Lao PDR exported 1.4 million cubic meters of timber to Vietnam and China: more than 10 times the country's official harvest. Trade data contained in the report shows that in 2014 China overtook Vietnam to become the biggest recipient of timber from Lao PDR by value, with an increase from US$44.7 million in 2008 to a staggering US$1 billion in 2014. Together, China and Vietnam receive 96 percent of wood exports from Lao PDR. In Lao PDR, logging operations tend to be linked to forest clearance for infrastructure projects, especially hydropower dams and roads, mining and agricultural plantations. Analysis of logging carried out in Salavan province for a road construction project found 100 percent of the timber felled to be illegal. In 2014, logs and sawn timber accounted for 98 percent of all wood exports from Lao PDR by value. Customs data also reveal routine underpricing of wood in Lao PDR. In 2013, the recorded value of exported wood was just eight percent of the value declared in the importing countries (EIA, 2015b).

1.5.8 Tourism

In 2014, 55 percent of the combined 102 million tourist arrivals to ASEAN countries resulted from intra-ASEAN travel. It is expected that visa-free travel for ASEAN nationals, easier transport options and the rising affluence of the growing middle-class will further boost intra-regional tourism. A hoped-for Schengen-like single visa for non-ASEAN visitors would provide a further boost to tourism, as more and more people earn enough money to be able to travel and budget carriers reduce the cost of air travel. Once the AEC is up and running, a period of increased growth is expected, with Bangkok positioned to remain the major hub for international arrivals.

With the political reconciliation process, tourist arrivals to Myanmar have been growing rapidly over the past five years. A tourism boom in Myanmar could endanger fragile ecosystems already under pressure from a multitude of other forces, especially as few environmental safeguards are in place to mitigate impacts arising from the boom in tourist numbers and the associated increase in economic activity. Hotel and road construction, pollution, waste, and development in environmentally sensitive areas are just a few of the issues that have not yet been addressed by policy or plans at national and sub-national levels. Likewise, most local environmental networks and organizations have no policies or guidelines on tourism.

1.5.9 Mining and Quarrying

Mining and quarrying are important economic sectors in all hotspot countries. Demand for construction materials for infrastructure development (i.e., bridges, dams, residential buildings, etc.) has driven investment in cement production throughout the hotspot. While demand for energy and export-oriented economic policies have contributed to the development of major mining, hydrocarbon and other extractives sectors in certain countries.

In Vietnam, extractive industries contributed more than 10 percent of GDP between 2005 and 2011. These industries included coal, oil and gas production, cement production, minerals, and precious metals extraction, among others. Mining and quarrying has grown rapidly, increasing from US$88 billion in 2005 to more than US$215 billion in 2010, according to figures from Vietnam's Foreign Investment Agency. Coal makes up the largest part of the mining sector by value, generating more than US$340 million in exports in 2010. Coal is considered to be a strategic national asset, and 75 percent of mined coal is consumed within the country. Vinacomin, a state-owned enterprise, controls 95 percent of coal production, and plans to expand capacity to 65 million metric tons by 2030.

Other mined commodities include limestone and other minerals used in the production of chemical fertilizers, as well as metals. Crude oil is Vietnam's largest commodity export, although some of this is later reimported in refined form, due to high refinery operation costs in the country. Mineral and hydrocarbon resources are distributed unevenly throughout the country, with the majority of limestone

deposits in the north and north-center, bauxite in the Central Highlands, and oil and gas offshore. A strong focus on economic growth, combined with the government's near monopoly on some commodities, have resulted in large negative environmental impacts from mining and quarrying activities. However, the latter factor could potentially provide room for rapid improvement, if the government decides to more actively enforce existing policies, without exemptions. In particular, Decree 15/2012/ND-CP, issued in 2012, attempts to address some environmental concerns and ensure adherence to more modern environmental standards.

In Vietnam, extraction of minerals is covered by Directive 02/CT–TTg, which prohibits granting of new licenses for placer (i.e. stream bed/alluvial) gold mining and requires that all mining projects must be appraised by the Ministries of Trade and Construction, as well as provincial or municipal people's committees. Vietnam has significant deposits of bauxite, coal, copper, gold, iron ore and wolfram, and a growing number of mines have been set up to exploit these.

In Lao PDR, taxes and licensing fees from gold and copper mines have been the largest source of government revenue for many years already. At some point in the future, however, this may be overtaken by revenues from hydropower. One of the most important mining operations is the Sepon mine in Savannakhet province: an open-pit copper and gold mine operated by MMG Ltd. The company has shown an interest in operating the mine in an environmentally responsible fashion, and explored the possibility of offsetting impacts on biodiversity through investments in the surrounding landscape.

Cement production is another important sector, especially in Vietnam, which is the largest producer in Southeast Asia. Cement production involves quarrying limestone karst formations, which in many areas support endemic species with highly restricted global ranges, sometimes of less than a hectare. In Vietnam, demand for cement is expected to grow by 5 percent per annum until 2030 (Vietnam Cement Support, 2014). Some cement operations in Vietnam have been implicated in the extinction of endemic limestone karst biodiversity, most notably quarries in the Hon Chong area of Kien Giang province, currently operated by Siam City Cement.

2. Transition Conditions, Criteria and Targets

CEPF is not intended to become a permanent presence in any hotspot but to work towards an exit point at which local civil society is able to transition away from its support with sufficient capacity, access to resources, and credibility to respond to future conservation challenges without significant ongoing external support. Experience to date suggests that, in most hotspots, reaching a point at which civil society can transition away from CEPF support will take more than five years.

As of 30 September 2017, CEPF had committed more than US$25 million in grant funding in the Indo-Burma Hotspot since 2008. The first investment phase ran from 2008 to 2013; the second phase began in 2013 and will continue until at least 2020. To project how many additional phases of CEPF investment will be required to transition civil society in each hotspot country away from CEPF support, and to monitor progress towards this exit point, a series of transition criteria and targets were set.

According to CEPF's global framework on long-term visions (CEPF, 2014), long-term visions will set clear targets for transition, i.e. the conditions under which CEPF can withdraw from a hotspot with confidence that effective biodiversity conservation programs will continue in a self-sustaining manner. This does not necessarily mean that biodiversity will no longer be threatened but only that the conservation movement, collectively, will be able to respond to all present threats and any future threats that could reasonably be expected to arise.

According to this framework, the five conditions that need to be met in order for a hotspot to transition away from CEPF support are as follows:

1) Global conservation priorities and best practices for their management are documented, disseminated and used by public and private sector, civil society and donor agencies to guide their support for conservation in the region.
2) Local civil society groups (i.e. national, sub-national and grassroots organizations) dedicated to global conservation priorities collectively possess sufficient organizational and technical capacity to be effective advocates for, and agents of, conservation and sustainable development, while being equal partners of private sector and government agencies influencing decision making in favor of sustainable societies and economies.
3) Adequate and continual financial resources are available to address conservation of global priorities.
4) Public policies, the capacity to implement them, and private sector business practices are supportive of the conservation of global biodiversity.
5) Mechanisms exist to identify and respond to emerging conservation challenges.

For each hotspot, the first step is to take the five transition conditions and make them locally relevant, by setting specific criteria and targets. To set transition criteria and targets for the Indo-Burma Hotspot, a consultation meeting was held in each hotspot country to identify national priorities. More than 100 stakeholders participated in these meetings, representing international and local CSOs, government departments and donor agencies (Appendix 1).

The participants at the national consultation meetings confirmed that there is a need to improve upon the status quo situation under all five transition criteria. Although priorities differ somewhat among countries, there are overlaps in the highest priority gaps, as identified by meeting participants. These include: (i) updating the priority list of Key Biodiversity Areas (KBA); (ii) increasing institutional capacity and financial resources; (iii) increasing public funding for conservation; (iv) revising and clarifying the legal rights of CSOs; and (v) better monitoring of biodiversity and natural resources. Additional critical areas, albeit ones where CEPF has less room for direct influence, include the legal environment for conservation and the political space available to civil society within each country.

These priorities have been condensed (and, when overlapping, combined) to identify five overall transition conditions, with related criteria and targets, for the Indo-Burma Hotspot. Meeting these goals will require that:

1) Conservation priorities guide conservation.
2) Local civil society groups have the capacity, rights, and ability to influence decisions on sustainable societies and economies.
3) Adequate and continual financing for conservation efforts is available.
4) Public policies and private sector operations support conservation.
5) Mechanisms exist to identify and respond to emerging challenges.

When met for a country, or the hotspot as a whole, these conditions will serve as a positive indicator that the community of CSOs engaged in biodiversity conservation can move ahead without significant support and that CEPF can step back to take a less prominent role. Transition conditions, criteria, and targets are presented in Table 5.

Table 5: Transition conditions, criteria and targets for the Indo-Burma Hotspot

Condition	Criteria	Targets
(1) Conservation priorities and best practices Global and regional conservation priorities (e.g. globally threatened species, Key Biodiversity Areas) and best practices for their management are identified, documented, disseminated and used by government, the private sector, civil society and donor agencies to guide and support conservation in the hotspot.	***(1.1) Key Biodiversity Areas.*** KBAs updated in all countries and territories in the hotspot, covering, at minimum, terrestrial, freshwater and coastal (when applicable) ecosystems.	(1.1.1) KBAs are updated and important threatened ecosystems are identified in all hotspot countries, taking into account changes in development, knowledge, and other relevant factors, and results are incorporated into the World Database of KBAs.
	(1.2) Management best practices. Best practices for managing conservation priorities (e.g., sustainable livelihoods projects, participatory approaches to park management, invasive species control, etc.) developed, adopted and institutionalized at CEPF priority KBAs and corridors.	(1.2.1) Site-appropriate conservation management plans are written and implemented for at least 50 percent of priority KBAs and 25 percent of all KBAs.
	(1.3) Globally threatened species. Comprehensive threat assessments conducted for all terrestrial vertebrates and vascular plants, and selected freshwater, coastal, and marine taxa.	(1.3.1) Global Red List assessments are completed for all terrestrial vertebrates and vascular plants, and selected freshwater, coastal and marine taxa (where applicable), and results are incorporated onto the IUCN Red List, and used to develop national Red Lists.
	(1.4) Reservoirs of natural capital. Reservoirs of natural capital identified in all countries in the hotspot, covering ecosystem services particularly critical to human survival.	(1.4.1) Reservoirs of natural capital are identified in all countries in the hotspot for at least three ecosystem services essential to healthy, sustainable societies (e.g. climate resilience, freshwater, provisioning, etc.) and incorporated into national economic accounts.
	(1.5) Conservation plans. Conservation priorities incorporated into national or regional conservation plans or strategies developed with the participation of multiple stakeholders.	(1.5.1) Globally threatened species, KBAs and/or conservation corridors are incorporated into at least one national conservation plan or strategy in each hotspot country and at least one regional conservation plan or strategy developed with the participation of multiple stakeholders.

