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VIETNAM TROPICAL FOREST AND BIODIVERSITY ASSESSMENT

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VIETNAM TROPICAL FOREST AND BIODIVERSITY ASSESSMENT

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Cover Photos

Top Photo: Rice paddies bordering the Huong Tich Limestone Mountains in the Red River Delta. Middle Left Photo: a fishing boat in Halong Bay. (Credit: Daniel Griswold).

Middle Center Photo: Ethnic Minority Dao women near Sapa. Bottom Photo: Rice paddies near Sapa. (Credit: Joao S. de Queiroz).

Middle Right Photo: a clam farmer's shack in a large tidal mudflat within Xuan Thuy National Park. (Credit: Patrick Hall).

Report Maps

The maps included in this report were custom-prepared by Daniel Mahr at The Cadmus Group in June 2013 using Esri ArcGIS 10.1 software. When possible, publicly available GIS datasets were chosen to enable reproducibility while global-scale datasets were chosen to allow for intercomparison. These datasets include Global Administrative Areas province boundaries, World Wildlife Fund Terrestrial Ecoregions, United States Geological Survey HydroSHEDS topography, European Space Agency GLOBCover land cover, and WorldClim precipitation. Demographic data came from the General Statistics Office of Vietnam. All datasets were downloaded and subset to the region around Vietnam.

Minimal processing was conducted on the data. GADM province boundaries were updated to reflect the 2008 merger of Hà Tây into Hà Nôi. Similarly, GSO province-level statistics from Hà Tây from before 2008 were added to Hà Nôi. In addition, GLOBCover classes were grouped to clarify and simplify visualization. The final data were visualized to show as much detail as possible on a national scale, assuming a 4-inch by 8-inch printed map.

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ABBREVIATIONS AND ACRONYMS

ACCD	Action for the City
ADAPT	Asia Climate Change Adaptation Project Preparation Facility
ADB	Asian Development Bank
ADS	Automated Directive System
AIDS	Acquired Immunodeficiency Syndrome
AFD	French Development Agency (*Agence Française de Développement*)
ARREST	Asia's Regional Response to Endangered Species Trafficking
ASEAN	Association for Southeast Asian Nations
BCA	Biodiversity Conservation Agency (part of MoNRE)
BEO	Bureau Environmental Officer
CBD	Convention on Biological Diversity
CBDRM	Community-Based Disaster Risk Management
CCN	Cooperating Country National
CDCS	Country Development Cooperation Strategy
CDM	Clean Development Mechanism
CEPF	Critical Ecosystem Partnership Fund
CIDA	Canadian International Development Agency
CITES	Convention on the International Trade of Endangered Species of Wild Fauna and Flora
CODE	Consultancy on Development
CPCs	Community Peoples Communities
CR	Critically Endangered Species
DARD	Department of Agriculture and Rural Development
DLP	Department of Legislation and Policy
DO	Development Objective
DOFREPs	Departments of Fisheries Resources Exploitation and Protection
DONRE	Department of Natural Resources and Environment
DPC	District People's Committees
DPI	Department of Planning and Investment
DRR	Disaster Risk Reduction
EIA	Environmental Impact Assessment
EN	Endangered Species
ENV	Education for Nature Vietnam
ESRA	Experimental and Scientific Research Areas
EU	European Union
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization
FEW2	Flood Modeling and Early Warning Capacity Development – Phase II
FDI	Foreign Direct Investment
FFI	Fauna and Flora International
FIPI	Forestry Inventory and Planning Institute (part of MARD)
FLEGT	Forest, Law Enforcement, Government and Trade Action Plan of the European Union
GEF	Global Environmental Facility
GEMS	USAID Global Environmental Management Support Project
GDP	Gross Domestic Profit
GHG	Greenhouse Gas
GIZ	German Society for International Cooperation – *Deutsche Gesellschaft für Internationale Zusammenarbeit*

GMO	Genetically Modified Organism
GVN	Government of Vietnam
HEEAP	Higher Engineering Education Alliance Program
HIV	Human Immunodeficiency Virus
IBBH	Indo-Burma Biodiversity Hotspot
ICEM	International Center for Environment Management
IEVR	Institute of Ecology and Biological Resources
iNGO	International Non-Governmental Organization
IPONRE	Institute of Strategy and Policy on Natural Resources and Environment
IR	Intermediate Result
ISPONRE	Institute of Strategy and Policy on Natural Resources and Environment
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
Lao PDR	Peoples Democratic Republic of Laos
LPA	Land Protected Area
LURC	Land-Use Rights Certificate
MARD	Ministry of Agriculture and Rural Development
MEA	Multilateral Environmental Agreement
MASPAS	Management Strategy for a Protected Area System in Vietnam
M-BRACE	Mekong Building Climate Resilient Asian Cities
MoNRE	Ministry of Natural Resources & Environment
MPA	Marine Protected Area
MW	Megawatt
M&E	Monitoring and Evaluation
NBAP	National Biodiversity Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NEPA	National Environmental Protection Agency
NGO	Non-Governmental Organization
NORAD	Norwegian Agency for Development Cooperation
NRM	Natural Resource Management
NSEP	National Strategy on Environmental Protection
NTFP	Non-timber Forest Product
PA	Protected Area
PanNature	Center for People and Nature Reconciliation
PCISPD	Comprehensive and Integrated Support to People with Disabilities
PES	Payment for Environmental Services
PEPFAR	President's Emergency Plan for AIDS Relief
PfP	Pathways for Participation
PPCs	Provincial People's Committees
PPD-6	Presidential Policy Directive on Global Development
PVOs	Private Voluntary Organizations
PWDs	People with Disabilities
QDDR	Quadrennial Diplomacy and Development Review
REDSO/ESA	Regional Economic Services Office for East and Southern Africa
RDMA	Regional Development Mission for Asia
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RWE	Roundwood Equivalent
SEA	Strategic Environmental Assessment
SHCA	Species/Habitat Conservation Areas
SIDA	Swedish International Development Cooperation Agency

SOEs	State-owned enterprises
SOW	Scope of Work
STAR	Support for Trade Acceleration
SUFs	Special Use Forest
SWEEP	Social Work Education Enhancement Program
TCN	Third Country National
TIP	Trafficking in Persons
TPP	Trans-Pacific Partnership Agreement
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USAID	United States Agency for International Development
USD	United States Dollar
USG	United States Government
VAST	Vietnam Academy of Science and Technology
VCEP	Vietnam Clean Energy Program
VEA	Vietnam Environment Administration
VEPA	Vietnam Environment Protection Agency
VFA	Vietnam Forestry Administration
VFD	Vietnam Forest and Deltas
VND	Vietnamese Dong
VRN	Vietnam Rivers Network
VU	Vulnerable
VULII	The Vocational University Leadership and Innovation Institute
VUSTA	Vietnam's Union for Science and Technology Association
WARECOD	Center for Water Resources Conservation and Development
WB	World Bank
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

Sections 118 and 119 of the Foreign Assistance Act (FAA) of 1961, as amended, mandate the United States Agency for International Development (USAID) to undertake analysis of biodiversity and tropical forest issues as part of the development of "country development strategy statement [CDCS] or other country plan prepared by the Agency." These "118/119 biodiversity and tropical forest assessments" should guide development programming at a strategic level. The 2013 Vietnam 118/119 Assessment coincides with the formulation of the USAID/Vietnam five-year CDCS. It was conducted in May-July 2013 by a team of consultants drawn from the USAID Global Environmental Management Support (GEMS) project.

Vietnam is within the Indo-Burma Biodiversity Hotspot (IBBH). The country is ranked as the 16th most biodiversity rich country in the world. It hosts 110 Key Biodiversity Areas (Mittermeier et. al., 2004), and 59 Important Bird Areas (BirdLife International, 2013). The country also claims two World Natural Heritage Sites, five Ramsar wetlands, eight United Nations Education, Scientific and Cultural Organization (UNESCO) Biosphere Reserves and two Association of Southeast Asian Nations (ASEAN) Heritage Parks. Vietnam's is not only of global importance for its naturally occurring biodiversity, but also because it is known as one of the richest countries in agro-biodiversity. In addition to this impressive biodiversity, the country stands out for its high level of endemism. It is estimated that 10% of Vietnam's plants are endemic to the country. Twelve known species of mammals, 7 species of birds, 48 species of reptiles, 33 species of amphibians and 80 species of freshwater fish are endemic to the country. Much of Vietnam's biodiversity remains unknown. Vietnam's biological diversity is matched by its cultural diversity evident in the country's 54 ethnic groups.

Vietnam is now a major hub for the wildlife trade, supplying domestic and international markets with a variety of live animals, animal parts and medicinal plants (Mott, 2006). It functions as a destination and transit country. Vietnam is also a voracious importer of illegal timber from neighboring countries and a destination for illegally traded specimens, and parts thereof, of plants and animals. The magnitude of the illegal wildlife trade is such that Vietnam ranked first in World Wildlife Fund's (WWF) Wildlife Crime Scorecard.

Vietnam has one of the highest proportions of threatened[1] species in the world (Pilgrim and Nguyen Tu, 2007). Of 3,990 species assessed by the International Union for Conservation of Nature (IUCN, 2012), 13% (512) are threatened with extinction. As a proportion of species assessed by IUCN, the most threatened groups seem to be mammals (19%) and reptiles (19%).

The Law on Biodiversity establishes five main categories of terrestrial protected areas, called *Special Use Forests* (SUF) and the Law on Fisheries defines three main categories of Inland Water PAs and Marine PAs. Vietnam has 164 terrestrial Protected Areas (PAs), covering 7.4% of the country's total land area, as well as nine Marine Protected Areas (MPAs), covering 4.9% of Vietnam's territorial waters. However, there is no formal centralized system of PAs and their management is hindered by inadequate staffing, overlapping legislation, and the lack of a clear division between institutional mandates for protected area management.

The management responsibility of a protected area in Vietnam depends on whether it falls entirely within a province or if it straddles provincial boundaries. Central government (MARD) has management

[1] A threatened species is one that is classified in one of the three following categories: critically endangered, endangered or vulnerable.

responsibility for those protected areas that are in more than one province while the Provincial People's Committees (PPCs) are responsible for PAs contained entirely within one province. The Fisheries Law does not clarify which governmental entity is responsible for managing MPAs creating an ambiguous institutional situation. The ambiguity is further complicated when a PA includes both coastal and marine areas.

There is no comprehensive data set on the conservation status of Vietnam's PAs. Conservation status is inferred from personal observation, interviews and the capacity of institutions responsible for protected areas management. The list of threatened species, however, indicates that, generally speaking, Vietnam's protected areas are inadequately managed. The challenges to effective protected area management in Vietnam include: 1) inadequate financing, particularly for PAs under the jurisdiction of PPCs; 2) lack of enforcement authority by PA management boards; 3) overlapping institutional mandates; 4) lack of protected area management know-how, particularly in the case of PPCs; 5) inadequate human resources; 6) human pressure in the absence of enforcement capacity or effective community participation; 7) fragmentation and the construction of large infrastructure within protected areas; and 8) land grabbing.

The country's PA network contains representative patches of virtually all of Vietnam's major terrestrial ecosystems. If well managed, Vietnam's protected areas may be able to conserve most of the country's remaining biodiversity including the majority of the estimated 80,000 ha. of primary forest that is still preserved. That said, there are still many important ecosystems that are under-represented in Vietnam's network of PAs, many of them of global significance including 51 Key Biodiversity Areas. Under-represented ecosystems include lowland rivers, tropical evergreen forests, coastal wetlands and marine ecosystems.

Forests are estimated to cover approximately 13,800,000 ha. of Vietnam's land surface. Naturally regenerated forest accounts for approximately 10,200,000 ha. (74%), and planted forests accounts for another 3,500,000 ha. (35%). Primary forests are estimated to represent only 80,000 ha. (1%) of Vietnam's forest cover. Proximate causes (drivers) of forest and biodiversity loss include: 1) land-use change; 2) illegal trade in wildlife; 3) illegal logging; 4) over-exploitation of non-timber forest products; 5) pollution; 6) infrastructure development without proper impact avoidance or mitigation measures; 7) weak protected area management; and 8) weak enforcement of existing legislation. The country is also losing its agro-biodiversity due to the widespread adoption of high yielding varieties. In the long term the loss of agro-biodiversity will compromise Vietnam's ability to adapt to climate change.

Identifying the root cause for the current loss and degradation of Vietnam's tropical forests and biodiversity is complex. The assessment team adhered to two criteria to identify a root cause: 1) the "root cause" should be within the management interest of the donor community in general and USAID specifically; and 2) it should be so defined such that, if addressed, it would help solve Vietnam's biodiversity and tropical forest loss and degradation across sectors and scales. The assessment team used these two criteria to review all information gathered and discussed results with USAID, and determined that ***the root cause for the precipitous loss of biodiversity and tropical forest degradation in Vietnam is the country's dysfunctional environmental governance system in the context of a fast-evolving national and global economy.*** The team posits that economic development can be reconciled with conservation of biodiversity and tropical forests if Vietnam's environmental governance drastically improves. The team believes that better environmental stewardship is a necessary condition for Vietnam's sustainable development.

The principal elements of Vietnam's poor environmental governance are:

- Confusing, conflicting and overlapping institutional and legal frameworks;
- Lack of coordination among agencies that have a bearing on the environment;
- Lack of *a bona* fide system of protected areas;
- Inadequate enforcement of existing environmental laws and regulations;
- Lack of appreciation by decision makers of the importance of biodiversity and environmental services to sustainable development;
- Weak implementation, monitoring and enforcement of environmental impact assessment regulations;
- Inadequate capacity to implement conservation strategies and plans;
- Inexistence of a strategy and mechanisms to engage local communities in the conservation of biodiversity and tropical forests;
- Weak environmentally oriented civil society organizations;
- Weak border controls and illegal trade of endangered species (timber, animals and parts, plants (ornamental and medicinal));
- A flawed decentralization of tropical forest and biodiversity conservation responsibilities.