Condition	Criteria	Targets
(2) Civil society capacity National and regional civil society groups dedicated to conservation possess sufficient intuitional and technical capacity to be effective advocates for, and agents of, conservation and sustainable development for at least the next 15 years.	***(2.1) Institutional capacity***. Local civil society groups collectively possess sufficient institutional and operational capacity and structures to raise funds for conservation and to ensure the efficient management of conservation projects and strategies.	(2.1.1) At least 25 local civil society organizations focused on biodiversity conservation in the hotspot, including at least three in each country, have a civil society tracking tool score of 80 or more.
	(2.2) CSO community. The community of civil society organizations working on biodiversity conservation, Indigenous People's concerns, and related development issues is sufficiently broad and deep-rooted to respond to key conservation issues and collectively possesses the technical competencies of critical importance to conservation.	(2.2.1) At least 30 civil society organizations, including at least three from each hotspot country, are involved in regional collaborations that influence development policies, programs or planning decisions in ways that deliver tangible results for biodiversity conservation.
	(2.3) Financial resources. Local civil society organizations have access to long-term funding sources necessary to maintain and amplify the conservation results achieved via CEPF grants and/or other initiatives, through access to new donor funds, conservation enterprises, memberships, endowments, and/or other funding mechanisms.	(2.3.1) At least five local civil society organizations in each country have access to stable and diversified long-term funding sources, and a robust resource mobilization strategy, sufficient to maintain their current programs without relying on international donors for more than 25 percent of their funding.
	(2.4) Partnerships. Effective mechanisms (e.g., discussion forums, round-tables, mutual support networks, alliances, etc.) exist for conservation-focused civil society groups to work in partnership with one another, and through networks with local communities, governments, the private sector, donors, and other important stakeholders, in pursuit of common conservation and development objectives.	(2.4.1) At least 20 partnerships, alliances, networks or similar mechanisms exist that enable civil society groups to leverage their complementary capacities and maximize impact.
	(2.5) Transformational impact. Local civil society groups are able, individually or collectively, to influence public policies and private sector practices in sectors with a potentially large negative impact on biodiversity.	(2.5.1) Biodiversity conservation models demonstrated or promoted by local civil society are incorporated into at least one national or sub-national policy and the business practices of at least two influential private sector companies per year.

Condition	Criteria	Targets
(3) Sustainable financing Adequate and sustained financial resources have been identified and capacity has been developed to access or generate funds to address conservation of global and regional priorities for at least the next 15 years.	***(3.1) Public sector funding*.** Public sector agencies responsible for conservation in the hotspot have sufficient public funding and/or revenue-generating ability to operate effectively.	(3.1.1) The three largest public sector agencies responsible for conservation in each hotspot country have sufficient financial resources and capacity to effectively deliver their missions.
	***(3.2) Donor funding*.** Donors other than CEPF are committed to providing funding for conservation in the hotspot that, in combination with public sector and private sector funding, is sufficient to address global conservation priorities.	(3.2.1) Donors currently operating or planning to operate in each hotspot country have a long-term strategy for biodiversity conservation, including non-traditional partnerships, co-financing, and adequate funding for the next 10 years.
	***(3.3) Private sector funding*.** Private sector entities are providing funding for conservation in the hotspot that, in combination with public sector and donor funding, is sufficient to address global conservation priorities.	(3.3.1) Funding from the private sector is making a significant difference to long-term conservation efforts for at least three priority KBAs and/or globally threatened species in each hotspot country.
	***(3.4) Civil society access to funding*.** Civil society organizations engaged in conservation in the hotspot have access to sufficient funding to continue their work at current or expanded levels.	(3.4.1) At least nine of the 10 most influential civil society organizations engaged in conservation in the hotspot, of which at least six are national, have access to sufficient secured funding to continue their work at current or expanded levels for at least the next five years.
	***(3.5) Long-term mechanisms*.** The protected area networks of the hotspot countries have predictable income streams that are adequate for implementing management actions necessary to address key threats.	(3.5.1) Sustainable financing mechanisms (e.g., government budget earmarks, endowment funds, payments for environmental services, etc.) supporting the conservation of protected area networks operate and yield funding such that financial constraints are no longer identified as a barrier to effective protected area management in at least four hotspot countries.

Condition	Criteria	Targets
(4) Enabling policy and institutional environment Public policies, the capacity to implement them, and private sector business practices are supportive of the conservation of global and regional biodiversity.	***(4.1) Legal environment for conservation*.** Laws exist that provide incentives for desirable conservation behavior and disincentives against undesirable behavior.	(4.1.1) Each hotspot country's commitments under multilateral environmental agreements are reflected in national regulations; these laws are made clear through regulations that provide for sufficient incentives and disincentives to encourage behavior consistent with them; and these laws or regulations are effectively coordinated between various relevant ministries and departments and reviewed at least every 10 years.
	(4.2) Enforcement. Designated authorities have the capacity, mandate and resources to effectively manage protected areas and protect priority species in the hotspot.	(4.2.1) At least 50 percent of protected areas have their boundaries demarcated on the ground and management regulations and laws are being effectively enforced, with appropriate sanctions applied to offenders.
	***(4.3) Business practices*.** Private and state-owned companies in sectors with a potentially large biodiversity footprint support and mainstream conservation activities into their operations.	(4.3.1) At least three influential companies or business associations in each hotspot country in key business sectors with a large biodiversity footprint (actual or potential) have introduced business practices supportive of the conservation of natural habitats and species populations across their operations, while engaging with local people regarding livelihoods and traditional natural resource use.
	***(4.4) Legal environment for civil society*.** Local civil society organizations in all hotspot countries are legally allowed to engage in and advocate for public policy and implementation of conservation and development activities.	(4.4.1) Local civil society organizations in all hotspot countries are legally allowed to convene, organize, register, receive funds and engage in conservation activities, and these laws are taken advantage of by local civil society organizations working in a variety of sectors, including environment, development, and public health.
	***(4.5) Education and training*.** Education and training on environmental issues are widely available to secondary, tertiary, and advanced students and managers.	(4.5.1) At least 90 percent of senior leadership positions in leading conservation NGOs (local and international) are staffed by local country nationals; opportunities for tertiary education or relevant field training are available within all hotspot countries.

Condition	Criteria	Targets
(5) Responsiveness to emerging issues Mechanisms exist to identify and respond to emerging conservation issues.	***(5.1) Biodiversity monitoring*:** National and regional systems are in place to monitor status and trends in selected ecosystems, species and populations across the hotspot and data from these systems are being used to guide the allocation of government resources.	(5.1.1) Systems are in place to monitor status and trends in selected ecosystems, species and populations across at least 50 percent of the hotspot by area, including at least 75 percent of priority KBAs, and data from these systems are being used to guide the allocation of government resources.
	***(5.2) Threats monitoring*:** National and regional systems are in place to monitor status and trends in threats to biodiversity and this data is shared between hotspot countries	(5.2.1) Systems are in place to monitor status and trends in threats to biodiversity (e.g., forest fire, wildlife trade, invasive species, etc.) across at least 75 percent of the hotspot by area, data are shared regionally, and results are used to guide the allocation of conservation and development resources.
	***(5.3) Public sphere*:** Conservation issues are discussed in the public sphere in all countries in the hotspot, and these discussions are seen to periodically influence relevant public policy.	(5.3.1) Conservation issues are covered in local languages in at least one major newspaper, television channel or radio station at least twice per month in all hotspot countries
	***(5.4) Natural capital monitoring*:** National systems are in place in each hotspot country to value and monitor the status and trends of natural capital.	(5.4.1) Systems are in place to value and monitor status and trends of at least three ecosystem services essential to healthy, sustainable societies (e.g., freshwater provision, carbon sequestration, crop pollination, etc.) in each country and across at least 70 percent of the hotspot by area, and results are being used to guide the allocation of conservation and development resources.

3. Milestones and Key Actions for Transition Targets

Milestones and Key Actions for each transition target for each of the next three phases of CEPF investment (through to 2030) are provided in Table 6 below. For some of the targets, further work remains to be done to identify some of the milestones and key actions for the second and third phases.

Table 6: Milestones and Key Actions for Transition Targets

Transition Condition 1: Conservation priorities and best practices Global and regional conservation priorities (e.g. globally threatened species, Key Biodiversity Areas) and best practices for their management are identified, documented, disseminated and used by government, the private sector, civil society and donor agencies to guide and support conservation in the hotspot.			
Transition target	**Milestone Phase I (2016–2020)**	**Milestone Phase II (2021–2025)**	**Milestone Phase III (2026–2030)**
(1.1.1) Key Biodiversity Areas. KBAs are updated and important threatened ecosystems are identified in all hotspot countries, taking into account changes in development, knowledge, and other relevant factors, and results are incorporated into the World Database of KBAs.	All KBAs are reviewed for changes in status, conservation value, species presence, and prioritization. Areas of KBAs not currently within a protected area are identified and prioritized for future/additional protection.	Findings are used to update World Database of KBAs.	Monitoring of KBAs occurs on a three-to-five year schedule.
Actions:	*(1) Identify agency, organization, or consortium to carry out KBA review for each country; (2) Review KBAs and survey ecosystems and species presence.*	*(1) Use updated KBA data to update World Database of KBAs.*	*(1) Designate responsible parties for KBA monitoring in each country; (2) Identify sources of long-term funding for this activity.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
(1.2.1) Management best practices. Site-appropriate conservation management plans are written and implemented for at least 50 percent of priority KBAs and 25 percent of all KBAs.	Site-appropriate conservation management plans are written and implemented for at least 10 percent of priority KBAs and five percent of all KBAs.	Site-appropriate conservation management plans are written and implemented for at least 25 percent of priority KBAs and 10 percent of all KBAs.	Site-appropriate conservation management plans are written and implemented for at least 50 percent of priority KBAs and 25 percent of all KBAs.
Actions:	*(1) Document and disseminate management best practices;* *(2) Develop and implement site-appropriate conservation management plans with input from government, CSOs, local communities, and other stakeholders.*	*(1) Continue actions from previous phase.*	*(1) Continue actions from previous phase.*
(1.3.1) Globally threatened species. Global Red List assessments are completed for all terrestrial vertebrates and vascular plants, and selected freshwater, coastal and marine taxa (where applicable), and results are incorporated onto the IUCN Red List, and used to develop national Red Lists.	National Red Lists are completed and/or updated for at least two hotspot countries.	Global Red List assessments are completed for at least 70 percent of recorded species of reptiles, mammals, birds, vascular plants and freshwater taxa. National Red Lists are completed and /or updated for at least four countries.	Global Red List assessments are completed for at least 90 percent recorded species of reptiles, mammals, birds, vascular plants, freshwater taxa and (where applicable) marine taxa. National Red Lists are completed for all hotspot countries.
Actions:	*(1) Develop National Red Lists.*	*(1) Conduct Red List assessments of reptiles, mammals, birds, vascular plants, and freshwater taxa;* *(2) Develop National Red Lists.*	*(1) Continue Red List assessments of reptiles, mammals, birds, vascular plants, and freshwater taxa; (2) Develop National Red Lists.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
(1.4.1) Reservoirs of natural capital. Reservoirs of natural capital are identified in all countries in the hotspot for at least three ecosystem services essential to healthy, sustainable societies (e.g. climate resilience, freshwater, provisioning, etc.) and incorporated into national economic accounts.	Reservoirs of natural capital, including transboundary areas, are identified in at least one hotspot country and ranked according to their value for provision of ecosystem services, biodiversity, and cultural and traditional values.	Reservoirs of natural capital, including transboundary areas, are identified in all hotspot countries and ranked according to their value for provision of ecosystem services, biodiversity, and cultural and traditional values.	Reservoirs of natural capital are identified in all countries in the hotspot for at least three ecosystem services essential to healthy, sustainable societies (e.g. climate resilience, freshwater, provisioning, etc.) and incorporated into national economic accounts.
Actions:	*(1) Identify and rank the biological and economic importance of major natural capital reservoirs, including transboundary reservoirs.*	*(1) Continue to identify and rank the biological and economic importance of major natural capital reservoirs, including transboundary reservoirs.*	*(1) Incorporate ecosystem service values into national economic accounts and development plans.*
(1.5.1) Conservation plans. Globally threatened species, KBAs and/or conservation corridors are incorporated into at least one national conservation plan or strategy in each hotspot country and at least one regional conservation plan or strategy developed with the participation of multiple stakeholders.	No milestone for this phase.	Globally threatened species, KBAs and/or conservation corridors are incorporated into national conservation plans or strategies in at least two hotspot countries.	Globally threatened species, KBAs and/or conservation corridors are incorporated into at least one national conservation plan or strategy in each hotspot country and at least one regional conservation plan or strategy developed with the participation of multiple stakeholders.
Actions:	*N/A*	*(1) Promote incorporation of conservation priorities into national conservation action plans and strategies.*	*(1) Continue promoting incorporation of conservation priorities into national conservation action plans and strategies.*

Transition Condition 2: Civil society capacity National and regional civil society groups dedicated to conservation possess sufficient intuitional and technical capacity to be effective advocates for, and agents of, conservation and sustainable development for at least the next 15 years.			
Transition target	**Milestone Phase I (2016–2020)**	**Milestone Phase II (2021–2025)**	**Milestone Phase III (2026–2030)**
(2.1.1) Institutional capacity. At least 25 local civil society organizations focused on biodiversity conservation in the hotspot, including at least three in each country, have a civil society tracking tool score of 80 or more.	At least 10 local civil society organizations engaged in biodiversity conservation, including at least one in each country, have a civil society tracking tool score of 80 or more.	At least 15 local civil society organizations engaged in biodiversity conservation, including at least three in each country, have a civil society tracking tool score of 80 or more.	At least 25 local civil society organizations engaged in biodiversity conservation, including at least five in each country, have a civil society tracking tool score of 80 or more.
Actions:	*(1) Establish baseline civil society tracking tool scores and monitor progress on a one-to-three year basis; (2) Provide capacity building for local organizations, targeting identified needs.*	*(1) Continues monitoring civil society tracking tool scores; (2) Continue providing targeted capacity building for local organizations.*	*(1) Continue monitoring civil society tracking tool scores; (2) Continue providing targeted capacity building for local organizations.*
(2.2.1) CSO community. At least 30 civil society organizations, including at least three from each hotspot country, are involved in regional collaborations that influence development policies, programs or planning decisions in ways that deliver tangible results for biodiversity conservation.	At least 20 civil society organizations are involved in regional collaborations that influence development policies, programs or planning decisions in ways that deliver tangible results for biodiversity conservation.	At least 30 civil society organizations, including at least three from each hotspot country, are involved in regional collaborations that influence development policies, programs or planning decisions in ways that deliver tangible results for biodiversity conservation.	Target met in previous phase.
Actions:	*(1) Support the establishment of regional networks and other collaborations among CSOs that address conservation issues that transcend national borders.*	*(1) Continue to provide support to regional networks and collaborations, as necessary.*	*N/A*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
(2.3.1) Financial resources. At least five local civil society organizations in each country have access to stable and diversified long-term funding sources, and a robust resource mobilization strategy, sufficient to maintain their current programs without relying on international donors for more than 25 percent of their funding.	At least two hotspot countries have more than five civil society organizations with access to long-term funding sources and a robust resource mobilization strategy that do not rely on international donors for more than 75 percent of funding.	At least four hotspot countries have more than five civil society organizations with access to long-term funding sources and a robust resource mobilization strategy and do not rely on international donors for more than 50 percent of funding.	All hotspot countries have more than five civil society organizations with access to long-term funding sources and a robust resource mobilization strategy and do not rely on international donors for more than 25 percent of funding.
Actions:	*(1) Provide the CSO community in each country with support and training on resource generation from a variety of sources, including non-traditional sources; promoting collaborative fundraising efforts where appropriate.*	*(1) Continue actions, including support for already strong civil society organizations not dependent on international donors.*	*(1) Continue actions.*
***(2.4.1) Partnerships*.** At least 20 partnerships, alliances, networks or similar mechanisms exist that enable civil society groups to leverage their complementary capacities and maximize impact.	At least five partnerships, alliances, or similar mechanisms exist that enable civil society groups to leverage their complementary capacities, including at least one at the regional level.	At least 10 partnerships, alliances, or similar mechanisms exist that enable civil society groups to leverage their complementary capabilities, including at least two at the regional level.	At least 20 partnerships, alliances, or similar mechanisms exist that enable civil society groups to leverage their complementary capabilities, including at least three at the regional level.
Actions:	*(1) Facilitate establishment and growth of partnerships between civil society organizations, government agencies, national and international institutions, and international donors.*	*(1) Expand network membership and scope to address gaps in capacity, coordination and impact.*	*(1) Continue actions.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
***(2.5.1) Transformational impact*.** Biodiversity conservation models demonstrated or promoted by local civil society are incorporated into at least one national or sub-national policy and the business practices of at least two influential private sector companies per year.	Biodiversity conservation models demonstrated or promoted by local civil society are incorporated into at least one national or sub-national policy and the business practices of at least two influential private sector companies over the investment phase.	Biodiversity conservation models demonstrated or promoted by local civil society are incorporated into at least two national or sub-national policies and the business practices of at least four influential private sector companies over the investment phase.	Biodiversity conservation models demonstrated or promoted by local civil society are incorporated into at least one national or sub-national policy and the business practices of at least two influential private sector companies per year.
Actions:	*(1) Establish criteria and identify influential companies in each country and across the hotspot; (2) Identify and document good practice conservation models; (3) Support civil society partnerships with government and private sector actors.*	*(1) Strengthen the capacity of civil society organizations to engage with and influence government and private sector actors; (2) Continue identifying, documenting and promoting good practice conservation models.*	*(1) Continue supporting capacity building and promotion of good practice conservation models.*