To improve environmental governance, eight priority actions are proposed:

- Clarify the national, legal, and institutional framework with a bearing on forests and biodiversity conservation.
- Help transform a *potpourri* of conservation units into a *bona fid*e protected areas system.
- Help Vietnam strengthen environmental law enforcement.
- Improve the application of the national environmental impact assessment and management system.
- Demonstrate and communicate in economic and non-economic terms the cost of poor environmental stewardship and the value of environmental services provided by biodiversity and forests.
- Use environmental requirements of international trade agreements as an incentive to better environmental stewardship.
- Help Vietnam put in place measures to control the illegal national and international traffic in plant and animal species (specimens and parts).
- Strengthen civil society organizations while implementing conservation actions.

Because the situation of forests and biodiversity in Vietnam call for urgent action, the assessment calls for interventions, in the short-term, while Vietnam improves its environmental governance system. These are:

- Undertake emergency *in-situ* conservation actions.
- Improve protected area financial management.
- Help Vietnam implement payment for environmental services (PES) and other innovative conservation financing mechanisms (i.e. biodiversity offsets).

1 INTRODUCTION

The United States Government recognizes that a healthy environment is an essential element of sustainable development - one cannot come at undue cost to the other. The reconciliation of economic growth and environmental conservation is often most challenging in fast-growing tropical countries where most of the earth's biodiversity and tropical forests reside. In these countries, short-term economic and social priorities tend to obscure the longer-term consequences of environmental degradation.

The inherent relationship between development and conservation is codified in the U.S. Foreign Assistance Act (FAA) and USAID directives on biodiversity and tropical forests, in the context of development assistance. Sections 118 and 119 of the Foreign Assistance Act (FAA) of 1961, as amended, specifically address the conservation of tropical forests and the protection of endangered species. Sections 118(e) and 119(d) mandate analysis of these issues at a country level for integration with the "country development strategy statement or other country plan prepared by the Agency for International Development." (FAA, 1961, In: Committee on International Relations & Committee on Foreign Relations, 2003).

The FAA legal requirement is reflected in USAID-internal operating procedures. Section 201.3.4.1 (c) of the USAID Automated Directives System (ADS) states that analysis of biodiversity and tropical forests are "required by Sections 118(e) and 119(d) of the Foreign Assistance Act of 1961, as amended, and may not be waived, modified, or eliminated." The ADS further characterizes such analyses as "118/119 biodiversity and tropical forest assessments" and specifies their completion "prior to initiating work on developing the joint country assistance strategy or USAID country strategic plan so that their findings will appropriately inform strategic decisions and priorities." (USAID, 2012) The 118/119 Assessments are therefore part and parcel of USAID's Country Development Cooperation Strategies' (CDCS's) development and should guide development programming at a strategic level. It is in context of these regulatory and procedural requirements that USAID/Vietnam commissioned this 118/119 Assessment.

The 2013 Vietnam 118/119 Assessment coincides with the formulation of the USAID/Vietnam five-year CDCS. The Assessment's goal is to inform USAID about the status of biodiversity and tropical forests in the country and, in doing so, help the Mission visualize how it can integrate biodiversity and tropical forests conservation in its development assistance priorities. While future funding is likely to limit the extent to which USAID/Vietnam will be able to address environmental concerns in its portfolio, the 118/119 Assessment team believes that the evolving USAID/Vietnam results framework, and the range of projects planned and underway, do offer opportunities for the integration of biodiversity and forest conservation in its program.

This assessment was conducted in May-July 2013. It was prepared by a consultant team drawn from the USAID Global Environmental Management Support (GEMS) project.[2] (Biographical sketches of the 118/119 Assessment team are available in **Error! Reference source not found.**). A three-phase approach was used:

- Desk-top review, planning and preparation - This phase was conducted in April 2013. It included consultations with USAID/Vietnam and USAID/Regional Development Mission-Asia (RDMA),

[2] The GEMS project is a USAID Bureau for Africa, Office of Sustainable Development program. Contract Number GS-10F-0105J, Task Order No AID-OAA-M-11-00021. The Cadmus Group, Inc., Prime Contractor.

based in Bangkok; research and review of existing data sources; and planning and preparation for fieldwork.

- In-country consultations and field visits - This phase was completed between May 4 and 17. The team conducted interviews and visits to key institutions in Hanoi and Ho Chi Minh City, and field visits to Xuan Thuy National Park (Nam Dinh Province), and Lang Sen Nature Reserve (Long An Province). Team members also visited Cuc Phuong (Hoa Binh and Ninh Binh provinces) and Hoan Lien national parks (Lao Cai and Lai Chau provinces) where they held unofficial conversations with park staff. The field component concluded with an exit briefing for USAID/Vietnam. Midway through the visit, the team prepared a preliminary report outline that was shared with USAID.
- Follow-up and report preparation: The preliminary report outline was shared with the Asia Bureau Environmental Officer. This outline was followed by a conference call in which BEO staff provided input. The team reviewed additional sources of information secured during the work in Vietnam, and followed up requests for information and clarification. A draft report was submitted for review by USAID, after which the report was finalized and submitted.

This 2013 assessment report goes beyond updating the 2009 Vietnam FAA 118/119 Report. It examines the status of biodiversity and tropical forests from a broad range of perspectives. The current assessment seeks to provide USAID with information to help it identify and prioritize feasible and effective interventions to address proximate and root causes of biodiversity and tropical forest losses.

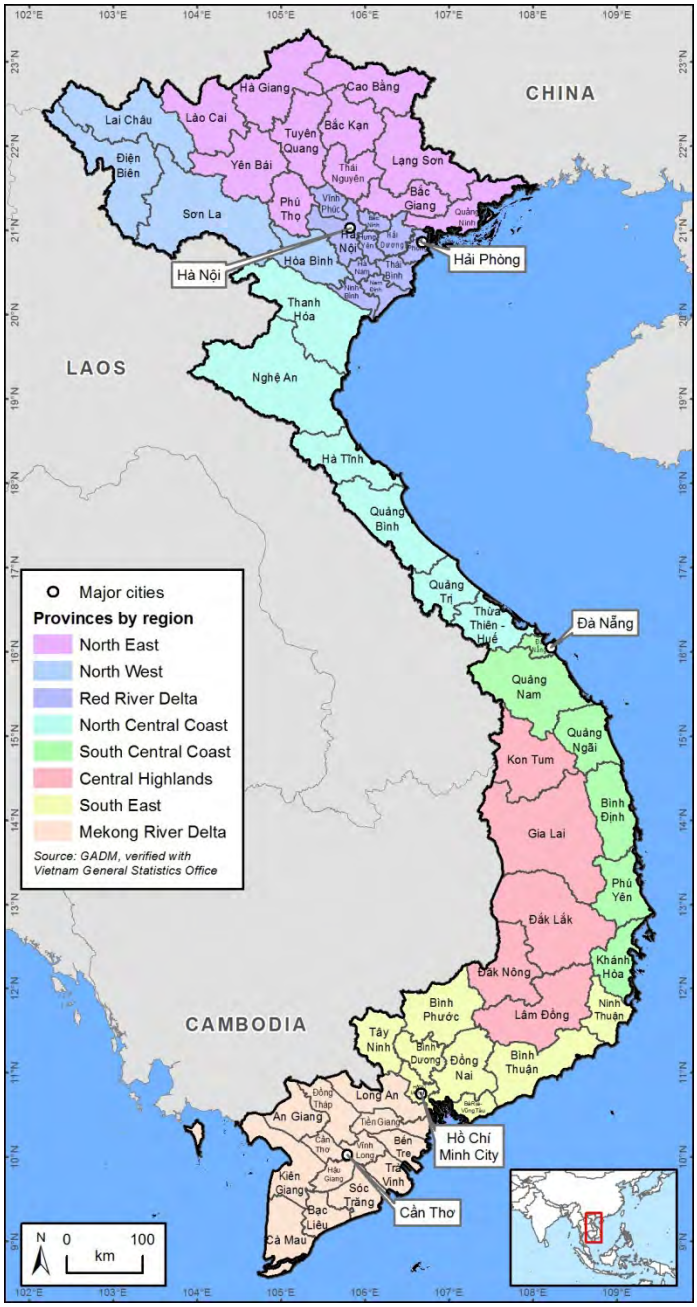
Because of the limited time available and Vietnam's natural, social, cultural, political, legal and institutional complexity, the team had to focus on critical issues and trends and seek a balance between comprehensiveness and precision. Regular internal discussions helped the team achieve agreement and reach conclusions on complex issues. The authors feel confident that they have captured the major problems, drivers and potential solutions to the worrisome situation in which Vietnam's environment finds itself, and that the recommendations advanced herein will help USAID/Vietnam visualize how it can incorporate biodiversity and tropical forest in its next five-year CDCS.

2 COUNTRY PROFILE

2.1 LOCATION, POLITICAL AND ADMINISTRATIVE SUBDIVISION

Vietnam is located along the eastern coast of the Indochina Peninsula in Southeast Asia. Its S-shaped territory occupies 331,000 km^2 and extends for 1650 kilometers from north to south measuring 600 kilometers at its widest point in the north and about 50 kilometers at its narrowest point in Quang Binh Province (Map 1). Its marine territory is much larger, roughly 1 million km^2.

Map 1 Vietnam Administrative Regions, Provinces



The country is bound by China to the north (1281 km) and Cambodia (1228 km) and Peoples Democratic Republic of Laos (Lao PDR) (2130 km) on the west. Its jagged coastline extends for 3444 kilometers along the Gulf of Tonkin, Gulf of Thailand and South China Sea. As discussed elsewhere in this report, Vietnam's location and long borders with China, Cambodia and Laos are crucial to the country's role in the loss of globally important biodiversity.

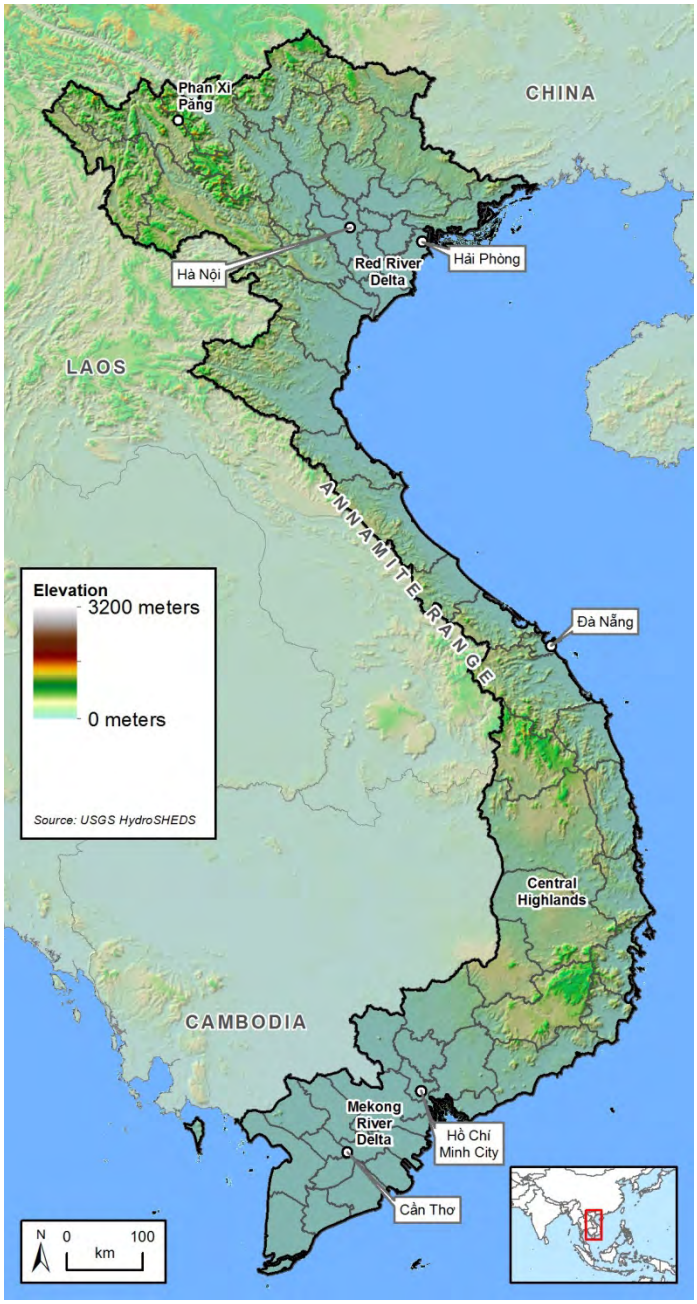
Besides five municipalities with distinct municipal governments, Vietnam is divided from larger to smaller administrative units into eight regions, 63 provincial units, including 58 provinces and five centrally managed cities, 698 districts and cities with the administrative status of a district (Map 1) and over 11,000 communes and cities with the administrative status of a commune. The state governance system operates at each of these levels. As discussed subsequently, the provincial, district and commune levels of government are crucial for the conservation of biodiversity and tropical forests.

2.2 TOPOGRAPHY

Vietnam may be subdivided into three broad topographic categories: mountainous areas, central highlands and plateaus, and low lying deltas and coastal plains (Map 2). There are three mountainous areas in the country (Averyanov et. al., 2003) where most of its biodiversity remains: 1) the Northeastern region; 2) the northwestern complex

dominated by the Hoang Lien Range and 3) the Truong Son (Annamite) Range, a geomorphic unit known for its high level of endemism. The northeastern mountainous region to the north of the Song Hong River (Red River) is formed primarily by uplifted limestone that gives rise to impressive karst topography. Most of this region ranges in altitude from 300 to 700 meters above sea level, reaching 1600 meters near the border with China. A few isolated granite mountain systems surpass 1900 meters.

Map 2 Topography of Vietnam



The northwestern complex is dominated by the steep topography of the Hoan Lien Mountains, which sit mostly above 1500 meters, with extensive zones higher than 2000 meters. Vietnam's highest point, Fan Si Pan (3143) is located here. The Truong Son (Annamite) Range runs along the country's western border with Laos. Its complex geology gives rise to a diverse landscape that ranges mostly between 500 and 1500 meters. The range's highest peak is Xai Lai Leng (2711 m) on the Vietnam-Laos border.