Transition Condition 3: Sustainable financing Adequate and sustained financial resources have been identified and capacity has been developed to access or generate funds to address conservation of global and regional priorities for at least the next 15 years.			
Transition target	**Milestone Phase I (2016–2020)**	**Milestone Phase II (2021–2025)**	**Milestone Phase III (2026–2030)**
***(3.1.1) Public sector funding*.** The three largest public sector agencies responsible for conservation in each hotspot country have sufficient financial resources and capacity to effectively deliver their missions.	The three largest public sector agencies responsible for conservation in each hotspot country demonstrate increased financial resources to deliver their missions.	The three largest public sector agencies responsible for conservation in each hotspot demonstrate increased financial resources and capacity to deliver their missions.	The three largest public sector agencies responsible for conservation in each hotspot have sufficient financial resources and capacity to effectively deliver their missions.
Actions:	*(1) Support analyses and advocacy that promotes increased government budget allocations for conservation.*	*(1) Continue to support analyses and advocacy that promotes increased government budget allocations for conservation; (2) Support actions that strengthen the capacity of government conservation agencies.*	*(1) Continue to support actions that strengthen the capacity of government conservation agencies.*
***(3.2.1) Donor funding*.** Donors currently operating or planning to operate in each hotspot country have a long term strategy for biodiversity conservation, including non-traditional partnerships, co-financing, and adequate funding for the next 10 years.	At least three international donors operating or planning to operate in the hotspot have published long-term strategies addressing biodiversity conservation.	At least five international donors operating in the hotspot have published long term strategies addressing biodiversity conservation. At least two of these donors are exploring non-traditional partnerships to leverage funding, and have established transition plans for when they leave a country or the hotspot.	At least eight international donors operating in the hotspot have published long term strategies addressing biodiversity conservation. At least five of these donors are exploring non-traditional partnerships to leverage funding, and have established transition plans for when they leave a country or the hotspot.
Actions:	*(1) Conduct updated gap analysis of funding needs for biodiversity conservation in each country.*	*(1) Promote and leverage donor funding for dedicated financial mechanisms for conservation.*	*(1) Continue to promote and leverage donor funding for dedicated financial mechanisms for conservation.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
(3.3.1) Private sector funding. Funding from the private sector is making a significant difference to long-term conservation efforts for at least three priority KBAs and/or globally threatened species in each hotspot country.	Funding from the private sector is making a significant difference to long-term conservation efforts for at least one priority KBA and/or globally threatened species in at least two hotspot countries.	Funding from the private sector is making a significant difference to long-term conservation efforts for at least two priority KBAs and/or globally threatened species in at least four hotspot countries.	Funding from the private sector is making a significant difference to long-term conservation efforts for at least three priority KBAs and/or globally threatened species in each hotspot country.
Actions:	*(1) Promote and leverage private sector funding for dedicated financial mechanisms for conservation.*	*(1) Continue to promote and leverage private sector funding for dedicated financial mechanisms for conservation.*	*(1) Continue to promote and leverage private sector funding for dedicated financial mechanisms for conservation.*
(3.4.1) Civil society access to funding**.** At least nine of the 10 most influential civil society organizations engaged in conservation in the hotspot, of which at least six are local, have access to sufficient secured funding to continue their work at current or expanded levels for at least the next five years.	At least three of the 10 most influential civil society organizations engaged in conservation in the hotspot have access to sufficient funding to continue or expand their work for the next five years.	At least six of the 10 most influential civil society organizations engaged in conservation in the hotspot, including at least three local organizations, have access to sufficient funding to continue or expand their work for the next five years.	At least nine of the 10 most influential civil society organizations engaged in conservation in the hotspot, including at least six local organizations, have access to sufficient funding to continue or expand their work for the next five years.
Actions:	*(1) Identify the largest civil society organizations engaged in conservation and track their secured funding; (2) Support development of long-term conservation funding mechanisms accessible to civil society organizations.*	*(1) Continue tracking the funding status of the largest civil society organizations; (2) Continue supporting development of long-term conservation funding mechanisms.*	*(1) Continue tracking the funding status of the largest civil society organizations; (2) Continue supporting development of long-term conservation funding mechanisms.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
***(3.5.1) Long-term mechanisms*.** Sustainable financing mechanisms (e.g., government budget earmarks, endowment funds, payments for environmental services, etc.) supporting the conservation of protected area networks operate and yield funding such that financial constraints are no longer identified as a barrier to effective protected area management in at least four hotspot countries.	Existing and potential sustainable funding mechanisms for national protected area networks identified in at least two hotspot countries.	Existing and potential sustainable funding mechanisms for national protected area networks identified in all hotspot countries. The national protected area network of at least one hotspot country is supported by a sustainable financing mechanism yielding sufficient funding that financial constraints are no longer a barrier to effective management.	The national protected areas network of at least four hotspot countries are supported by sustainable financing mechanisms yielding sufficient funding that financial constraints are no longer a barrier to effective management.
Actions:	*(1) Identify existing and potential sustainable financing mechanisms for the national protected area networks of hotspot countries.*	*(1) Continue to identify existing and potential sustainable financing mechanisms for the national protected area networks of hotspot countries; (2) Support the establishment of a pilot sustainable funding mechanism for one national protected area system.*	*(1) Support the establishment of sustainable funding mechanisms in more hotspot countries.*

Transition Condition 4: Enabling policy and institutional environment Public policies, the capacity to implement them, and private sector business practices are supportive of the conservation of global and regional biodiversity.			
Transition target	**Milestone Phase I (2016–2020)**	**Milestone Phase II (2021–2025)**	**Milestone Phase III (2026–2030)**
(4.1.1) Legal environment for conservation Each hotspot country's commitments under multilateral environmental agreements are reflected in national regulations; these laws are made clear through regulations that provide for sufficient incentives and disincentives to encourage behavior consistent with them; and these laws or regulations are effectively coordinated between various relevant ministries and departments and reviewed at least every 10 years.	At least two hotspot country's commitments under multilateral environmental agreements are mainstreamed into national legislation, coordinated between relevant ministries and legislation, and plans exist to effectively implement their requirements.	Each hotspot country's commitments under multilateral environmental agreements are mainstreamed into national legislation, coordinated between relevant ministries and legislation, and plans exist to effectively implement their requirements, including adequate funding and appropriate incentives and disincentives.	Target met in previous phase.
Actions:	*(1) Support efforts to mainstream international environmental commitments into national legislation.*	*(1) Continue supporting efforts to mainstream international environmental commitments into national legislation.*	*N/A*
(4.2.1) Enforcement. At least 50 percent of protected areas have their boundaries demarcated on the ground and management regulations and laws are being effectively enforced, with appropriate sanctions applied to offenders.	At least one protected area in each hotspot country has relevant portions of its boundary (e.g. accessible areas) clearly demarcated and is patrolled as necessary to enforce conservation regulations and laws.	At least 25 percent of protected areas in the hotspot have relevant portions of their boundaries (e.g. accessible areas) clearly demarcated and are patrolled as necessary to enforce conservation regulations and laws.	At least 50 percent of protected areas in the hotspot have relevant portions of their boundaries (e.g. accessible areas) clearly demarcated and are patrolled as necessary to enforce conservation regulations and laws.
Actions:	*(1) Monitor management actions and management effectiveness at a sample of protected areas in each country.*	*(1) Continue monitoring management actions and effectiveness.*	*(1) Continue monitoring management actions and effectiveness.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
***(4.3.1) Business practices*.** At least three influential companies or business associations in each hotspot country in key business sectors with a large biodiversity footprint (actual or potential) have introduced business practices supportive of the conservation of natural habitats and species populations across their operations, while engaging with local people regarding livelihoods and traditional natural resource use.	At least three influential companies or business associations in the hotspot have introduced business practices supportive of the conservation of natural habitats and species populations across their operations, while engaging with local people regarding livelihoods and traditional natural resource use.	At least two influential companies or business associations in each hotspot country have introduced business practices supportive of the conservation of natural habitats and species populations across their operations, while engaging with local people regarding livelihoods and traditional natural resource use.	At least three influential companies or business associations in each hotspot country have introduced business practices supportive of the conservation of natural habitats and species populations across their operations, while engaging with local people regarding livelihoods and traditional natural resource use.
Actions:	*(1) Support efforts to promote adoption of biodiversity-friendly business practices by leading private companies.*	*(1) Continue supporting efforts to promote adoption of biodiversity-friendly business practices by leading private companies.*	*(1) Continue strengthening private sector commitment to conservation.*
***(4.4.1) Legal environment for civil society*.** Local civil society organizations in all hotspot countries are legally allowed to convene, organize, register, receive funds and engage in conservation activities, and these laws are taken advantage of by local civil society organizations working in a variety of sectors, including environment, development, and public health.	Restrictions on civil society activities ease in more hotspot countries than they tighten in.	The governments of at least three hotspot countries allow civil society organizations to convene, organize, register, receive funds, and engage in conservation activities without significant legal restrictions.	Local civil society organizations in all hotspot countries are legally allowed to convene, organize, register, receive funds and engage in conservation activities, and these laws are taken advantage of by local civil society organizations working in a variety of sectors, including environment, development, and public health.
Actions:	*Outside of CEPF's ability to influence; most countries expected to progress towards this target over time.*	*Outside of CEPF's ability to influence; most countries expected to progress towards this target over time.*	*Outside of CEPF's ability to influence; most countries expected to progress towards this target over time.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
***(4.5.1) Education and training*.** At least 90 percent of senior leadership positions in leading conservation NGOs (local and international) staffed by local country nationals; opportunities for tertiary education or relevant field training available within all hotspot countries	At least 50 percent of senior leadership positions in leading conservation NGOs are staffed by local country nationals. Opportunities for high quality tertiary education in conservation science or management are available in at least two hotspot countries.	At least 75 percent of senior leadership positions in leading conservation NGOs (local and international) are staffed by local country nationals. Opportunities for high quality tertiary education in conservation science or management are available in at least four hotspot countries.	At least 90 percent of senior leadership positions in leading conservation NGOs (local and international) are staffed by local country nationals. Opportunities for high quality tertiary education in conservation science or management are available in all hotspot countries.
Actions:	*(1) Support conservation NGOs to invest in professional development and retention of local staff;* *(2) Support dedicated undergraduate and/or postgraduate programs on conservation science or management.*	*(1) Continue supporting conservation NGOs to invest in professional development and retention of local staff; (2) Continue supporting dedicated undergraduate and/or postgraduate programs on conservation science or management.*	*(1) Continue supporting conservation NGOs to invest in professional development and retention of local staff; (2) Continue supporting dedicated undergraduate and/or postgraduate programs on conservation science or management.*

Transition Condition 5: Responsiveness to emerging issues Mechanisms exist to identify and respond to emerging conservation issues.			
Transition target	**Milestone Phase I (2016–2020)**	**Milestone Phase II (2021–2025)**	**Milestone Phase III (2026–2030)**
***(5.1.1) Biodiversity monitoring*.** Systems are in place to monitor status and trends in selected ecosystems, species and populations across at least 50 percent of the hotspot by area, across 75 percent of priority KBAs, and data from these systems are being used to guide the allocation of government resources.	Standards and protocols for monitoring status and trends in biodiversity are established in each country and/or for the hotspot; ecosystems, species and populations chosen for monitoring.	Systems are in place to monitor status and trends in selected ecosystems, species, and populations across 50 percent of priority KBAs and 25 percent of the hotspot, by area, and resulting data are used to guide allocation of government resources.	Systems are in place to monitor status and trends in selected ecosystems, species, and populations across 75 percent of priority KBAs and 50 percent of the hotspot, by area, and resulting data are used to guide allocation of government resources.
Actions:	*(1) Establish monitoring standards and protocols and pilot for selected ecosystems, species and populations.*	*(1) Roll out monitoring standards and protocols to all hotspot countries;* *(2) Support establishment of monitoring databases in each hotspot country.*	*(1) Support wider roll out of monitoring systems.*
***(5.2.1) Threats monitoring*.** Systems are in place to monitor status and trends in threats to biodiversity (e.g., forest fire, wildlife trade, invasive species, etc.) across at least 75 percent of the hotspot by area, data are shared regionally, and results are being used to guide the allocation of conservation and development resources.	Standards and protocols for monitoring status and trends in threats to biodiversity are established in each country and/or for the hotspot.	Systems are in place to monitor status and trends in threats to biodiversity across 25 percent of the hotspot by area, data are shared regionally, and results are being used to guide the allocation of conservation and development resources.	Systems are in place to monitor status and trends in threats to biodiversity across 75 percent of the hotspot by area, data are shared regionally, and results are being used to guide the allocation of conservation and development resources.
Actions:	*(1) Establish monitoring standards and protocols and pilot for selected threats to biodiversity.*	*(1) Roll out monitoring standards and protocols to all hotspot countries;* *(2) Support establishment of monitoring databases in each hotspot country.*	*(1) Support wider roll out of monitoring systems.*