The Central Highlands, also known as *Tây Nguyên*, consist primarily of a series of plateaus and hills ranging in elevation from 500 meters to 1500 meters. It is discontinuous and may be subdivided into northern and southern regions.

Vietnam's low lying areas consist primarily of the Mekong Delta (40,000 $km^{2)}$ in the south and the Red River Delta (15,000 $km^{2)}$ in the north. A narrow coastal plain runs along much of the country's coastline. These landforms lie mostly below 2 meters above sea level. Nearly 80% of Vietnam's population lives in these low-lying areas (Averyanov et. al., 2003).

2.3 SOILS

There are 14 soil groups and 31 soil units in Vietnam, although the major differences in soil are between mountainous/hilly areas and alluvial delta soils. Delta soils are typically derived from fertile alluvial deposits capable of supporting intensive agriculture with appropriate water management. The maintenance of soil fertility hinges on the maintenance of natural flood regimes. Delta soils tend to be saline in areas affected by saltwater intrusion (most common in the Mekong Delta), particularly in the absence of regular freshwater floods (ARCBC.org.ph, n.d.).

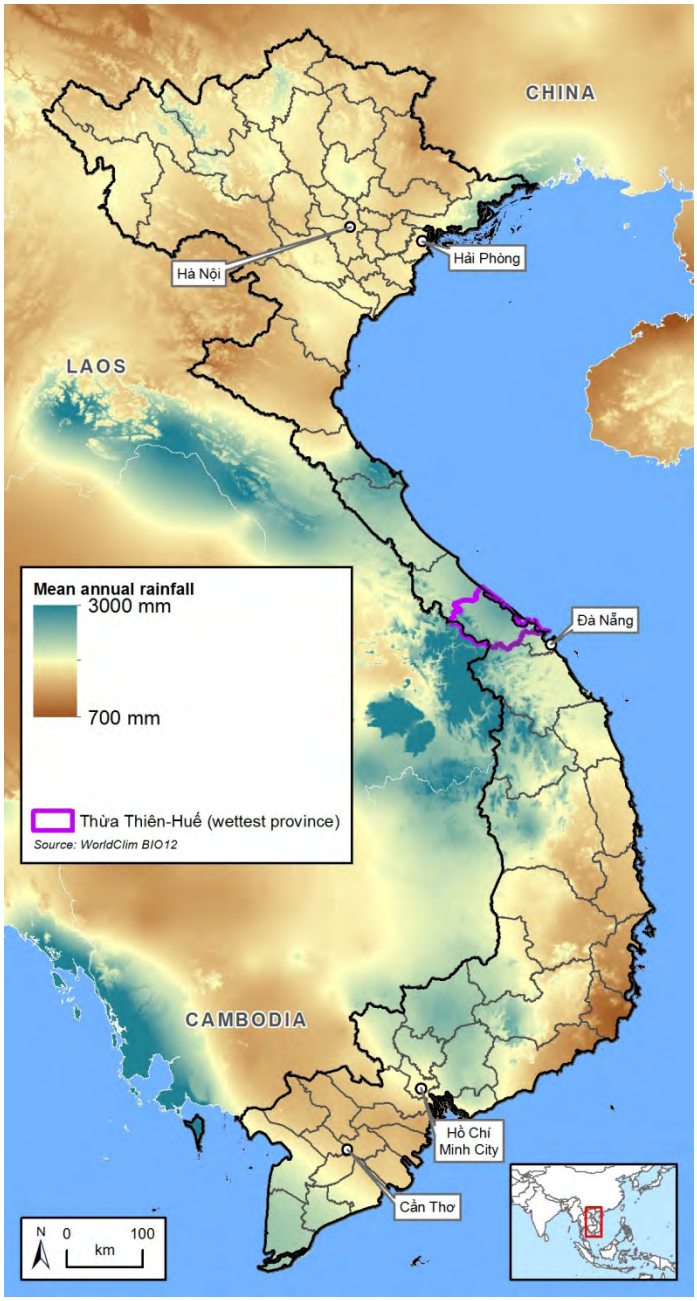
Mountainous/hilly soils are typically Acrisols, Ferralsols and Alisols that are prone to rapid degradation under intensive agriculture, although large extensions of the highlands are subtended by fertile, basalt-derived soils, suitable for crops such as coffee, cocoa, and rubber (Averyanov et al., 2003) when appropriate soil management techniques are applied (FAO, 2006).

2.4 CLIMATE

Most of Vietnam has a tropical monsoonal climate, although some areas have more sub-tropical or montane climates, (MoNRE, 2010) (MARD & VEA, 2008). Its annual average precipitation is one of the highest in the world, yet 75% to 85% of rainfall occurs during the wet season that lasts from May to September giving rise to a pronounced dry season from November to April (MoNRE, 2006, In: US Forest Service, 2011). Climate change induced modifications in rainfall patterns are accentuating the wet and dry season contrast with increases in wet season rainfall at the expense of rainfall in the dry season. Furthermore, there are marked spacial variations in precipitation, with mean annual rainfall ranging from under 700 mm to over 5000 mm per year in different areas of the country (Institute of Strategy and Policy on Natural Resources and Environment – IPONRE, 2009). These regional scale variations, illustrated in Map 3, are only loosely correlated with topography or latitude. Historically there is an average of 6-8 typhoons that affect Vietnam per year (MoNRE, 2010), which account for a significant percentage of total annual rainfall and groundwater recharge in drier parts of the country.

Seasonal temperature variation in the south of the country is minimal, with monthly average temperatures in Ho Chi Minh City ranging from 31 to 34 degrees Celsius. The north experiences wider seasonal temperature variations with monthly averages in Hanoi ranging from 19 to 32 degrees Celsius. The warmest months are in summer (June -August) (The Weather Channel, 2013). Average temperatures typically decrease with increasing elevation and may drop below freezing at high mountain elevations near the Chinese border in the north of the country. These areas may receive limited snowfall in the winter months, limiting the possibility for multiple planting seasons in any given year.

Map 3 Vietnam Rainfall



2.5 HYDROLOGY AND WATER RESOURCES

Sixty percent of Viet Nam's total river and 95% of the Mekong River's flow originates from outside of its borders (ADB, 2011). This makes the country vulnerable to changes in hydrology as a result of interventions in neighboring countries, such as the construction of dams and water extraction for irrigation and other purposes.

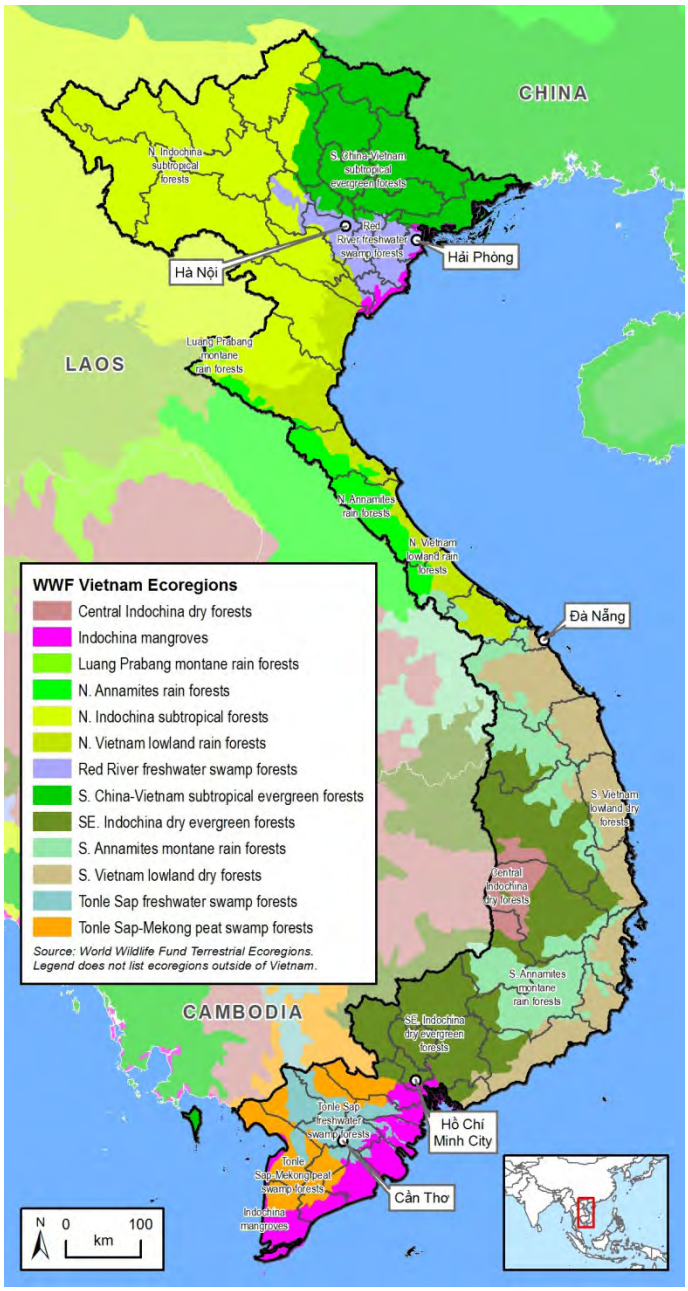
Despite high average rainfall, 11 of Vietnam's 16 water basins are considered to be stressed and water availability is considered to be insufficient to meet human needs in the Red-Thai Binh, Ma, Sre Pok and Dong Nai basins (US Forest Service, 2011). Water shortages occur primarily during the dry season, a time when the country is particularly vulnerable to reduced flow volumes from upstream countries.

During the wet season, Vietnam's low-lying coastal regions and deltas experience frequent flooding by rivers that originate in mountainous areas (World Bank, 2010). The Mekong Delta accounts for 90% of Vietnam's floodplains and is vulnerable to sea level rise and saltwater intrusion (MoNRE, 2010). Approximately 60% of the national territory and 70% of the national population are at risk of typhoons and flooding, with coastal zones being notably vulnerable to extreme events (World Bank, 2010). Aquifers near Hanoi and Ho Chi Minh City are significantly overexploited, as are some aquifers in the Central Highlands and Mekong Delta (World Bank, 2010).

2.6 VIETNAM ECOREGIONS

The WWF recognizes a total of 14 terrestrial ecoregions in Vietnam (see Map 4 which presents 13 of these 14 regions – the South China Sea Islands are not represented). The Convention on Biodiversity recognizes a similar division of 15 terrestrial ecoregions and 3 marine ecoregions (CBD.int, n.d.).

Map 4 Vietnam Ecoregions



The high degree of landscape-level variation among ecoregions results from Vietnam's diverse topography, climate, soils and geology, and its narrow but long north-south orientation. Landscapes harbor ecosystems, species and genetic diversity associated with smaller scale variations in topography, climate, and cultural practices in the case of agrobiodiversity.

Ecoregions with particularly high degrees of endemism include the Annamites, karst limestone formations, and the Hoang Lien Mountains. Lowland tropical forests present very high plant species diversity, while deciduous upland forests provide important habitat for many threatened animal species (Carew-Reid, Kempinski, & Clause, 2010).

Vietnam's freshwater ecosystems cover over 10,000 km2 including fast- moving mountain streams, slow-moving meandering rivers and streams, swamps, riparian grasslands, and underground streams (Carew-Reid, Kempinski, & Clause, 2010). Although under-studied, wetland systems are known to have high levels of aquatic biodiversity and are crucial habitats for migratory birds. Freshwater biodiversity is under critical threat, as an estimated 99% of Vietnam's natural wetlands have been lost (Carew-Reid, Kempinski, & Clause, 2010).

Vietnam has numerous coastal lagoons, mangroves, estuaries, dunes and beaches, tidal flats and sandbars along its 3000 km coastline and 3000 islands. Mangroves are concentrated in the Red River and Mekong Deltas, while beaches and dunes characterize central coastal areas (Carew-Reid, Kempinski, & Clause, 2010). Coastal areas in Vietnam provide important habitat for globally threatened migratory birds (CEPF, 2012).

Vietnam's marine ecosystems are not well studied but include diverse coastal and offshore habitats, including over 40,000 ha. of coral reefs (Hoang Duong, n.d.). The Gulf of Tonkin, for example, features uniquely adapted reef communities, making it a conservation priority for marine ecology researchers (APN, 2011). In the Gulf of Thailand, where water conditions limit their formation, reefs are mostly restricted to areas around the many Gulf islands (Wyatt, Nguyen Thi Phuong, & Tang Puong, 2012).

2.7 CLIMATE CHANGE

Vietnam is one of the world's five most vulnerable countries to climate change (US Forest Service, 2011). Typhoons are increasing in both frequency and severity. Seasonal rainfall distribution is also changing, leading to increased storm flows in the wet season and decreased hydrological discharge in the dry season (US Forest Service, 2011). The altered flow regime may have negative impacts on agriculture and potable water supply. A one-meter sea-level rise would inundate approximately 9% of Vietnam's territory affecting an even larger percentage of the nation's population (World Bank, 2010).

Coastal areas are vulnerable to extreme weather events and sea level rise. Cyclones, heavy rains and high winds can significantly increase tidal surges (up to 4 m in certain parts of the Mekong Delta), contributing to flooding and saline intrusion. The incidence of flooding, as a result of rising sea levels and tidal flow, has increased in recent years, reaching higher elevations and urban zones (MoNRE, 2010a).

Estimates based on Ministry of Natural Resources & Environment (MoNRE) emissions scenarios indicate inundation of up to 15,000 km^2, or almost 38 percent of the Mekong Delta by 2100 (ARCBC.org.ph, n.d.). The Red River Delta is less vulnerable and more resilient to climate change and sea level rise than the Mekong Delta. In addition to being less exposed, the Red River Delta contains a long-established network of canals and other water control structures that are expected to mitigate flooding and loss of agricultural and other land.

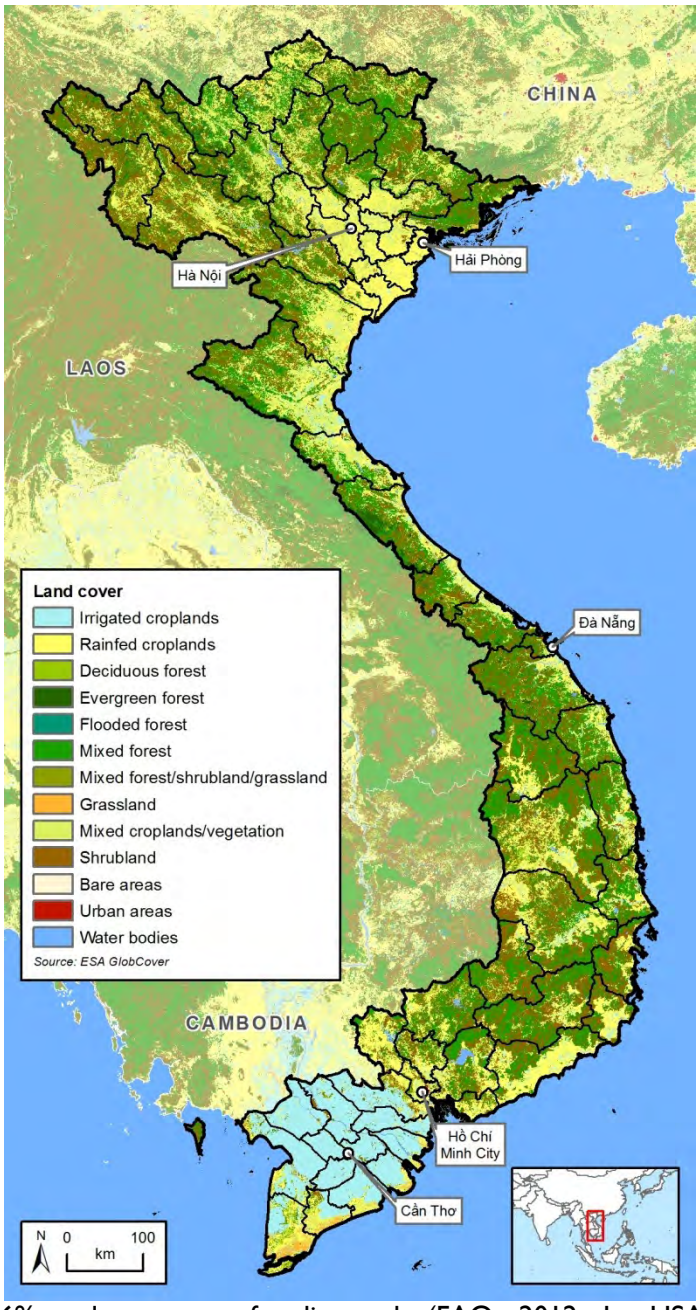
2.8 LAND USE AND VEGETATION COVER

FORESTS

Approximately 49% (16 million ha.) of Vietnam is designated as forest land, although only 39% of its territory is under forest cover. This represents a significant increase from a low of 27% in 1990 (US Forest Service, 2011). Of critical conservation importance, however, FIPI estimates that only 6-8 percent of remaining cover is primary forest, which is approximately twice the area estimated made by conservation NGOs (Nguyen Quoc Dung, per. comm. 7 May, 2013).

Vietnam's 16 million ha. of classified forest land includes approximately 8 million ha. of production forest, 6 million ha. of protection forest and 2.3 million ha. of special use forest (SUFs). Increases in forest cover have resulted from the expansion of forestry plantations and regeneration forests, which typically have much lower levels of biodiversity than primary forests.

Map 5 Vietnam Land Cover



Production forests are intended for commercial activities such as rubber, acacia and paper pulp production, while protection forests are meant to protect ecosystem services, mitigate the impact of extreme events and avoid environmental degradation, such as soil erosion and desertification. Use of protection forests is restricted to the collection of NTFP, forest enrichment and other non-intrusive activities. SUFs form the majority of Vietnam's protected areas (see section 6.3). They are subject to stringent rules compatible with SUF's forest and biodiversity conservation objectives. All forestlands are owned by the people but administered by the state. The state has granted use rights to the private sector of roughly 70% of production forests, 30% of protection forests and 15% of SUFs (USAID Vietnam, n.d.), including roughly 20% of forest area managed directly by communities (US Forest Service, 2011).

While total forest cover has increased over the past two decades, mangrove cover has decreased in this period from roughly 73,000 ha. to 60,000 ha.. Mangrove deforestation results largely from an increase in aquaculture in coastal regions of the Mekong and Red River Deltas (US Forest Service, 2011).

AGRICULTURE

Roughly a third of Vietnam's total land area is used for agriculture, including approximately 20% of land cultivated annually, 11% under perennial crops and 2-6% under pasture for livestock (FAO, 2012. In: USAID Vietnam, n.d.; FAO, 2006). Small-scale production systems are highly sophisticated and integrate a broad spectrum of crops (rice, cassava, beans, corn, taro, fruit trees) and livestock. Approximately 90% of farm households raise livestock; often a small number of cattle, or other ruminants such as goats and water buffalos, chickens and ducks. Rice-based systems often integrate some sort of aquaculture or fishing in canals, fishponds or flooded fields. Pasture productivity is estimated to be at only 20% of its potential, due to poor management (Nguyen Thi, 2006). Agriculture and agroforestry in hilly and mountainous areas entails profound alterations of the landscape, such as extensive terracing and creation of complex water distribution networks for rice cultivation in the Northern Highlands. The expansion of crops such as coffee, cacao, and rubber grown in highland regions has contributed to land use changes and losses of natural forest cover.

The Mekong and Red River Deltas are the country's two most productive agricultural regions. The Mekong Delta alone accounts for 60% of national rice production. The smaller Red River Delta produces less, but is more intensively farmed than the Mekong Delta (Phan Vu Quynh & Fujimoto, 2012). Native wetlands and grasslands have been decimated in both regions by the expansion of agriculture.

Vietnam's urban areas and road network are expanding quickly, affecting agricultural lands surrounding cities. It is evident from field observations that wetland and areas suitable for rice cultivation are being swallowed by urban sprawl.

NON-RENEWABLE NATURAL RESOURCES

Vietnam has reserves of over 60 minerals including coal, bauxite, gold, copper, zinc, tin, limestone, phosphate, and titanium, among others. The most important mineral is coal, found primarily in the Red River Delta. It is exploited for energy and coke production, with production around 40 billion tons in 2010. Only a handful of minerals are exported, including chromite, ilmenite, barite and zinc. Most other minerals are used in Vietnam. There is currently only limited ongoing exploration for new deposits (World Bank, 2010). Vietnam has offshore mineral, oil and gas reserves in its East Sea territory; hydrocarbons are an important income source, although Vietnam is a net oil importer (Hoang Duong, n.d.) (US Energy Information Administration, 2012).

3 THE HUMAN ENVIRONMENT

3.1 POPULATION

Vietnam ranks 16th in the world with a total population of 92.5 million people (CIA, 2013). Its urban population nearly doubled to 26.7 million people in the 1990-2010 period and today represents approximately one third of the country's population. Though at a slower pace, Vietnam's cities continue to grow at an annual rate slightly above three percent, which is lower than that in Laos (4.41 percent), but higher than that in Cambodia (2.13 percent) (UN, 2012).

Vietnam's largest urban centers are Ho Chi Minh City and the capital Hanoi. Other major cities include Hai Phong and Da Nang. Although their population size varies significantly (see Table 1: Largest Cities of Vietnam), these cities have high population densities in common, with Hanoi supporting a population density of more than 2,000 people per km^2. Vietnam's most sparsely populated provinces are found in the North West, North East and Central Highlands Regions (see

Map 6: Vietnam Population Density). The Red River Delta, Mekong River Delta and South East Regions are the most densely populated regions, highlighting their importance as centers of commerce, industry and agricultural production (UN, 2011).

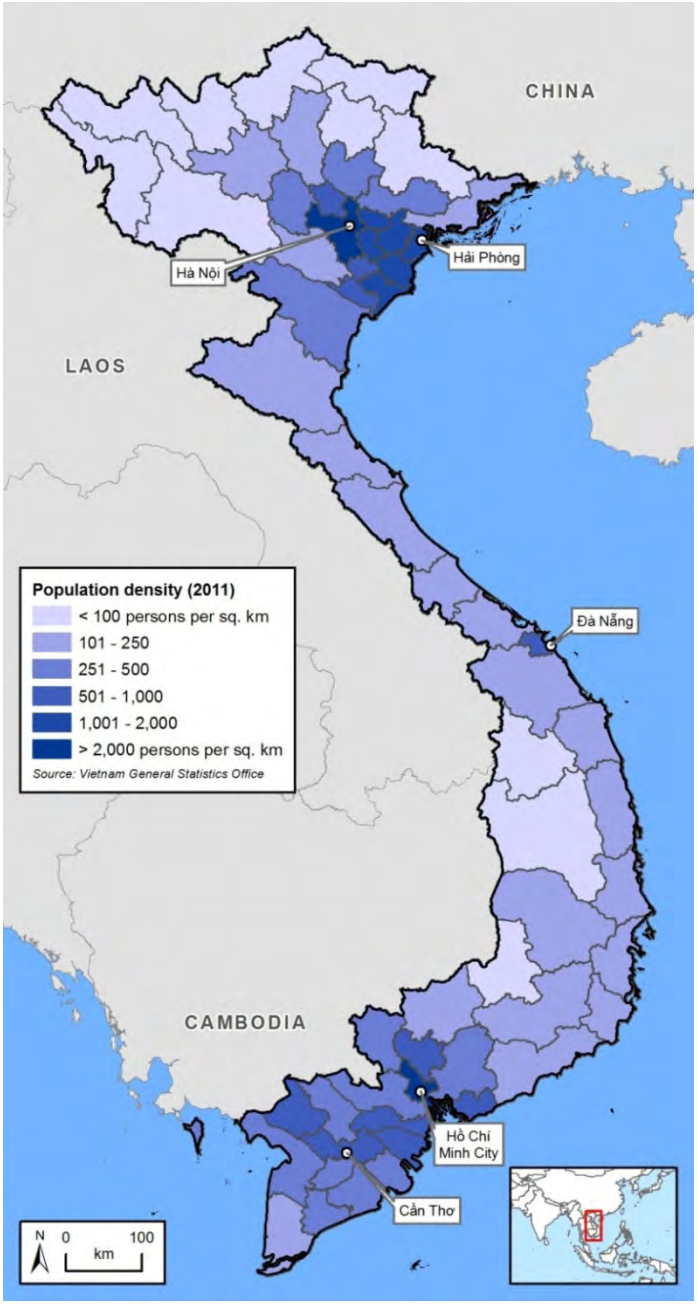
Table 1 Vietnam's Largest Cities

CITY	POPULATION (2011)
Ho Chi Minh City	7.5 million
Hanoi (capital)	6.7 million
Hai phong	1.9 million
Da Nang	950,000

Vietnam is a demographically young country, with nearly one in four Vietnamese aged 14 or younger and less than 13 percent of the population aged 55 or older. Average life expectancy is 72.65 years. Population growth in Vietnam is 1.03 percent, down from more than 2 percent in the 1985-1990 period. The large contingent of young people reaching adulthood and entering the labor force will increase the pressure on the country's natural resources base.

Eighty-six percent of Vietnamese belong to the Viet ethnic group. The balance of the population is comprised of 53 ethnic minorities, many with forest-based cultures and natural resource-dependent livelihoods. While these minority groups continue to be economically disadvantaged, their role in environmental management and conservation has increased in recent decades. The World Bank's "Program 135," in particular, seeks to apply indigenous knowledge for conservation purposes (e.g., sustainable cultivation and marketing of medicinal plants).

Map 6 Vietnam Population Density



Vietnam's economy is expanding rapidly. With a 2012 GDP slightly above $320 billion USD (est.), Vietnam is the world's 42nd largest economy. Last year's GDP's growth of 5 percent, marked a slight decline from GDP growth in 2011 and 2010 (5.9 and 6.8 percent, respectively). Per capita GDP in 2012 was $3,500. Approximately 40 percent of GDP is generated by state-owned enterprises (SOEs), underscoring the important role that these entities continue to have in the Vietnamese economy. The national government, however, continues to migrate away from central planning and state-owned enterprises in favor of free market-oriented economic policies and private sector production (CIA, 2013).

Prime Minister Nguyen Tan Dung recently approved the 2013-2020 Economic Development Plan that encourages private investment and seeks to limit the reach of poorly run SOEs. The current plan prioritizes a stable, more measured annual growth rate - in the 5 percent range - in order to control inflation (at a 6 percent target).

Current economic policy includes the privatization of selected SOEs. It is now recognized that support for certain SOEs has come at the expense of private-sector firms to the detriment of the economy. The 2013-2020 Plan encourages SOEs to focus on military-related and high-tech ventures, among others, and to shed ancillary lines of business. New private-sector firms are encouraged to produce the types of goods currently imported (CIA, 2013). The combination of these and similar economic reforms towards a free-market environment have fostered rapid, although socially uneven, economic growth and has helped create a positive climate for foreign direct investment (FDI). FDI in Vietnam was $7.4 billion in 2011, down from a peak of $9.6 billion in 2008; a result in part of the global economic downturn (The World Bank, 2013). Additionally, foreign assistance commitments for development activities topped $6.5 billion in 2013 (CIA, 2013).

4 POLICY AND LEGAL FRAMEWORK

4.1 INTERNATIONAL CONVENTIONS AND AGREEMENTS

Vietnam is a signatory to a number of international agreements relevant to biodiversity and tropical forest conservation:

The Convention on Biological Diversity (CBD) - Vietnam joined the CBD in 1994, with the Vietnam Environmental Protection Agency (now the Vietnam Environment Administration) as the primary national focal point. In 1994, under the CBD, Vietnam ratified the Cartagena Protocol on Biosafety. In implementing the CBD, Vietnam has taken important steps, such as the preparation of action plans and strategies on biodiversity conservation, and the enactment of key legislation, particularly the country's Law on Biodiversity that came into force in 2008.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) - Vietnam signed CITES in 1994 and designated the Forest Protection Department (now the Vietnam Forest Administration) as the National Management Authority for forests. The Institute of Ecology and Biological Resources and the Centre for Natural Resources and Environmental Studies were designated as the scientific authorities. The CITES Office in MARD's Vietnam Forest Administration is responsible for CITES certification with respect to animal and plant products in the country. To support the implementation of CITES, in 2002 the PM issued decree 11/2002/ND-CP on management of export, import and transit of certain threatened animal and plant species.