Transition target	Milestone Phase I (2016–2020)	Milestone Phase II (2021–2025)	Milestone Phase III (2026–2030)
***(5.3.1) Public sphere*.** Conservation issues are covered in local languages in at least one major newspaper, television channel or radio station at least twice times per month in all hotspot countries	Conservation issues are covered in local languages in at least one major newspaper, television channel or radio station at least once per month in all hotspot countries	Conservation issues are covered in local languages in at least one major newspaper, television channel or radio station at least two times per month in all hotspot countries	Target met in previous phase.
Actions:	*(1) Support efforts to promote discussion of conservation issues in mass media and social media.*	*(1) Continue supporting efforts to promote discussion of conservation issues in mass media and social media.*	*N/A*
***(5.4.1) Natural capital monitoring*.** Systems are in place to value and monitor status and trends in at least three ecosystem services essential to healthy, sustainable societies (e.g., freshwater provision, carbon sequestration, crop pollination, etc.) in each country and across at least 70 percent of the hotspot by area, and results are being used to guide the allocation of conservation and development resources.	Standards and protocols for monitoring status and trends in at least three ecosystem services essential to healthy, sustainable societies are established in each country and/or for the hotspot.	Systems are in place to value and monitor status and trends in at least one ecosystem service essential to healthy, sustainable societies (e.g., freshwater provision, carbon sequestration, crop pollination, etc.) in each country and across at least 70 percent of the hotspot by area, and results are being used to guide the allocation of conservation and development resources.	Systems are in place to value and monitor status and trends in at least three ecosystem services essential to healthy, sustainable societies (e.g., freshwater provision, carbon sequestration, crop pollination, etc.) in each country and across at least 70 percent of the hotspot by area, and results are being used to guide the allocation of conservation and development resources.
Actions:	*(1) Establish monitoring standards and protocols and pilot for selected ecosystem services.*	*(1) Roll out monitoring standards and protocols to all hotspot countries;* *(2) Support establishment of monitoring databases in each hotspot country.*	*(1) Support wider roll out of monitoring systems.*

4. Theory of Change

4.1 Introduction

The requirements for eventual transition of the Indo-Burma Hotspot away from CEPF support are extremely ambitious. To achieve them will require bringing the region of the world with the highest concentration of threatened biodiversity to a state of across-the-board appropriate management, good governance, sufficient capacity and adequate financing. This is at a time when rapid economic development, urbanization and regional integration are expected to intensify pressures on biodiversity.

As discussed in Chapter 1, the major threats to biodiversity in the hotspot are bring driven by increasing demand for commodities and products, consumer demand from rising incomes and increasing population, international commodity prices, local and regional development, regional integration, urbanization and less-than-ideal legal environments for conservation and civil society. Although potential solutions to all of these drivers exist in theory, their implementation and replication have not been entirely successful in practice.

4.2 Exceptions to the Long-term Vision

To move the hotspot towards self-sufficiency, it will be necessary to improve greatly upon the status quo, taking advantage of known tools when possible, and implementing innovative new solutions whenever necessary. Presently, the countries that make up the hotspot are all at very different starting points. In Lao PDR and Myanmar, in particular, it is considered far too early to talk about transition away from CEPF support, even over a 15-year timeframe.

4.2.1 Lao PDR

In Lao PDR, there are very few CSOs working on biodiversity conservation. Those local organizations that do exist typically have very limited capacity and very little working experience, and are grappling with a restrictive operating environment. The contrast between the capacity for response and the massive challenges of unbridled hydropower development, massive illegal logging and ubiquitous illegal consumption and trade of wildlife is stark. In this context, it is impossible to imagine the transition criteria being met without some very radical changes occurring that are beyond the ability of CEPF or any other donor to influence.

4.2.2 Myanmar

In Myanmar, after more than half a century under a centralized military dictatorship, change has occurred rapidly following the ongoing political reform process that began in 2010. This has triggered warming relations with the western powers, removal or suspension of sanctions, and increased outside investment. In previous decades, Myanmar generated foreign exchange by selling off its natural resources, leading to unregulated mineral exploitation, deforestation, illegal wildlife trade, logging of luxury timber, and displacement of rural communities. It is unclear whether the political reforms will herald a new dawn for environmentally and socially sustainable development or a continuation of business as usual. Thus far, economic transformation has been pursued by the government and its military backers among enthusiastic jostling for position by businesses and a groundswell of goodwill by the international community but with little effective planning or environmental safeguards in place.

As economic growth and the liberalization of the economy takes place, more opportunities for the well connected elite will emerge, such as large-scale forest conversion fueled by expansion of agriculture

and land speculation. Such developments will be difficult to control, even if there is a will to do so. New areas of investment, such as hydropower, mining and tourism, will place different but further demands on already stressed ecosystems. Although the full effects of climate change have yet to be felt, it is likely that, in future, large areas of Myanmar will be prone to drought, floods and cyclones, and a significant percentage of the population and the natural resources they depend on will be severely affected.

Meanwhile, the state has limited administrative and technical capacity, making many conservation measures difficult to initiate and maintain. It was noted by participants at the Long-Term Vision workshop that CEPF and other donors will have very little leverage to influence allocation of public funding towards conservation. While it was clear that CEPF is not intended to be a permanent presence and that the long-term vision is meant only to point the way towards an end point, participants at the national consultation felt strongly that it is premature to think about a timeline for withdrawing support, and that attainment of many of the transition targets is simply not a realistic prospect at such an early time in Myanmar's development. Rather, participants argued for a focus on building a strong foundation to work from and planning steps forward that will serve the country well in the long run (i.e., a focus on the start point not the end point). In the case of Myanmar, at least, it will be necessary to revisit the long-term vision after a reasonable period, to assess progress and, possibly, fill any gaps that may not have been addressed.

4.3 Theory of Change

The long-term vision sets criteria and targets for moving towards a point where civil society can transition away from CEPF support. Any investments by CEPF or other donors should focus on areas assumed to be the most feasible and to deliver the best return on investment in terms of moving civil society in the hotspot towards self sufficiency in conservation. In particular, investment should be based around addressing local and regional drivers, through:

- Improving public policy and mainstreaming conservation, while ensuing that scientific information is available to support evidence-based decision-making;
- Strengthening the capacity of and advocating for greater financial resources for government agencies responsible for biodiversity conservation.
- Building technical and institutional capacity of CSOs;
- Diversifying and increasing sustainability of conservation financing;
- Increasing effective collaboration among civil society, government and the private sector;
- Building active involvement of mass media in conservation issues; and
- Emphasizing the role of environmental education and communications.

The theory of change posits that hotspot countries with political stability and robust, diversified economies will establish effective institutions and processes for management of ecosystems and biodiversity, and will allocate appropriately trained personnel and national budgets for these purposes. Politically stable and economically robust countries will also appreciate the role of a vibrant civil society in contributing to national development and should be willing to create the space for NGOs and other CSOs to operate openly, free from government interference. Opening space for CSOs to engage, set targets and positively impact outcomes will fill critical gaps in current conservation initiatives and help increase the participation of local and indigenous communities in conservation. Building scientific knowledge of species and ecosystems status and trends, and adapting this to unique national conditions will improve management best practices.

One of the key elements of any future program of support to civil society by CEPF or other donors will need to be capacity building. Building the technical and financial capacity of NGOs and other CSOs will allow them to perform more effectively and efficiently, using resources already available to better

advantage, while also being more proficient at accessing new sources of support. Building technical capacity will also help CSOs to better engage in partnerships with government agencies and private sector companies, as well as increasing cooperation within the civil society sector itself.

The involvement of mass media and social media in drawing attention to key conservation issues facing each country will tend to put pressure on governments and the private sector to effectively address these issues, while, at the same time, also generating support for the work of CSOs. Public pressure on governments will also encourage them to provide even more space and, in time, financial support for CSOs, as they recognize the comparative advantage they have in dealing with some development challenges, particularly at the grassroots level. Increasing involvement of the private sector and increasing government support (both financial and political) will lead to increased funding and changed attitudes towards mainstreaming conservation into business practices. The public's response to media coverage of issues will become more favorable, the more understanding and awareness that society has about environmental issues. Thus, for the eventual transition of the hotspot from international donor support, environmental education in the formal education sector at primary, secondary and tertiary levels, as well as informal outdoor nature education for all age groups, will be vital. None of these elements will be sufficient in isolation but all of them taken together will help ensure long-term sustainability of actions long after CEPF's involvement ends.

Actions are based on the milestones identified in Table 6. These actions will need to adapt to the particular circumstances of each country, while working towards the same regional targets. The main output of these actions will be the successful achievement of transition criteria set out in Table 5. This is expected to take at least three investment phases (of five years each) to achieve in Cambodia, China, Thailand and Vietnam, and significantly longer in Lao PDR and Myanmar.

As a first step, to guide conservation investments geographically and to allow their effectiveness to be monitored, the analysis of KBAs should be updated in each country. This is necessary to account for actual changes in the status of KBA (e.g., if a site has become so degraded so that it no longer meets the criteria for a KBA, it should be removed from the list) as well as changes in knowledge. In addition, there is a need to ensure that all KBAs meet the thresholds and documentation standards of the new global standard for the identification of KBAs (IUCN, 2016).

A second critical step should be to support CSOs working on priority conservation issues, to strengthen their technical and organizational capacity, increase their access funding, and improve their operating environment. This will require different, tailored approaches in each country. Depending on the local political situation, it is likely that some countries (notably Lao PDR and Myanmar) will require considerably more support and time to reach this target.