Convention on Wetlands of International Importance (Ramsar Convention) - Vietnam signed the Ramsar Convention in 1989 and designated the Vietnam Environmental Protection Agency (now the Vietnam Environment Administration) as the Administrative Authority. To date, Vietnam has five Ramsar Sites: 1) Xuan Thuy National Park; 2) Bau Sau Wetlands and Seasonal Floodplains within the Catien National Park; 3) Ba Be National Park; 4) Tram Chim National Park: and 5) Mui Ca Mau National Park. A number of legal instruments and policies have been issued in support of the implementation of the Ramsar Convention, including Decree 109/2003/ND-CP on the conservation and sustainable development of submerged areas, and the Action Plan for Conservation and Sustainable Development of Wetland Areas. The majority of Ramsar sites (three) were established in the last three years, indicating the government's increased interest in conserving the country's few remaining natural wetlands.

The United Nations Framework Convention on Climate Change (UNFCCC) – Vietnam has shown great commitment to mitigating climate change, as demonstrated through its participation in climate-related international initiatives. The country is a signatory to the UNFCCC (1994) and the Kyoto Protocol as a Non-Annex I Party (2002). Vietnam also meets all three requirements for participation in the Clean Development Mechanism (CDM): 1) it has voluntarily expressed its decision to participate in the CDM; 2) it designated a national agency responsible for CDM; and 3) it ratified the Kyoto Protocol. While MoNRE's Department of Meteorology, Hydrology and Climate Change is the National Focal Point for this Framework Convention, CDM and REDD(+) activities are better aligned with the Vietnam Forest Administration of MARD.

Other legal international instruments – In addition to the above conventions, Vietnam is also a party to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol (1994), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1995), and the Stockholm Convention on Persistent Organic Pollutants (2006).

4.2 STRATEGIES, ACTION PLANS

4.2.1 BIODIVERSITY ACTION PLANS

First Biodiversity Action Plan - After ratifying the CBD in 1994, the Government of Vietnam received support from The Global Environmental Facility (GEF) to prepare its first National Biodiversity Action Plan (NBAP), approved by the Prime Minister's Decision No.845/TTg, on December 22, 1995. The plan identified a number of priority actions grouped into three strategic programs; 1) policy (11 projects), 2) management and field conservation (33 projects) and 3) complimentary actions (12 projects). For more than 10 years, the NBAP guided biodiversity conservation activities, especially those financed by international donors and NGOs[3].

Second Biodiversity Action Plan - The NBAP was approved by the Prime Minister's Decision 79/2007/QD-TTg (Decision 79) on May 31st 2007 for the period of 2007 to 2010. It outlined a vision for 2020 and set a number of goals and verifiable objectives. Decision 79 also designated MoNRE as the national focal point for the implementation of the Convention on Biological Diversity and the Cartagena Protocol and tasked MoNRE with the responsibility of implementing the NBAP within the scope of its functions, tasks, and powers. Furthermore, Decision 79 directed MoNRE to establish and head an inter-ministerial steering committee to organize the implementation of the plan. However, for a variety of reasons, the second NBAP was not embraced by key actors outside MoNRE, and implementation has been spotty. The inter-ministerial committee called for by Decision 79 was never established.

National Strategy on Biodiversity Conservation to 2020 - The Biodiversity Law was enacted in 2008. It instructs MoNRE to take the lead on the formulation of a national strategy and master plan for biodiversity conservation and PPCs to organize the formulation, evaluation and adjustment of provincial biodiversity conservation plans for approval by Provincial People's Councils. In response to the Biodiversity Law, MoNRE coordinated the development of the National Strategy on Biodiversity Conservation to 2020. The latest draft circulated by MoNRE is similar to an action plan setting a vision, objectives, and a list of actions to fulfill these objectives. This strategy is pending approval by the Prime Minister and MoNRE is developing the master plan. Progress has been slow at the provincial level with only a few provinces developing biodiversity conservation plans reflecting, to some degree, the lack of capacity at the provincial level.

National Strategy on Environmental Protection to 2010 and vision to 2020 (NSEP) - The Prime Minister's Decision 256/2003/QD- TTg (Decision 256) of 2003 approved the NSEP. The strategy identifies 36 national priority programs plans, schemes and projects on environmental protection to fulfill four specific objectives. Amongst the programs, five focus on forests and biodiversity conservation: 1) Program 1: planting five million hectares of forests, 2) Program 4: rehabilitation of seriously degraded watershed forests, 3) Program 11: enhancing management, protection and development of nature conservation zones, 4) Program 18: protection of wetlands of national and international importance, and 5) Program 34: protection of severely threatened animal species. After 10 years of implementation, the NSEP was amended and developed into the new **National Strategy on Environmental Protection to 2020 with Vision to 2030**. This strategy was approved by the Prime Minister's Decision 1216/QD-TTg on September 5, 2012. It contains four specific objectives of which objective 3, to reduce the degradation and exhaustion of natural resources and reduce the rate of decline of biodiversity, and objective 4, strengthen the capacity to respond to climate change impacts and to reduce emission of GHG, are of particular importance to this assessment. While the new NSEP does not list priority

[3] Almost 70% of its proposed priority projects were fully or partly supported by international organizations.

programs or projects, it provides a set of criteria for monitoring and evaluation (M&E) of its implementation through 2020.

Vietnam Forestry Development Strategy 2006 - 2020 The Vietnam Forestry Development Strategy 2006-2020 was approved by Prime Minister's Decision 18/2007/QD-TTg. This strategy aims to contribute to national economic growth and social stabilization, particularly with respect to ethnic minorities located in mountainous areas, while ensuring environmental protection, biodiversity conservation, and the provision of environmental services. One of its objectives - to manage, develop and use forests sustainably and effectively to meet the basic demands for forest products for domestic consumption and export - underscores the utilitarian slant of the vision that Vietnam's current government has for its forest resources. The strategy includes a program of forest protection, biodiversity conservation and environmental service development that requires VND 14,133.60 billion (approximately USD $675 million) for the 2006 – 2020 period.

Management Strategy for a Protected Area System in Vietnam to 2010 – The Management Strategy for a Protected Area System in Vietnam (MASPAS) was prepared with support from the Danida-funded *Strengthening Protected Area Management in Vietnam* Project. In September 2003, the Prime Minister approved this strategy that has as its principal objective to establish, organize and effectively manage an integrated protected area system covering terrestrial, wetland and marine ecosystems. Field observations and information gathered from interviews suggest that the strategy fell short of its objective.

Additional Sectoral Strategies that relate to or influence biodiversity conservation and forest protection include the *National Strategy on Water Resources to 2020* (approved by Decision 81/2006/QD-TTg in 2006), the *Vietnam Fisheries Development Strategy though 2020* (approved by Decision 1690/QD-TTg in 2010) and the *National Strategy on Climate Change* (approved by Decision 2139/QD-TTg in 2011).

4.3 LAWS, REGULATIONS, DECREES AND OTHER REGULATORY INSTRUMENTS

Vietnam has a comprehensive legal and regulatory framework for biodiversity conservation. At the national level, it consists of laws, decrees, decisions and resolutions. In addition to the instruments listed in Table 2, each sector ministry may develop its own sector-level circulars and decisions to guide implementation of national legislation. Finally, the Land Law (2001) and a battery of sector- specific laws have a bearing on biodiversity and tropical forest conservation.

Table 2 Environmental Laws and Regulations

NUMBER	DESCRIPTION	DATE
LAWS		
17/2003/QH11	Law on Fisheries Resources Protection *Stipulates fishery activities in mainland, archipelagos, internal waters, territorial seas, Exclusive Economic Zone, and continental shelf of Socialist Republic of Vietnam.* Includes provisions on inland protected areas and marine parks	26 Nov 2003 Effect 1 July 2004
29/2004/QH11	Law on Forest Protection and Development *Provides for the management, protection, development and use of forests; and forest owners' rights and obligations.* Include provision on Special-use Forest System	14 Dec 2004 Effect 01 Apr 2005

NUMBER	DESCRIPTION	DATE
52/2005/QH11	Law on Environmental Protection *Regulates environmental protection activities; policies, measures and resources for protection of the environment; and the rights and obligations of organizations, family households and individuals with respect to protection of the environment.* Includes provisions on conservation and rational utilization of natural resources.	12 Dec 2005 Effect 01 Jul 2006
20/2008/QH12	Law on Biodiversity *Provides for biodiversity conservation and sustainable development; rights and obligations of organizations, households and individuals in biodiversity conservation and sustainable development.*	28 Nov 2008 Effect 01 Jul 2009
DECREES, RESOLUTIONS, DECISIONS		
Resolutions		
41-NQ/TW	Politic Bureau's Resolution on environmental protection during the period of accelerated industrialization - modernization of Vietnam *Provides an important orientation for environmental sector; based on this resolution, Vietnam Environment Protection Agency (VEPA) and later Vietnam Environment Administration (VEA) were established.*	15 Nov 2004
23/2006/ND-CP	Decree on the implementation of the Law on Forest Protection and Development	03 Mar 2006
186/2006/QD-TTg	PM's Decision promulgating the Regulation on forest management	14 Aug2006
119/2006/ND-CP	Decree on organization and operation of the forest protection service	16 Oct 2006
380/QD-TTg	PM's Decision on the pilot policy on payment for forest environment services	10 Apr 2008
99/2010/ND-CP	Decree on the policy on payment for forest environment services	24 Sep 2010
2284/QD-TTg	PM's Decision of the Prime Minister approving the scheme on implementation of the Decree 99/2010/ND-CP	13 Dec 2010
117/2010/ND-CP	Decree on Organization and Management of the Special-Use Forest System	24 Dec 2010
24/2012/QD-TTg	PM's Decision on investment policy of special - use forest development stage 2011 – 2020	01 Jun 2012
Regarding Marine Protected Areas and Inland Water Protected Areas (Mostly MARD's mandate)		
57/2008/ND-CP	Decree on promulgation of regulation governing marine protected areas of national and international importance	02 May 2008
1479/QD-TTg	PM's Decision on approval of the master plan for inland water protection area system to 2020	7 Oct 2008
Regarding species protection (mostly MARD's mandate)		
139/2004/ND-CP	Decree on the processing of administrative infringements on forest management and protection and forest product management	25 Jun 2004
32/2006/ND-CP	Decree on management of endangered, rare and precious forest animals and plants	30 Mar 2006
82/2006/ND-CP	Decree on management of export, import, re-export and introduction from the sea, transit, breeding, rearing and artificial propagation of rare, endangered and precious wild animals and plants (implementation of CITES)	10 Aug 2006
Regarding biodiversity conservation and wetland conservation (mostly MoNRE's mandate)		
109/2003/ND-CP	Decree on the Conservation and Sustainable Development of Wetlands	23 Sep 2003

NUMBER	DESCRIPTION	DATE
65/2010/ND-CP	Decree detailing and guiding a number of articles of the biodiversity law	11 Jun 2010
69/2010/ND-CP	Decree on biosafety for genetically modified organisms, genetic specimens and products of genetically modified organisms	21 Jun 2010

The passage of the Biodiversity Law in 2008 represents a milestone for conservation, elevating biodiversity to the same legal status as other sectors. Prior to this law the only references to biodiversity within Vietnam's legal framework were in sectoral laws, such as the Law on Water Resources (1998) and the Law on Forest Protection and Development (2004). Despite its limitations, the Biodiversity Law is a major step towards creating a national standard for protected areas and ecosystem management. It has the potential to engender a more systematic process of conservation planning at the national and provincial levels, it acknowledges the economic value of ecosystem functions, and provides a means to compensate people and organizations for conservation activities through mechanisms such as payments for environmental services.

The enactment of the Biodiversity Law calls for the development of regulations to facilitate its implementation. Decree 65/2010ND-CP, produced by the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) with support from MoNRE, provides guidance and regulation for the application of a range of stipulations in the Biodiversity Law. Decree 69/2010/ND-CP, drafted under the guidance of the Biodiversity Conservation Agency (BCA), addresses biosafety issues with respect to GMOs, genetic specimens and products.

Currently MoNRE is working on several legal instruments that will further guide implementation of the Biodiversity Law. These include:

- Decree concerning fines for the violation of biodiversity laws and regulations (Department of Legislation and Policy, DLP).
- Decree concerning the identification, protection and management of threatened, rare and other important species (BCA).
- Circular concerning the management of alien invasive species (BCA).

While the analysis of each of these legal instruments is beyond reach of this report[4], the discussion above leads to the following set of conclusions:

- The sheer number of laws and decrees prepared under the tutelage of different ministries leads to institutional mandates that overlap and conflict. For example, the Law on Forest Protection (2004) and Law on Fisheries Resources Protection (2003) were prepared independently by the forest and fishery sector agencies within MARD, while the Biodiversity Law (2008) was prepared by MoNRE. As a result, under the Biodiversity Law, MoNRE is responsible for state management of biodiversity, ecosystems, species, and gene resources. However, the Law on Forest Protection and Development instructs MARD to be responsible for state management of forest resources and ecosystems, including functions of biodiversity, species, and genes. Furthermore, Vietnam's protected areas are classified into four types by the Law on Biodiversity; five types by the Environmental Protection Law; five types by the Law on Forest Protection and Development; and three types by the Law on Fisheries. Only two of these category types are common across the guiding regulations. This inconsistency makes the

[4] For a detailed analysis of the legal and institutional framework related to the environment, please consult GIZ (2011).

application of standard methodologies, strategy development and management of protected areas difficult.

- The complex legal framework indicates a healthy preoccupation with the environment by the national government. Nonetheless, as indicated elsewhere in this report, this interest needs to be translated into action at the provincial, district and commune levels.

5 INSTITUTIONS AND THEIR MANDATES

The National Assembly is the only organ with constitutional and legislative powers. It meets twice a year. The Standing Committee of the National Assembly is its permanent committee. PPCs are the state organs responsible for steering socio-economic development (including conservation) and administrative processes at the provincial level. Line ministries usually have specialized departments at the provincial level to help them carry out their mandates. Examples include the Department of Planning and Investment (DPI), Department of Agriculture and Rural Development (DARD), and Department of Natural Resources and Environment (DONRE). These departments receive technical instructions from their national line ministries but report to the PPCs.

Table 3 lists the ministries and their constituent agencies that are important to biodiversity and tropical forest conservation. At the national level, MoNRE is the lead biodiversity agency. Within MoNRE, the key agency responsible for biodiversity conservation is the Vietnam Environment Administration (VEA), which oversees the Biodiversity Conservation Agency and the Department of Environmental Appraisal and Impact Assessment. ISPONRE and the Department of Policy and Legislation are also responsible for national biodiversity policy and legislation. While MoNRE is legally responsible for biodiversity conservation, in actual fact MARD is responsible for the management of SUFs and the provision of technical support services to PPCs and lower level administrative units, such as Community People's Communities (CPC). With decentralization, provincial and local-level government institutions have assumed an important role in tropical forest and biodiversity conservation in the country.

Table 3 Institutions Involved in Tropical Forest and Biodiversity Management

INSTITUTIONS	MAIN FUNCTIONS AND AGENCIES
Ministry of Agriculture and Rural Development (MARD)	Governmental body performing state management functions in the fields of agriculture, forestry, salt production, fishery, irrigation/water services and rural development nationwide. Under MARD, there are a number of line agencies and institutions working on biodiversity conservation: • Vietnam Forest Administration responsible for national-level forest management, including SUFs and wildlife protection. • Directorate of Fisheries: responsible for national-level management in of fisheries, including management and development of marine protected areas and inland water protected areas, and protection of aquatic species and ecosystems of conservation concerns. The department is also responsible for implementation of CITES in Vietnam. • Forest Inventory and Planning Institute (FIPI): is a public service unit under the Vietnam Forest Administration, tasked with inventory and planning functions in the forest sector. One of FIPI's principal responsibilities is providing technical support for investment and management planning for SUFs throughout Vietnam. MARD implements its mandate through a number of national, provincial and district-level implementation entities such as Forest Protection Units.
Ministry of Natural Resources and Environment (MoNRE)	MoNRE is the state agency tasked with national-level administration of water resources, mineral resources, geology, environment, meteorology, hydrology; geodesy and cartography, and the management of marine waters and islands. MoNRE is also responsible for the management of natural ecosystems aside from forests, including development and management of natural conservation areas in wetlands and limestone ecosystems. Under MoNRE, the main institution in charge of environment in general and biodiversity conservation are: • The Vietnam Environmental Administration (VEA) oversees the application of the Environmental Protection Law and the Biodiversity Law. Under VEA, there are subservient units responsible for specific functions. The Biodiversity Conservation Agency (BCA) is

INSTITUTIONS	MAIN FUNCTIONS AND AGENCIES
	responsible for biodiversity conservation and the Department of Environmental Appraisal and Impact Assessment for Vietnam's EIA system. The BCA is leading the development of the NBSAP (funded by UNDP-GEF), and developing regulations and other instruments for the implementation of the CBD in Vietnam such as a system for the classification and identification of high conservation values areas, biodiversity offset criteria, and biodiversity monitoring among others. The agency is also leading the development of a national biodiversity database (funded by JICA), leading a program for improving wetland management (in collaboration with ISPONRE and funded by UNDP-GEF), The BCA is the focal point for a number of international treaties, conventions and agreements including CBD and Ramsar. • The Department of Meteorology, Hydrology and Climate Change generates information and advice in matters related to meteorology and hydrology. It generates weather forecasts, issues early warning advisories, and manages and coordinates activities related to climate change and ozone layer protection. The department is the focal point for UNFCCC and the Montreal Protocol on protection of the ozone layer.
Ministry of Planning and Investment	Responsible for national-level planning and investment including that for environmental protection, biodiversity conservation and protected area.
Ministry of Finance	Responsible for overall financial management including the development of the State budget, taxes, fees and other revenues sources, coordinating monetary and fiscal policy, overseeing government accounts, etc. The Ministry therefore is responsible for the financial aspects of environmental protection, biodiversity conservation and protected area, including financing of the Vietnam Conservation Fund and Vietnam Environment Fund. The Ministry also has a bearing on PES and REDD activities.
Ministry of Education and Training	Responsible for pre-school education, general education, professional education, higher education, and continuing education, including environmental education.
Ministry of Culture, Sport and Tourism	Responsible for coordinating eco-tourism activities, including those in PAs.
PPCs and provincial level line agencies	Provincial People's Committees are the state administrative organizations at the provincial level. The PPCs are responsible for province-level budgeting, ensuring adherence to the constitution, national laws, and resolutions of the People's Council at the provincial level. They are also tasked with implementing socio-economic development policies for which they develop master plans for socio-economic and sectoral development. PPCs are responsible for environmental management at the provincial level, including that of protected areas, land, forests, disaster management, climate change mitigation and adaptation etc. To meet their mandates, the PPCs have management control of the provincial-level analogues to national level line ministries, such as the Provincial Departments for Agriculture and Rural Development (DARDs), Departments of Natural Resources and Environment (DoNREs), and the Departments of Fisheries Resources Exploitation and Protection (DoFREPs). Through the DARDs the PPCs manage SUFs, including national parks that fall entirely within provincial boundaries, through the DoNREs they are responsible for the implementation of Vietnam's EIA/SEA system. PPCs may allocate forest-use rights to District and Commune level entities such as Community Peoples Committees and District Peoples Committees. Hence, they are crucial for the management and conservation of biodiversity and tropical forests.
District People's Committees	The analogue of PPC's at the District level. The review of literature did not reveal a strong participation of DPCs in forest management.
Commune Peoples Committees	The commune level can be considered a sub-district level. The CPC is the lowest hierarchical level of administration of the Provincial People Committee (PPC). The commune usually consists of several villages. Under the Forest Land Allocation policy and associated legal

INSTITUTIONS	MAIN FUNCTIONS AND AGENCIES
	instruments they may obtain legal rights to use, manage, protect and develop Protection Forests (Tran Nam Tu and Burgers (2012)). CPC may also allocate use rights to households and designate communally managed forests.
Commune, community groups and associations	A commune or village level group/association may secure use rights over protections forests. The rights are mostly limited to the extraction of NTFP (Tran Nam Tu and Burgers 2012). However, CPC retains enforcement authority through Forest Protection Units (FPU).
Households	Households may obtain use rights over production and protection forests. The rights are usually granted by CPCs. It qualifies households to obtain bank loans.
Management Boards	Management boards, usually integrated by technical ministry personnel, may be established to oversee management of protection and special use forests. Their composition and mandate are flexible. Management boards may be established at different levels. They rely on line ministry personnel (MARD) to implement management.

The descriptions (Table 3) of functions and responsibilities of the different institutions at national and provincial levels hint at the lack of clarity in mandates and the fragmentation of decision-making and overlap in responsibilities. These problems manifest themselves at different levels. For example, while MARD is responsible for SUFs, including national parks that straddle provincial boundaries, MoNRE is responsible for the implementation of the NBSAP of which SUFs are a crucial element. As indicated above, the legal framework attributes overlapping biodiversity conservation responsibilities to both ministries. Within MARD the Directorate of Fisheries is responsible for the development and management of marine protected areas. The fragmentation of management responsibilities manifests itself at the local level when a protected area includes more than one ecosystem. In the case of coastal marine national parks, for example, mangroves are the responsibility of the Vietnam Forestry Administration (VFA), whereas the marine areas fall under the jurisdiction of the Fisheries Directorate.

5.1 DECENTRALIZATION

The greatest institutional change over the last 20 years in Vietnam was the devolution of management authority to the provinces, districts and communes under the *Doi Moi* reforms, which led to a shift in authority and responsibility from the centre to the provinces, and by extension to the districts and communes. With *Doi Moi*, PPCs and CPCs became important actors in forest management and conservation, particularly for protection forests. PPCs may delegate management of protection and production forests to the commune and even household levels through the CPCs, but they retain control of province level SUFs (national parks and other protected areas).

Generally speaking, *Doi Moi* has had negative consequences for the environment (ICEM, 2003). At the provincial level, provinces now have to compete with each other to attract jobs and investment and fill budget deficits. This competition, and the limited ability of central ministries to exert appropriate oversight and control, has resulted in the unregulated use of natural resources and corresponding loss of natural habitats, large-scale pollution, and species loss.

In the specific case of Vietnam's protected areas network, decentralization created a number of problems.

1. There is no application of standard methodology for protected area management planning and no national-level monitoring of management effectiveness.
2. Management decisions are often politically motivated and may respond to short-term socio-economic development objectives instead of national-level biodiversity conservation needs.
3. There is no national-level oversight of investment in conservation, to the extent that MARD has no information on PA funding since 2006 (GIZ, 2012b).
4. This fragmentation of management responsibility for SUFs pre-empts the implementation of national-level conservation strategies as each PPC pursues its own objectives.
5. Effective allocation of human resources across the national system of affected areas is difficult.
6. Spot checks reveal a wide discrepancy in protected area funding between centrally managed protected areas and those managed by PPCs (GIZ, 2012), with those that are managed by MARD receiving an average of triple the resources as those managed by PPCs.

Under *Doi Moi*, the PPCs may delegate management responsibilities of protection and production forests to CPCs, which in turn may grant forest use rights to households and local organizations. The outcome of the devolution of rights to the local level depends on the natural, cultural and political context. Case studies by Tram Nam Tu and Burgers (2012) and T. Q. Nguyen et. Al. (2006) yielded the following lessons and observations:

- Politically appointed CPCs often undermine traditional authorities that have the historical knowledge about resource use and tenure.
- Forest limits established under CPCs' tutelage without traditional authority involvement have caused conflicts between communes and confusion with respect to access and use rights because official limits differ from traditional ones.
- The cultural acceptability of communal management varies among ethnic groups. In cases where the ethnic group has had a historic attachment to forests, the likelihood of successful community management is greater.
- Often CPCs and forest management boards do not have adequate knowledge of the local environment or cultural setting to make sound management decisions.
- Forest use rights allocation is often inequitable and lacks transparency resulting in the concentration of forestland among selected households or organized groups.

- Use-rights granted to communal groups and associations by CPCs do not give them enforcement powers, limiting their ability to control activities or access by others.
- Local participation in forest allocation decision is key for the future success of communal forest management.
- Ineffective or inequitable benefit sharing undermines communal forest management.
- Local level management has been successful in reducing illegal natural resource use in some specific instances.
- If well implemented, the decentralization of protection forest management may yield positive conservation outcomes.

5.2 HUMAN RESOURCES

A recent assessment GIZ (2012) found that in spite of 100 person/day of training per protected area, overall levels of competence are very low and unevenly distributed, suggesting that training opportunities have been uneven across protected areas. Furthermore, while competency levels were acceptable in the traditional skills associated with protected areas (law enforcement and practical field craft), they were very weak in fields important to biodiversity conservation, such as biodiversity assessment, protected area policy and planning, recreation and tourism, and community relations.

SUFs and protection forests in Vietnam have to fulfill roles that go beyond conservation. For example, they are required to deliver environmental services and benefits to buffer zone communes. This calls for a multifaceted labor force within the management authority.

The analysis by GIZ (2012) indicates that the mix of skills necessary to implement this diverse mandate does not exist within the institutions responsible for the biodiversity conservation and protected areas management. The lack of capacity is accentuated at the provincial level where DoNREs do not have staff trained in biodiversity and MARD's staff is trained primarily in forest management. Furthermore, the labor categorization does not accommodate specialization for protected area staff besides "forest rangers." Because of the lack of different professional categories and the high rotation rate of protected areas staff, there is often a disconnect between skills and responsibilities. For example, a forest ranger trained in sociology may find him/herself undertaking field mapping because a "forest ranger" is a "forest ranger."

5.3 FINANCING OF BIODIVERSITY AND FOREST CONSERVATION

The largest proportion of the state budget for biodiversity conservation is invested in the PA system. According to GIZ (2012b) it is difficult to make definitive statements about protected area financing and the overall budget for conservation due to the lack of quantitative data. Nonetheless, with respect to protected areas, GIZ (2012b) estimates, based on a limited sample, indicate that Vietnam invests, on average, around $350 per km^2 per annum in conservation areas. This amount falls towards the lower end of the range of $130-$5,000 km^2/year found for effective protected area management in Central America, Africa and other parts of Asia. It is likely that the cost of effective management in Vietnam is towards the upper end of the range due to the country's high population density. Besides protected areas, the state also provides funds for biological and ecological research institutions.

Funding for protected areas comes from three major sources as stipulated in Decree 117/2010/ND-CP and in the Law on Forest Protection and Development of 2004: 1) the state budget which is channeled through central and local levels; 2) income from the supply of environmental services; 3) funding from

domestic and foreign organizations and individuals. These sources can be divided into conventional and innovative (GIZ, 2012b) funding mechanisms. The bulk (68%), of funding comes from conventional mechanisms such as regular state budget allocations and other state investments fines and penalties, tourism, and land leases, among others. The "innovative mechanisms" such as PES, biodiversity enterprises and biodiversity offsets are still in a pilot phase and contribute little to conservation in general, and protected area management in particular.

A large proportion of investment for biodiversity conservation in Vietnam comes from multilateral (UNDP, WB, ADB, EU, The GEF) and bilateral (Danida, JICA, SIDA, Dutch Embassy, GIZ) sources. Most donor assistance has been used to support Vietnam in fulfilling its obligations to multilateral environmental agreements (MEAs).

The following table presents a summary of activities by major organizations and donors working in tropical forest and biodiversity conservation in Vietnam. A number of donors are reducing their support now that Vietnam has achieved middle-income status, although there are still a number of important bi- and multilateral donor funded initiatives. Vietnamese environmental civil society includes only a handful of strong, large NGOs, although there are smaller organizations around the country with varying capacity.