4.4 Critical Assumptions

It is recognized that some critical issues fall far outside of CEPF's area of influence. In particular, the following three conditions all seem to be prerequisites for ultimate transition, yet CEPF can do very little to influence them in reality. It is difficult, therefore, to develop a theory of change for these elements. These are all, in some way, critical assumptions, because, without political stability, a certain level of economic robustness and an open political environment in which it can operate, it is unrealistic to imagine that civil society could transition away from CEPF support.

4.4.1 Political Stability

The theory of change assumes that hotspot countries become increasingly stable and do not experience periods of extended strife, war, or other stressors that would negatively impact conservation and decrease the priority of conservation activities. This assumption is considered likely to hold true for most countries in the hotspot. Myanmar, which is still at the beginning of a process of

national political reconciliation, with a number of ongoing and recently ended ethnic armed insurgencies, is considered to have the greatest risk for political instability.

Politically, three of the six countries in the hotspot (China, Lao PDR and Vietnam) are one-party states, nominally communist but, in fact, more or less fully embracing capitalist market economies. They are politically stable. Thailand fluctuates between periods of multi-party democracy and military rule. After a period of political turmoil in 2012-2013, the Royal Thai Army took control of the government in May 2014 to "reset" democracy in the country; new elections are promised for 2018. The military-installed government has, in general, been supportive of conservation. It has passed a suite of legislation governing natural resources management and made concerted efforts to tackle forest encroachment and illegal, unregulated and unreported fishing. Cambodia has a democratically elected government but, with a relatively weak opposition, the same party has remained in power since democracy was instated after the end of the civil war. Myanmar is emerging from decades of military rule. A partial democracy was established in 2010, and there was a peaceful transition of power to a civilian-led government after the long-time opposition party won the general election in November 2015.

4.4.2 Economic Stability

The theory of change assumes that hotspot countries have robust and resilient economies that are not unduly dependent on a single or very small number of commodities, and diverse economies that are not overly dependent on natural resource exploitation. This assumption is considered likely to be met for Cambodia, China, Thailand and Vietnam. It is more uncertain for Lao PDR and Myanmar, whose economies are more narrowly based, with a greater dependence on natural resources.

China, Thailand and Vietnam have the strongest, most diverse economies, with the service and manufacturing sectors, as well as international trade, contributing significantly to GDP, and agriculture, fisheries and timber industries contributing less, although they are still major sources of employment. The challenge for these countries in future is avoiding the so-called "middle-income country trap" (Kharas and Kohli, 2011). Cambodia is starting to develop a manufacturing sector, albeit mostly at the low-skilled, low-value end of the spectrum, in sectors such as garment factories. It also has a thriving tourism industry. Lao PDR has very little in the way of service and manufacturing sectors; the economy is dominated by hydropower and mining, although tourism is a definite growth area. After decades of relative isolation, Myanmar is now entering an era of rapid exploitation of natural resources, including timber, hydropower and minerals, but also rapid investment in other areas, including tourism.

4.4.3 Open Political Environment

The theory of change assumes that the political environment continues to open up and allow for increased roles for civil society in biodiversity conservation, development and other fields. This assumption is the most difficult to assess the validity of with confidence, because, in all hotspot countries, progress with the political environment for civil society is gradual, not inevitable, and subject to reversals. An open political environment would allow CSOs to operate independently of government influence, test new solutions to environmental challenges, and advocate for changes that may not always be in line with prevailing policy. Presently, the political environment for civil society is most open in Thailand and Vietnam, somewhat intermediate in Cambodia and Myanmar (where it is early days yet), rather unfavorable in China, and unfavorable in Lao PDR.

4.5 Other Assumptions

Beyond the three critical assumptions outlined above, the way forward according the theory of change depends upon six other key assumptions, which will need to be met for eventual transition:

1. **Drivers of biodiversity loss addressed through public policy.** Biodiversity loss is driven by a range of interconnected factors, including policy incentives. Positive incentives for conservation will be accentuated and perverse incentives mitigated by mainstreaming conservation into public policy at sub-national, national and regional levels.

2. **Conservation mainstreamed.** Innovative conservation models will be mainstreamed and incentivized by government and private sector/state enterprises across the hotspot.

3. **Technical and organizational capacity improved.** Short- and medium-term grant funding, coupled with formal and informal training activities, will strengthen the capacity of civil society at the individual, organizational and network scales, resulting in effective organizations being present in all hotspot countries, mutually supporting one another through national and regional networks. Collectively, the CSOs in each country will possess appropriate technical and organizational capacity, and be granted sufficient political space to engage in biodiversity conservation. These capacities will include the know-how and credibility to engage constructively with government and private sector actors, the knowledge to conduct policy-relevant research, and the ability to identify key threats and address them in a proactive manner.

4. **Financial sustainability achieved.** The availability of conservation finance will be increased to and maintained at adequate levels by investing in the capacity of CSOs, individually and collectively, to build a long-term resource mobilization pipeline, create new revenue streams (e.g., through government contributions, ecotourism, mass membership, philanthropy by high-net-worth individuals and crowd-sourcing) and facilitate partnerships with the private sector.

5. **Mass media engaged.** Active engagement of CSOs with the mass media will lead to better-informed reporting of key conservation issues in the hotspot, and promote public understanding and support for the work of civil society.

6. **Education and outreach improved.** National academic institutions will provide high quality training and research and produce graduates with the skills and understanding to respond to local conservation challenges by working with or for CSOs, in partnership with governments, and with a range of other stakeholder communities.

5. Recommendations

Indo-Burma has the dubious distinction of being the world's most threatened biodiversity hotspot, with only five percent of its original natural habitat remaining and more people than any other hotspot. Key threats include hunting and trade of wildlife, conversion of natural habitats to agro-industrial plantations of rubber, oil palm, tea and other commodities, and proliferation of hydropower dams (CEPF, 2102).

The overall conservation response to these threats from government, civil society and private sector actors in the Indo-Burma Hotspot is slowly improving but significant gaps remain. These gaps include a fundamental disconnect between economic development priorities and biodiversity conservation, a

lack of political will and capacity among government agencies, inadequate coordination and enforcement, a lack of diverse and sustainable funding (including an overreliance on international donors), and limited operating space for civil society. All of these gaps will need to be addressed in order for civil society in the Indo-Burma Hotspot to transition away transition away from CEPF support and become effectively self-sufficient in the conservation arena. Although many of these key gaps are shared by all countries, some are more relevant to a subset of hotspot countries. As such, it is likely that progress will occur at an uneven rate across the hotspot, with some countries meeting transition milestones more quickly. While, it is not unreasonable to project that civil society in some countries may meet the transition conditions within the next 15 years (i.e., after the current CEPF investment phase and two further phases), the hotspot as a whole will require significantly more time, depending on the rate of progress in those countries that are currently furthest from meeting the transition conditions (i.e. Lao PDR and Myanmar).

If CEPF and other donors wish to accelerate progress towards transition, they should give consideration to the following recommendations:

1) Availability of effective conservation models

Outcome: Innovative conservation models demonstrated by CEPF (and others) are mainstreamed and incentivized by government and private sector/state enterprises across the hotspot.

Intermediate step: A range of conservation interventions are implemented and sustainably managed by CSOs and government agencies with effective results, the benefits of effective projects are publicized, and training courses and materials on how to implement best practice conservation models across the hotspot are developed.

Biodiversity loss is driven by a range of interconnected factors. Addressing the impacts can be influenced significantly by building conservation interventions at sub-national, national, and regional levels. Conservation challenges to be addressed include overlapping ministerial jurisdictions, a failure to fully recognize the values of ecosystems and consider them in planning decisions, and low levels of public awareness. In most hotspot countries, several different agencies work on conservation, and others influence it through their activities. However, in no case do these agencies effectively coordinate their activities. These agencies, in turn, are affected by investment and planning decisions made by a number of other ministries. This results in competition for limited funding, as well as less-than-ideal policy and development decisions than might otherwise be made. Ecosystems are understood to provide a huge range of valuable services. However, policy makers and planners continue to ignore these, and fail to integrate them into policy and investment decisions. Given the economic status of hotspot countries, especially Cambodia, Lao PDR, and Myanmar, economic development is understandably a high priority. However, there is significant room for improvement in policies that could enhance development outcomes while better conserving the natural environment.

The best way for CEPF to approach this is, perhaps, by demonstrating what is possible with sustainable development models at the landscape scale (which initially is easier to achieve than at the national level) and then amplifying best practices through incorporation into national policy and decision-making processes.

Recommendation 1: CEPF should support landscape-scale projects that clearly demonstrate linkages between conservation and development.

Recommendation 2: CEPF should support processes to take learning from landscape-scale demonstration models into national policy and decision-making processes. This can be done through a variety of mechanisms, including an enhanced Monitoring, Evaluation and Learning approach, and

by strengthening the platform provided by National Advisory Committees (NACs; see Recommendation 12).

2) Improved technical and organizational capacity of CSOs

Outcome: Short- and medium-term grant funding from CEPF builds capacity in CSOs in all hotspot countries, resulting in effective CSOs that have appropriate technical and organizational capacity to conduct research, identify key threats and address these in a proactive manner, as well as to effectively manage internal activities and external partnerships.

Intermediate step: All CEPF-funded organizations in each country meet a minimum capacity threshold, as determined by transition criteria and targets.

CSOs are capable of offering useful and timely advice to government and private sector decision makers, although their expertise is often underutilized and undervalued. Grassroots, national, regional, and international groups can be extremely effective at: (i) bringing global experience and good practice to local contexts; (ii) transferring skills and knowledge to government conservation agencies and the private sector, leading to better policy and business practices; (iii) catalyzing innovation, testing new approaches, and responding to emerging challenges and opportunities; (iv) brokering partnerships among traditional and non-traditional conservation actors; and (v) ensuring that conservation programs are beneficial to local people, such as by protecting vital ecosystem services and providing sustainable livelihood options. Of course, CSOs are able to do this most effectively in countries with a strong enabling environment for civil society, and where there are adequate and sustainable sources of funding.