Table 4 Major Environmental and Conservation Actors and Donors in Vietnam

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
BILATERAL:			
Norwegian Agency for Development Cooperation – NORAD	• Technical and institutional assistance for civil society organizations and the business sector, with special emphasis on natural resource management. • With respect to climate change and natural disasters, strong emphasis on prevention and risk management. • Other initiatives include: health, energy, good governance, education	• Cooperation prioritizes "sectors in which Norway has particular expertise such as energy, maritime sector, marine sector and the environment." • Aid is provided to Vietnam through the country's existing management systems • NORAD has reduced funding over time as Vietnam has risen to middle income status	http://www.norad.no/en/countries/asia-and-oceania/vietnam
German Society for International Cooperation – GIZ	• Projects related to Climate Change Adaptation and Renewable Energy • Specific focus on environmental policy, natural resource and urban development. Key areas include: o Biodiversity o Sustainable forest management o Climate change and coastal ecosystems o Wastewater management o Renewable Energies • Health	• Work closely with private sector • Provide detailed legal advice to government • Cooperate with AusAID and EU • Support includes "assignment of experts, human capacity development, funding, local subsidies, and the provision of materials and equipment"	http://www.giz.de/en/worldwide/357.html
Japan International Cooperation Agency – JICA	• Three priority areas are: o Economic growth and strengthening global competitiveness (particularly infrastructure development and industrial competitiveness) o Strengthening governance (particular legal and judicial reforms to strengthen human resources and legislative system) o Coping vulnerability (including climate change adaptation and environmental conservation) • JICA has a specific program with respect to	• Japan is the top bilateral donor in Vietnam • JICA is closely partnering with Japanese organizations (industry, educational institutions, municipalities, NGOs etc…) to provide with assistance for nation building particularly with respect to Vietnam's 10-year Socio-Economic Development Strategy (2011-2020) that places a focus on system development, human resource development and infrastructure development. • ODA split into three different types:	http://www.jica.go.jp/vietnam/english/office/others/c8h0vm0000001siky-att/brochure_07_en.pdf http://www.jica.go.jp/vietnam/english/index.html http://www.jica.go.jp/vietnam/english/office/others/c8h0vm0000001siky-att/brochure_06.pdf

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	Forestry & Nature Conservation in Vietnam. It includes: o Policy support o Sustainable Forest Management o Livelihoods development of forest dependent communities o Biodiversity conservation o Climate change and Forestry	o technical cooperation o Financial Aid (loans and grants) o Volunteer Programs (JOCV and SV)	
Embassy of the Netherlands in Vietnam	• The Netherlands Embassy ended its development cooperation with Vietnam in 2012, but continues to support private sector investment programs and infrastructure.		http://www.government.nl/issues/international-relations/vietnam
Canadian International Development Agency – CIDA	Two basic project areas: • Economic growth o transparency and accountability of public institutions o Market-driven growth. o private sector development and entrepreneurship (especially small and medium-sized enterprises) • Food Security o agricultural competitiveness o food safety and quality o agricultural innovation o marketing techniques • Strong collaboration with Canadian organizations such as: Oxfam-Québec, WUSC-CECI, the Federation of Canadian Municipalities, and Saint Mary's University.	• In 2009, as part of Canada's new aid effectiveness agenda, Vietnam was selected by CIDA as a country of focus. • CIDA is responding to the Government of Vietnam's Five year socio-economic development plan as well as poverty reduction priorities by focusing on improving the enabling environment for investment and supporting rural enterprise development and agricultural competitiveness.	http://www.acdi-cida.gc.ca/acdi-cida/acdi-cida.nsf/eng/JUD-217143241-QWY
French Development Agency - AFD	• AFD projects focus on the following sectors : o Urban Development o Rural and agricultural development o Support to economic reform o Support to private sector and micro finances	• Working in Vietnam since 1994, • AFD has financed 69 projects. • Annual lending objective is of 100 million Euros • Help and collaborate with the Vietnamese plan for socio-economic development plan through five key development areas are :	http://www.afd.fr/home/pays/asie/geo-asie/afd-vietnam

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	o Transport o Energy and Climate Change o Health and Education o NGO partnerships	o The development and modernization of the financial sector. o Support in decentralization and local collectives. o Adaptation of urban structures to modern market mechanisms. o The facilitation of an improved dynamic for rural economies.	
Finnish Government	• Focal areas: o Water and sanitation o Forests o Information Society Development o Rural development • In the forest sector: support to the Trust Fund for Forests (TFF) and technical support to the development of forest data systems • New cooperation is being developed in the environmental, climate change and IT sectors.	• Contributed to EU cooperation • In 2013, aid totaled around EUR 9,7 million	http://formin.finland.fi/Public/default.aspx?contentid=80918
MULTILATERAL			
World Bank – WB	• Support for various development projects in all areas. • Numerous projects in biodiversity conservation, sustainable forest and coastal natural resource management.	• "As of January 1, 2013, Vietnam's portfolio consisted of 46 active IDA/IBRD investment and development policy operations totaling US$6.15 billion and US$1.87 billion in net IDA and IBRD commitments, respectively."	http://www.worldbank.org/en/country/vietnam/projects
United Nations Development Program – UNDP	• Projects focus on: democratic governance and participation; inclusive and equitable growth; sustainable development; climate change and disaster risk reduction. • UNDP support in the following areas: o Democratic governance o Poverty reduction	• Present in Vietnam since 1977 • In 2011, total programme expenditure for the UNDP Viet Nam office was about US$20.5 million, compared to US$25.5 million in 2010, US$20 million in 2008 and under US$19 million in 2009. • Focused cooperation toward both achieving the UN Millennium Development Goals	http://www.undp.org.vn/What-We-Do/Focus-Areas/Our-Programme?&languageId=1

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	o Crisis prevention and recovery o Energy and Environment o HIV/AIDS o Gender Equality	(MDGs), and meeting Viet Nam's own benchmarks for sustainable human development.	
Asian Development Bank – ADB	• The CPS focuses its assistance on the three pillars: o inclusive growth, o enhancing economic efficiency, o environmental sustainability. • ADB prioritizes six sectors: o agriculture and natural resources, o education, o energy, o finance, o transport, o water supply and other municipal infrastructure and services.	• Lending for 2013-2015 could amount to $2.6 billion from ordinary capital resources and $1.2 billion from concessional Asian Development Fund. Funding for technical assistance could reach $8 million annually. • Also has $27 million loan active with Vietnam for the regional Biodiversity Conservation Corridors project aiming to improve the cover, condition, and biodiversity of forestlands and associated ecosystems in priority biodiversity conservation landscapes intersecting ADB supported Greater Mekong Subregion economic corridors.	http://www.adb.org/countries/viet-nam/main
Association for Southeast Asian Nations – ASEAN	• ASIAN pushes towards the transition from a planned agricultural economy to a market led socialist economy.	• Vietnam became a full member of ASEAN on 28 July 1995. • Membership in ASEAN hastens Vietnam's its integration into the world economy and this increased competition has forced Vietnam to become more competitive.	http://www.asean.org/communities/asean-economic-community/item/vietnam-in-asean-toward-cooperation-for-mutual-benefits
European Union – EU	• Interest in environmental Issues epically in the Mekong region. • Working closely on climate change issues., including loans and technical assistance for climate change mitigation • Assistance for food security and resilience building (including risk management, early warning systems etc…). • Trying to promote human rights in	• Seeking to broaden and diversify its relationship with Vietnam, beyond development co-operation and trade, to enhance political co-operation on global issues. • On 27 June 2012, signed a new Partnership and Co-operation Agreement (PCA), provides a framework to take forward ties. • On 26 June 2012, launched the negotiation	http://www.eeas.europa.eu/vietnam/index_en.htm

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	Vietnam without hindering multilateral relations	of a bilateral Free Trade Agreement (FTA). • Vietnam is a key partner country within ASEAN. It will act until 2015 as ASEAN coordinator for relations with the EU.	
INTERNATIONAL NGO'S			
World Wildlife Fund – WWF	• WWF-Vietnam is working in three priority landscapes: Central Annamites, Southern Annamites and Mekong Delta. • In these areas WWF is concerned with Biodiversity conservation and environmental protection • Initiatives include: o Species protection o Forests and wetland restoration o Responsible forest management o Supporting local livelihoods o sustainable aquaculture and fisheries o ecosystem based climate change adaptation	"WWF-Vietnam has four strategies: • Securing landscape integrity and climate change resilience • Ensuring sustainable hydropower development • Strengthening law enforcement and protected area management • Securing sufficient sustainable financing"	http://vietnam.panda.org/en/what_we_do/
International Union for Conservation of Nature – IUCN	• In Vietnam IUCN focuses its work on the following thematic programs: o Business and Biodiversity, o Forest Conservation, o Protected Area and World Heritage, o Marine and Coastal Ecosystems, o Water and Wetlands o Environmental Governance.	• IUCN supported the government in the preparation of the first National Conservation Strategy in 1984. • IUCN has contributed to biodiversity conservation and environmental protection, through the development of various laws and policies.	http://www.iucn.org/about/union/secretariat/offices/asia/asia_where_work/vietnam/
International Center for Environment Management – ICEM	• ICEM is an independent public interest centre that provides with technical advisory services on climate change, biodiversity conservation, water resources, energy and integrated assessments. • In Viet Nam, ICEM has worked in projects related to environmental conservation, sustainable development, pollution, water,	• Work in partnership with numerous other organizations including: AusAID, MONRE/SIDA, JICA, USAID, ADB, and the WB, among others.	http://icem.com.au/portfolio_category/vietnam/

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	energy, natural resource management, climate change adaptation and hydropower.		
BirdLife International	• BirdLife works with government and non-government partners to: o Provide support for improved planning and management of important habitats, sites and species; o Introduce and advocate new ideas for integrating biodiversity conservation into planning and policy; o Stimulate greater public interest in birds and biodiversity, and awareness of the need for biodiversity conservation; o Develop capacity for improved management of habitat, sites and species; and o Provide information on biodiversity and protected areas to planners, policy makers and other interest groups.	• BirdLife International is a global conservation network of non-governmental organizations (NGOs), working in over 100 countries with more than 60 partner organizations. • Leading NGO in bird biodiversity protection and habitat conservation. • Vietnam operations working through Indochina office which manages the whole greater Mekong region.	http://birdlifeindochina.org/content/about-birdlife#BirdLife
Fauna and Flora International – FFI	• Most important program is the primate program, which targets endangered primates within the Northern Limestone Mountains and the Hoang Lien Mountains, in North Vietnam. • Work closely on REDD+ to provide financial compensation for the ecosystem services and carbon sink benefits of Vietnamese forests. • FFI also works on ecotourism and environmental awareness with local schools and populations.	• FFI works in environmental conservation and biodiversity protection while protecting and enhancing local livelihoods.	http://www.fauna-flora.org/explore/vietnam/
Oxfam	• Oxfam Vietnam has five focus areas: o Improve livelihoods for people living in rural areas, especially ethnic minorities and women o Improve livelihoods for migrant workers	• Oxfam is specialized mainly in rural development, disaster risk reduction and humanitarian response, civil society development, ethnic minorities, and women's empowerment.	http://www.oxfam.org/en/vietnam

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	in urban areas, especially migrant women o Reduce vulnerability and increase adaptability to disasters and climate change o Empower women to gain more control over their lives, increase their economic and political power, and gain more space to express their voices and claim their rights o Empower communities and civil society to take part in public policy, the social and economic development of the country, a strengthened governance (rule of law) and government accountability.		
CARE	Work focuses on: • Water and sanitation • HIV/AIDS • Sexual and reproductive health • Emerging infectious diseases, including Avian Influenza • Community development • Sustainable natural resource management • Climate change • Responding to emergencies	• The main focus of CARE has been providing long-term development programs and emergency relief and rehabilitation assistance.	http://www.care.org.au/vietnam
NATIONAL NGOS			
Pan Nature	PanNature has five primary goals: • Promoting good governance of natural resources • Raising public awareness • Fostering participation and transparency of public policies • Widening our reach and impacts • Strengthening organizational capacity	• "PanNature is a Vietnamese not-for-profit organization dedicated to protecting and conserving diversity of life and improving human well-being in Vietnam by seeking, promoting and implementing feasible, nature-friendly solutions to important environmental problems and sustainable development issues."	http://www.nature.org.vn/en/
Education for Nature Vietnam – ENV	• Works to foster great understanding amongst the Vietnamese public about local, national and global environmental issues	• Awareness activities to a wide range of stakeholders: university students and residents of communities, bordering	http://envietnam.org/index.html

ORGANIZATION	THEME/AREAS OF INTERVENTION	OBSERVATIONS	SOURCES (ACCESSED JULY 2013)
	• Works on issues from the protection of wildlife and natural ecosystems to climate change • Four major program areas: o Combating wildlife crime o Raising public awareness o Working with key decision-makers to strengthen policy and legislation o Strengthening protected area and management through education and training	protected areas, customs police, and provincial government leaders. • Support to key government decision-makers in the National Assembly, relevant Ministries and provincial leaders concerning wildlife policy and legislation. • Donors: USAID, Conservation Seaworld Fund, GIZ, WSPA, MacArthur Foundation, Humane Society International, Freeland, etc.	
Vietnam Rivers Network - VRN	Projects include: • Contribute to Water Law Revision • Promote information sharing • Develop advocacy and monitoring capacity of member organizations • Promote community resilience to impacts of dam construction • Strengthen monitoring ADB and WB water and hydropower projects. Thematic areas: • Social and Environmental Impacts of Hydropower Development • River Pollution • Climate Change Impacts • Watersheds forest protection • River biodiversity protection • Monitor WB and ADB safeguard policy	• Numerous funding sources • VRN has a membership of 300 organizations nationwide and works to enhance the capacity of these members • Has conducted research and presented results to government to help shape policy	http://vrn.org.vn/en/h/d/2012/04/244/Introduction/index.html

Field observations and interviews by the assessment team indicate that the bulk of investments in protected areas go towards the construction of infrastructure such as office buildings, roads, and lodging. This seems to be particularly so in the case of national parks managed by PPCs. Large structures lay under-used and deteriorating. Maintenance is often poor to non-existent, the equipment old and often left over from donor-funded projects.