CSOs must play an increasingly important role in meeting conservation goals for the hotspot, being effective partners for government and providing a bridge to local and indigenous communities. Although CSOs are fairly well established in Thailand (and increasingly in Vietnam), they have limited room to operate and, in particular, engage in advocacy in other hotspot countries. This is especially the case in China and Lao PDR, and to varying degrees in Cambodia and Myanmar. In Lao PDR, most CSOs are relatively new, only quasi-independent, and have limited experience of working on conservation or partnering with government or the private sector. CSOs registered in Lao PDR are held back by a lengthy registration process and other restrictions on their activities. Similar hurdles exist for CSOs in China, which can face scrutiny and pressure to limit their activities. CSOs in Myanmar will need time to build their capacity after decades of international isolation. Overall, Lao PDR and Myanmar may require more time to transition away from CEPF support, due to the status of CSOs. CEPF investment in these countries should focus heavily on capacity development for both conservation and development groups.

With continuing regional integration, threats to biodiversity are increasingly transboundary in nature, requiring, in turn, transboundary responses. CSOs must, therefore, also develop the capacity to reach out to their counterparts across international borders and learn to work together with CSOs in neighboring countries to address transboundary issues.

To build resilient local CSOs in the hotspot, with the capacity to implement field projects effectively, collect and share information and knowledge gained, and contribute to issues and policies effectively, six key areas of support will be required:

- Strengthening all aspects of governance, technical, and organizational capacity to create resilient and effective organizations that can meet donor requirements for funding.
- Training in Project Cycle Management, including participatory situational analysis, proposal development and implementation. This training should emphasize monitoring, evaluation and

reporting, so that information collected, best practices demonstrated and lessons learned can be shared widely.

- Increasing the technical capacity of local CSOs in conservation management and research, through networking with universities, other training institutions, and international NGOs. This can be achieved through targeted training and mentoring, as well as through scholarships, job sharing, forums, regional exposure trips, and other experiential learning techniques.
- Increasing CSOs' technical capacity in implementing community-based natural resource management and co-management.
- Building capacity in communications and advocacy, including with regard to message development, media tools, and channels, as well as "safe" advocacy training, to build skills and confidence for effective awareness raising and policy lobbying on key issues
- Building capacity to engage with business, especially in the agriculture, energy, and tourism sectors.

Recommendation 3: CEPF should support strategic training interventions in the above six areas.

3) Improved availability of financing

Outcome: Conservation finance is increased to and maintained at adequate levels by investing in CSO capacity to build a long-term resource mobilization pipeline, creating new revenue streams (e.g. through government contributions and ecotourism, and facilitating non-traditional partnerships with the private sector).

Intermediate step: At least some local CSOs in each hotspot country working on biodiversity conservation have the knowledge, connections and ability to identify and access funding sources, including funding from government, donor, and non-traditional sources.

While difficult to quantify, global biodiversity conservation expenditures have been estimated at roughly US$21 billion annually during 2001-2008 (Waldron *et al.*, 2013) A recent study estimated the annual cost of reducing the extinction risk of all globally threatened species at between US$3.4 billion and US$4.8 billion, while protecting and effectively managing all terrestrial sites of global conservation significance would cost more than US$76 billion per year (McCarthy *et. al.*, 2012). Global biodiversity funding (especially in poorer countries) will need to increase by at least an order of magnitude in the near future if the Aichi Targets are to be met.

Financing for biodiversity conservation is limited. As in many other developing countries, conservation initiatives in the hotspot countries are overdependent on international funds, which provide much-needed support but are not a reliable source of funding in the long term. Fortunately, there are some opportunities to improve the situation, including by involving the private sector, through CSR activities, "polluter pays" approaches with effective enforcement of penalties, and biodiversity offsets. Integrating conservation into national and local government development and investment plans and their associated budgets could also help meet some funding needs. Additional funding could be raised through expanding and mainstreaming existing PFES models, such as hydropower companies paying for watershed protection to extend the lifespans of reservoirs.

Approaches such as PFES and biodiversity offsets, while having the potential to make significant resources available for conservation of specific sites, cannot be adopted everywhere. As such, they cannot support the full diversity of activities that conservation-focused CSOs are currently engaged in. Moreover, funding generated by these mechanisms would not necessarily be available to CSOs, because government budget allocations for biodiversity conservation are insufficient and government conservation agencies would naturally wish to capture these income streams for their own use. Going forwards, other mechanisms, such as tax incentives to promote charitable giving by high-net-worth

individuals or crowd-sourcing of funds from the general public, have perhaps the greatest potential to support the work of civil society. There are already a few examples of such mechanisms, especially in China, which has the greatest concentration of private wealth in the hotspot.

Limited administrative and technical capacity in most hotspot countries means that CEPF may be unable to significantly influence public fund allocation but can help build capacity for CSOs to raise and access funds. In Lao PDR and Myanmar, this may require more flexibility from donors, recognizing current capacity limitations. Finally, although reliance on international funding may be seen as a limitation, it is still very necessary for the short to medium term. In some countries, it will continue to play an important role for the next two decades, at least.

Recommendation 4: CEPF should strengthen the fundraising capacity of local CSOs. This should include formal trainings, as well as dissemination of case studies of successful fund-raising using a wide variety of approaches, including non-traditional ones, such as crowd-sourcing.

Recommendation 5: CEPF should be realistic about what it can achieve with its forecast budget, focus on areas it can make a difference, and build on that progressively, rather than use a countrywide, scattergun approach. Guidance for this should come from strengthened NACs in each country.

4) Engagement with the private sector

Outcome: Effective civil society engagement with the private sector, particularly in sectors with a large environmental footprint, contributes substantially to reducing negative impacts of economic development on the biodiversity of the hotspot.

Intermediate step: An analysis of leading companies in key sectors within the hotspot is completed, and case studies of best practice examples of CSOs working with companies to address conservation issues are compiled.

There is a gap in incentives for industries with large ecological footprints to better conserve biodiversity. This disconnect between conservation and external market forces (e.g., the global rubber price) leads to strong incentives to convert natural ecosystems to other land uses. To address this gap, CEPF could help support CSOs working to incentivize better environmental performance by businesses, for example by linking operating license issuance to environmental compliance. Addressing this gap in incentives is critical but difficult, and, initially, it may be best to focus on specific, market-leading companies within each hotspot country.

Recommendation 6: CEPF should support compilation of case studies of effective engagement with the private sector and disseminate them to CSOs in the hotspot, as part of capacity-building efforts.

Recommendation 7: CEPF should support CSOs targeting key companies in critical sectors and geographies within the hotspot.

5) Involvement of the media in promoting the conservation agenda

Outcome: Increased engagement with the media strengthens their role in helping to address critical conservation issues in the hotspot.

Intermediate step: A network of media contacts is built, who are provided with regular information and stories, invited to CEPF events and given specific trainings and briefings on key conservation issues, and networks of citizen journalists are in place at key project sites.

A relatively independent and informed media that effectively reports on conservation issues is a huge benefit in creating public awareness of issues. This can, in turn, help create public support for the work of CSOs, and public pressure on the government to take action. We can see that this already happens to a certain extent in Thailand and, increasingly, in Vietnam. There are signs that this could also be the case in Myanmar. It is important not just to view the media as a channel or conduit to convey conservation information and messages to other target groups but, rather, to engage with the media as a key target group in their own right. Important strategies include providing trainings and briefings for journalists on key conservation issues, training citizen journalists, and building specialist networks of environmental journalists. For example, journalists could be invited to an annual CEPF forum in each country, where issues from a range of projects could be presented and discussed.

Recommendation 8: CEPF should support greater involvement of the mass media in its portfolio.

6) Enhanced conservation education opportunities

Outcome: National institutions provide high quality education training and research and produce people with the knowledge, skills and understanding to respond to local conservation challenges by working with or within CSOs, in partnership with governments, and with a range of other stakeholder communities.

Intermediate step: Education and training opportunities for early-career conservationists are available in each hotspot country.

Education and training on conservation issues will be critical for the transition of the Indo-Burma Hotspot, as it builds the awareness and understanding of future leaders, the capacity of those involved in implementation, and the awareness and interest of the pubic to support conservation actions. This applies across entire societies and is needed at a number of different levels. In particular, there is a need for:

- Integration of environmental education across subject matter areas in the national curricula for primary and secondary schoolchildren in each country.
- Bachelor's and master's degree courses in relevant fields, included but not limited to terrestrial, freshwater and marine ecology, natural resource management, and conservation biology.
- Specialized short-term, in-service, professional training on various aspects of protected area management, integrated river basin management, integrated coastal management, wetland management, forest landscape restoration, etc.
- Easily accessible nature education centers in natural or semi-natural habitats close to large urban centers, as well as visitor interpretation centers at national parks.

Primary and secondary school curricula may not be a priority area of intervention for CEPF. Similarly, other donors might be better placed to support the development of undergraduate and postgraduate degree courses. At the tertiary level, China, Thailand and (to some extent) Vietnam have well developed degree courses available in relevant subject areas. The Masters of Science in Biodiversity Conservation offered by the Royal University of Phnom Penh in Cambodia is a good model, and FFI (which supports this course) is considering replicating it in Myanmar. Lao PDR would seem to be the biggest gap in terms of appropriate tertiary conservation education, although similarities in language make study at Thai universities a realistic possibility for Lao students.

As already noted, people in the Indo-Burma Hotspot, like those in the rest of the world, are increasingly living in towns and cities with limited exposure to natural areas in their daily lives. In this context, urban or peri-urban nature education centers located in remnant habitats in or close to towns

and cities will become increasingly important, not only for the mental and physical health benefits that access to nature provides but also to educate urbanites to understand the demands that their lifestyles place on the natural environment and to promote more sustainable patterns of production and consumption. High-quality visitor education centers in national parks, especially those accessible on day trips from large urban centers, are equally important in this regard. Unfortunately, the so-called "nature-deficient disorder" (Louv, 2005) has already become endemic among the younger generation, with disturbing connotations for future support for conservation efforts. This may be an issue that CEPF could assess in more depth and look for opportunities to address.

Apart from visitor education centers and urban nature education centers, the area of professional in-service training is also one that CEPF should focus on. CEPF could either support the development of new training curricula to address gaps in what is already available, or could establish a scholarship program to support people taking existing available courses, particularly in Cambodia, Lao PDR and Myanmar. These programs would be useful not only for CSO staff but also for government employees.

Closely related to in-service training is the idea of establishing an Indo-Burma Field Studies Center. The long-term vision for such a center would be a self-financing center offering field-based training opportunities for both senior high school and undergraduate students, equipping them with practical skills for fieldwork in terrestrial, freshwater and coastal habitats, as well as with conservation and sustainable livelihood activities with farming and fishing communities in the hotspot countries. The goal of such a center would be to increase the number of young people who choose to pursue careers in practical field-based conservation and sustainable development related work, and to equip them with the necessary knowledge and skills to do so. In particular, the center would:

- Produce cadres of young, knowledgeable and committed conservationists.
- Foster regional cooperation through teams of young people training and working together on joint projects, a roster of trained people available to assist on fieldwork in the hotspot, and a volunteer/intern program among collaborating institutions and organizations, including placements of new graduates with former alumni.
- Support knowledge management and sharing, by regularly updating curricula based on new results.

Databases of the outputs from fieldwork conducted by trainees could be made freely available through a portal, and a library of relevant research and fieldwork publications could be maintained for use.

Recommendation 9: CEPF should support a review of the availability, content and quality of tertiary conservation education in the hotspot, and assess options for putting in place additional degree courses and/or integrating new modules in existing courses, with a particular focus on Lao PDR and Myanmar.

Recommendation 10: CEPF should identify possibilities for urban nature education centers, as well as protected area visitor education centers in national parks close to urban centers, across the Indo-Burma Hotspot and prioritize some of these opportunities for further feasibility study and eventual investments.

Recommendation 11: CEPF should support a feasibility study to look into the possibility of establishing an Indo-Burma Field Studies Center.

7) Strengthened National Advisory Committees

Outcome: The NAC in each hotspot country is formalized and strengthened and able to act as an independent advisory committee, as well as a forum for integrating lessons learned from the work of civil society into national policy.

Immediate step: The NAC in each hotspot country is formalized and has adequate funding to meet on a regular basis (at least twice per year).

With limited resources available to support them, to date, the NACs have only met a few times on an *ad hoc* basis to review proposals and have operated without a formal structure. To achieve a much broader and effective footprint, it is recommended that each NAC be substantially strengthened to become a local, independent advisory committee, and that sufficient support is allocated to ensure it can operate effectively in this manner. To be effective, the NAC will therefore need the following suggested changes:

- NAC committee members to serve a fixed term (rather than on an *ad hoc* basis) and come from a variety and range of organizations
- NAC committee members receive thorough orientation in CEPF operations, and the shared strategies set out in the long-term vision and ecosystem profile, as well as examples of projects and best practice from other countries.
- Meetings are held on a regular schedule.
- Broad general procedures and processes are developed, such as terms of service and a guiding local vision and plan based on the CEPF long-term vision document and current ecosystem profile.
- Simple and clear transparency and conflict of interest guidelines are put in place.
- Recommendations by the NAC are minuted in a transparent and accessible manner.
- Funding is allocated to run each NAC meeting, including travel where appropriate for NAC members, and for the members to research and carry out activities that will enhance the effectiveness of the committee, such as sending a delegation to a particular meeting.
- NAC committee members participate in Monitoring Evaluation and Learning missions to field projects supported by CEPF and bring issues, lessons learned and best practices back to the national level for discussion at the NAC meeting and further dissemination at the national policy level.

Recommendation 12: CEPF should invest in the development and strengthening of the NAC in each country, as described above.

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Appendix 1: List of Participants at the National Consultations

Cambodia	
Bou Vorsak	BirdLife International Cambodia Program
Georges Dehoux	Delegation of the European Union to Cambodia
Eam Dyna	International Center for Living Aquatic Resources Management
Hong Chamnan	Wildlife Conservation Society Cambodia Program
Keo Omaliss	Department of Wildlife and Biodiversity, Forestry Administration
Lou Vanny	IUCN Cambodia Country Programme
Om Savath	Fisheries Action Coalition Team
Ouk Vibol	Department of Fisheries Conservation, Fisheries Administration
Seak Sophat	Royal University of Phnom Penh
Seng Bunra	Conservation International Cambodia Program
Sorn Pheakdey	IUCN Cambodia Country Programme
Srey Sunleang	Department of Wetlands and Coastal Zones, Ministry of Environment
Tek Vannara	NGO Forum on Cambodia
Va Moeurn	Mlup Baitong
Yim Chansothea	IUCN Cambodia Country Programme
China	
Bai Yunwen	Greenovation Hub
Li Ruixin	China Youth Climate Action Network
Li Shen	Shenzhen Mangrove Wetlands Conservation Foundation
Li Zhengjun	Shenzhen Spring Environmental Protection Volunteer Association
Lin Wuying	Fauna & Flora International China Programme
Liu Yi	China Mangrove Conservation Network
Liu Yi	Society of Entrepreneurs & Ecology
Peng Yu	HiNature Conservation
Yang Chunlei	Hainan Mangrove Bay Wetland Park
Yang Fangyi	Alibaba Foundation
Zhao Jiangbo	Kadoorie Farm and Botanic Garden
Zhu Yezhou	Friends of the Earth (Hong Kong)
Lao PDR	
Somphone Bouasavanh	WWF Greater Mekong Programme
Somchanh Bounphanmy	National University of Laos
Victor Cowling	WWF Greater Mekong Programme
Rik Gadella	Pha Tad Ke Botanical Garden
Olivier Gilard	Agence Française de Développement
Yosuke Kitagawa	Embassy of Japan to Lao PDR
Alex McWilliam	Wildlife Conservation Society Lao Program
Peter John Meynell	International Center for Environmental Management
Ignacio Oliver-Cruz	Delegation of the European Union to Lao PDR
Sinsamout Ounboundisane	FISHBIO Lao Sole Co. Ltd.
Jean-Michel Pavy	World Bank
Bouaphanh Phanthavong	Dept. of Forest Resources Management, MoNRE
Sommano Phounsavath	Dept. of Livestock and Fisheries, Ministry of Agriculture and Forestry
Khambang Thipphavong	Lao Biodiversity Association
Chanthavy Vongkhamheng	Lao Wildlife Conservation Association

Myanmar	
U Aung Ko Htwe	Myanmar's Heart Development Organization
U Aung Kyaw Htwe	Myanmar's Heart Development Organization
U Aung Thant Zin	Myanmar Environment Rehabilitation-conservation Network
U Dominic Pao	ECLOF International
Julia Fogerite	IUCN Myanmar Country Programme
U Hla Win Tin	Metta Foundation
Khin Nyein Nyein Mon	Myanmar Environment Rehabilitation-conservation Network
Greg Martin	Myanmar Environment Rehabilitation-conservation Network
U Maung Maung Soe Tint	Border Areas Development Association
U Myint Aung	Friends of Wildlife
U Naing Se Ti	Myanmar Sustainable Development Network
Naw Khin Moe Aye	Promotion of Indigenous and Nature Together
U Pyae Phyo Aung	Biodiversity and Nature Conservation Association
Pyae Phyo Kywe	Myanmar Environment Rehabilitation-conservation Network
U Salai Cung Lian Thawng	Pyoe Pin Programme, British Council
U Saw Htun	Wildlife Conservation Society Myanmar Program
Sein Lai Zaw	Dear Myanmar
U Soe Win Hliang	Forest Resource Environment and Development Association
U Than Soe Oo	Myanmar Environment Rehabilitation-conservation Network
Thin Zar Phyo	Myanmar Environment Rehabilitation-conservation Network
Thailand	
Imporn Ardbutra	Deutsche Gesellschaft für Internationale Zusammenarbeit
Thattaya Bidayabha	Bird Conservation Society of Thailand
Bruno Cammaert	Food and Agriculture Organization of the United Nations
Chonlaton Chamnankhit	Department of National Parks, Wildlife & Plant Conservation, MoNRE
Gordon Congdon	WWF Greater Mekong Programme
Chalong Ditsi	Independent researcher
Woranuch Emmanoch	Royal Forest Department, MoNRE
Teeraphat Kamnuanthip	Office of Natural Resources and Environmental Policy, MoNRE
Sutharin Koonphol	United Nations Development Program
Ladda Larbnun	United Nations Development Program
David Oberhuber	Deutsche Gesellschaft für Internationale Zusammenarbeit
Anak Pattavibool	Wildlife Conservation Society Thailand Program
Pattamawadee Pochanakul	Thailand Research Fund
Teerapong Pomun	Living River Siam Association
Pilai Poonsawat	Hornbill Research Foundation
Revadee Prasertcharoensuk	Sustainable Development Foundation
Tim Redford	FREELAND Foundation
Ornyupa Sangkaman	Seub Nakhasathien Foundation
Saengroaj Srisawaskraisorn	United States Agency for International Development
Pinsak Surasawadee	Department of Marine and Coastal Resources, MoNRE
Rawee Thavorn	Regional Community Forestry Training Center for Asia and the Pacific
Khumthorn Thirakhupt	Chulalongkorn University
Yongyut Trisurat	Kasetsart University
Patchanee Vichitbandha	Kasetsart University
Worapong Woramit	Land Development Department, Ministry of National Development

Vietnam	
Jake Brunner	IUCN Vietnam Country Programme
Cao Tiến Trung	Center for Environmental and Rural Development
Đào Trọng Tứ	Centre for Sust. Water Res. Dev. and Adaptation to Climate Change
Lê Đức Minh	Centre for Natural Resources and Environmental Studies
Lê Khắc Quyết	Fauna & Flora International Vietnam Programme
Lê Thị Trang	GreenViet Biodiversity Conservation Centre
Lương Việt Hùng	WWF Greater Mekong Programme
Nguyễn Đức Tú	IUCN Vietnam Country Programme
Nguyễn Phương Dung	Education for Nature-Vietnam
Nguyễn Thị Ngọc Lan	Center for Water Resources Conservation and Development
Nguyễn Xuân Dũng	Biodiversity Conservation Agency, MoNRE
Nguyễn Xuân Đặng	Independent researcher
James Tallant	IUCN Vietnam Country Programme
Trịnh Lê Nguyên	Center for People and Nature Reconciliation

INTERNATIONAL UNION
FOR CONSERVATION OF NATURE

Asia Regional Office
63 Sukhumvit Soi 39
Wattana, Bangkok
10110 Thailand
Tel: + 66 2 662 4029
Fax: + 66 2 662 4387
www.iucn.org/asia