5.4 CIVIL SOCIETY ORGANIZATIONS

Large international NGOs (iNGOs) were the first civil society organizations to be active in the environment in Vietnam. The first programs were started in the late 1980s. Over time, the GVN has been more receptive to NGOs operating in the country, but Decree 131/2006/ND-CP on the use of official development assistance regulates their areas of intervention and *modus of operandi*.

International NGOs continue to be the most important civil society element contributing to biodiversity and tropical forest conservation in the country; chief among them Fauna and Flora International (FFI), Bird Life International, the International Union for Conservation of Nature (IUCN), TRAFFIC, Wildlife Conservation Society (WCS), and the World Wide Fund for Nature (WWF). Social development and international relief organizations are also contributing to conservation, primarily under the aegis of climate change adaptation, risk reduction and clean energy.

Although working with tacit resistance and little to no government support, several Vietnamese environmental NGOs have managed to establish themselves and play a significant role in conservation. Some of the most influential ones include the Center for People and Nature Reconciliation (PanNature), the Center for Water Resources Conservation and Development (WARECOD), Education for Nature Vietnam (ENV), Action for the City (ACCD) and Consultancy on Development (CODE). Domestic NGOs tend to be more effective than iNGOs in influencing government policies and lobbying decision makers.

While managing to establish themselves, domestic NGOs face important obstacles to growth and consolidation. They remain relatively small and cash-poor. Funding is competitive and limited, and recruiting and retaining suitably qualified staff is difficult. Some domestic NGOs are beginning to diversify their funding sources and are now able to access both donor and state funds.

There also exists in Vietnam a large number of quasi-NGOs staffed by serving or retired government officials. These function semi-independently from government. All of them operate under the Party-led Vietnam's Union for Science and Technology Association (VUSTA). Several of these organizations are involved in environmental and biodiversity conservation.

5.5 GENDER CONSIDERATIONS

Vietnam's constitution prohibits gender discrimination. This edict extends down to the country's laws and regulations, particularly the Family and Marriage Law of 2000, the Land Law of 1993 and the Law on Land of 2003. According to these instruments, property, including land acquired during marriage, belongs to husband and wife. With respect to land, Land-Use Rights Certificates (LURC) granted by people's committees must contain both; the wife's and husband's names. Hence, from a legal and regulatory perspective, both genders have the same rights.

Nonetheless, this progressive legal framework conflicts with certain cultural norms and practices. Hence, in actual fact the percentage of LURCs with the names of both husband and wife may be as low as 30% in some provinces (USAID, n.d.). Furthermore, it is clear from the gender composition of the

cadre of professionals interviewed by the assessment team that the great majority of decision makers in government institutions are men; one exception being the Biodiversity Conservation Agency where women seem to play a key decision making role.

Cultures evolve slowly and this change usually occurs from the inside. While they cannot be forced to overthrow centuries of discriminating cultural norms and practices over night, they can be coaxed to change by strategic gender sensitive interventions. Given the cultural diversity found in Vietnam, these strategic interventions need to be specifically tailored to each situation. While culturally specific statements are beyond this assessment's reach, some assertions can be advanced based on observations and a brief literature review.

- While the legal framework bestows equal rights to man and woman, this may not be widely known at the commune level. This being the case, women are not prepared to demand equal treatment.
- The traditional division of labor within a household is not symmetrical. A strategic intervention to help women play a greater role in tropical forest and biodiversity conservation must be based on a good understanding of the traditional division of labor and household-level financial management. By focusing and supporting income generating activities that can be controlled by women, the strategic intervention would enhance their decision making power and status. For example, in some minority groups within Vietnam women are responsible for collecting medicinal plants.
- The fast evolving Vietnamese economy is creating space for economic activities at the commune level that do not fit into traditional cultural templates. Since participation in those activities is not controlled by cultural norms, involving women is easier. A case in point is the emergence of community-based tourism. For example in the northwest of the country, women are playing a disproportionately important role as guides, and makers and sellers of handcrafts. In doing so, they are acquiring language skills that place them at an advantage with respect to men in this economic niche. A strategic intervention designed to foster gender equality would take advantage of these opportunities.

In summary, Vietnam's legal and regulatory framework support gender equality; however in rural settings these regulations are only partially applied because of deep-set cultural norms and practices. Because changing a culture through outside pressures is difficult and undesirable, *de-facto* gender equality in the context of biodiversity and tropical forest conservation must strategically target household functions that have traditionally been controlled by women. Moreover, new income generating opportunities are arising as Vietnam's economy grows. These do not have a cultural designation of roles between men and women. A case in point is the fast growing community-based tourism sector.

5.6 RAMIFICATIONS OF LEGAL AND INSTITUTIONAL FRAMEWORKS

The regulatory framework includes serious flaws. For example, the mandates of the two principal ministries that deal with biodiversity and tropical forests –MARD and MoNRE- overlap and conflict. This creates confusion in the implementation of laws and regulations and undermines collaboration as each ministry is vying for its space. Furthermore each line ministry develops its own set of sectoral laws and regulations independently. Thus, biodiversity and tropical forests are treated differently and independently by each sector instead of in an integrated fashion.

- The decentralization of management authority of SUFs to PPCs carries with it a number of related implications: long-term biodiversity conservation objectives become subservient to

short-term economic and social ones, infrastructure development takes precedence over management, and decisions are removed from the technical to the political arena. The confusion created by national legislation and institutional mandates repeats itself at the provincial level.

- Although relatively low, funding for protected area management in Vietnam is on par with that of countries that are able to manage their protected areas adequately. However, given the country's flawed governance structure and processes, these resources are not used effectively. Furthermore, because of the population pressure whereby protected areas are hemmed in by people and their economic activities, the per-hectare cost of effective conservation is likely to be higher than that of other middle-income countries with lower population densities.
- The mix of skills resident in MARD, MoNRE and their provincial level analogues (DARDSs and DoNREs) is inadequate to fulfill these agencies' roles. While the PPCs are highly autonomous and have management authority over SUFs and other aspects of environmental management, they also lack the know-how to enable sound policy-level decision making and budget allocation.
- The devolution of forest use rights to the communal level is complex. Success or failure depends on the specific conditions of each location, such as the ethnic make-up of the area, the approach used by local government entities to allocated forest land, the way benefits are shared, and the involvement of local people, particularly traditional leaders.

6 THE STATUS AND ECOLOGICAL TRENDS OF TROPICAL FORESTS AND BIODIVERSITY

6.1 THE IMPORTANCE OF VIETNAM TO GLOBAL BIODIVERSITY

6.1.1 VIETNAM AS A REPOSITORY OF GLOBALLY IMPORTANT BIODIVERSITY

Vietnam is within the Indo-Burma Biodiversity Hotspot (IBBH). The country is ranked as the 16th most biodiversity rich country in the world. It hosts 110 Key Biodiversity Areas (Mittermeier et. al., 2004), and 65 Important Bird Areas (BirdLife International, 2002; pers. obs. Nyugen Duc Tu, 2013). The former includes habitats that are discrete biological units with one or more globally threatened or restricted-range species; the latter refers to relatively small sites that are important to globally threatened or migratory bird species. The country also claims two World Natural Heritage Sites, five Ramsar wetlands, eight UNESCO Biosphere Reserves and two ASEAN Heritage Parks. By definition all of these ecological units are of global significance and the demise of any of them would have negative implications to global biodiversity.

Besides the global importance of its naturally occurring biodiversity, Vietnam is known as one of the richest countries in agro-biodiversity (Sen and Trinh, n.d.). Over 800 plant species are cultivated in diversified agro-ecological production systems throughout its territory. This agro-biodiversity is the outcome of the selection of domesticated and wild plants for cultivation for at least 6000 years (UCL, 2013) on a climatically and edaphically variable landscape. The country is believed to be one of the centers of domestication for a number of species such as rice, taro, jackfruit, mango, coconut and tea (Sen and Trinh, n.d.). The conservation of this agro-biodiversity is an essential element for both national and global climate change adaptation strategies.

Cultures emerge in large measure from the interplay of humans and the natural environment. In Vietnam there is evidence that this process has been in place for over 50,000 years (Choi, 2012) giving rise to the 54 ethnic groups that today still maintain their cultural identities Each of these cultures possesses different sets of knowledge about their environment; plants and animals that are useful, when to use them, and how to use them. As we enter an age of rapid social and environmental change, in which macro-scale geographic and temporal trends may be anticipated, but local and regional changes remain unpredictable, the knowledge resident in these minority cultures may well provide answers to current and unforeseen problems.

In short, Vietnam hosts biodiversity of global importance, including the biodiversity resident in its undomesticated landscape elements, as well as in its agricultural systems (agro-biodiversity). The body of knowledge resident in Vietnam's traditional cultures amplifies the global value of this biological diversity, especially now that we are entering an era of unprecedented climate change.

6.1.2 VIETNAM AS A KEY PLAYER IN THE REGIONAL AND GLOBAL LOSS OF BIODIVERSITY

Over the past decades Vietnam has become an important contributor to the loss of regional and global biodiversity for three reasons: 1) the role it plays in the illicit endangered species trade: 2) its role as an importer of tropical timber from neighboring countries to feed its wood processing industry; and 3) its participation as a consumer of both live animals and plant products from threatened species.

Vietnam is now a major hub for the wildlife trade, supplying domestic and international markets with a variety of live animals, animal parts and medicinal plants (Mott 2006). It functions as a destination and transit country. The magnitude of the illegal wildlife trade is such that Vietnam ranked first in WWF's Wildlife Crime Scorecard (WWF, 2012), and its impact is felt as far afield as Africa and Latin America. A recent study by WCS (2012) revealed that the illegal wild animal trade from Vietnam to China includes Pangolins (live frozen, de-scaled, scales), freshwater hard-shell and soft-shell turtles (live and shells), monitor lizards, snakes (cobra rat snakes, python), elephant ivory, crocodiles, civets, large and medium-sized cats (clouded leopard, Asian golden cat, tiger), bear (live and paws), macaques, rhino horn, and many species of bird. Illegally traded species include endangered and critically endangered species as well as species prohibited from trade under CITES. Most of the specimens originate in the People's Democratic Republic of Laos (Lao PDR), Cambodia and Myanmar.

Finally, because of the depletion of forest resources in Vietnam and the government's decision to "close its forests" to logging, the country has become a voracious importer of illegal timber from neighborhood countries (Cambodia, Laos, Myanmar, Malaysia) to feed its wood processing industry, currently the sixth largest in the world and responsible for 20% of the country's export earnings (Nelleman and Interpol, 2012; EIA, 2011). This demand for illegally sourced timber has had devastating effects on biodiversity, local cultures and tropical forests in the region.

In summary, Vietnam plays a key role in the regional and global depletion of biodiversity and tropical forests. The country fulfills this role by being a principal transit and consumer country for illegally traded wildlife, and as a destination for illegal timber primarily from neighboring countries.

6.2 THREATENED AND ENDEMIC SPECIES

Vietnam has one of the highest proportions of threatened[5] species in the world (Pilgrim and Nguyen Duc Tu, 2007). Of 3990 species assessed by IUCN (2012) 13% (512) are threatened with extinction (

[5] A threatened species is one that is classified in one of the three following categories: critically endangered, endangered or vulnerable.

Table 5)[6]. As a proportion of species assessed, the most threatened groups seem to be mammals (19%), and reptiles (19%). The proportion of plant species assessed by IUCN (2012) is less than 5% of known species in the country.

Besides its impressive biodiversity, Vietnam distinguishes itself by its high level of endemism. It is estimated that 10% of Vietnam's plants are endemic to the country (Pilgrim and Nguyen Duc Tu, 2007). Estimates derived by Living Treasures (n.d.) from a variety of sources indicate that 12 species of mammals, 7 of birds, 48 of reptiles, 33 of amphibians and 80 of freshwater fish are endemic to Vietnam. The available information indicates that the highest levels of endemism are for reptiles (16%) and amphibians (10%).

[6] The data presented in Table 4 differ slightly from that cited by other authors (i.e. ICEM, 2010). Some of the differences may be attributed to the rapid changes taking place, including the frequent discovery of new species.

Table 5 Known, Assessed and Threatened Species in Vietnam

GROUP	MAMMALS	BIRDS	REPTILES	AMPHIBIANS	FISH	MOLLUSKS	OTHER	PLANTS	TOTAL
Known Species	310	822	286	155	909	ND	ND*	13700	ND
Assessed Species	288	820	215	155	909	148	ND	718	ND
Threatened Species	54	45	41	16	73	17	97	169	512
Endemics	12	7	48	33	80**	ND	ND	ND	ND

* ND – no reliable data
** Fresh water species only

The actual situation of Vietnam's species biodiversity is more serious than that illustrated by the figures in

Table 5. A few selected observations can illustrate this point.

- Threatened species as defined by IUCN (2012) include vulnerable (VU), endangered (EN) and critically endangered (CR) species. Of the species assessed by IUCN (IUCN 2012) 38 plant and 42 animal species are classified as CR. Within birds, 1 of 5 threatened species is CR. IUCN's criteria to include a species in its "critically endangered" category are extremely stringent. Statements such as "species restricted to 1 km^2 patch" or "species not observed in several years" or more ominously and frequently "species probably extinct" populate individual data sheets for critically endangered species.
- A perusal of IUCN's Red List species data sheets reveals that the conservation status of the vast majority of threatened species is downwards.
- There is a strong correlation between endangered and endemic species. For example all 12 endemic mammal species are threatened. The loss of a species endemic to Vietnam means an impoverishment of global biodiversity.

The distribution of threatened species is concentrated in a few ecosystems in Vietnam. Of the 512 threatened species, 152 are found in tropical forests, 110 in inland wetlands and 52 in near shore waters (IUCN, 2012). This concentration means that a conservation initiative focusing on these three ecosystem types would help save 61% of the species currently known to be facing a threat of extinction.

Within this grim panorama, there are two other scenes that should be noted:

- The precarious situation of the country's freshwater-dependent species with 25 critically endangered species including the Knifetooth Sawfish (*Anoypristis cuspidate)*, Baer's Pochard (*Aythis baeri*), Four-toed Terrapin (*Batagur baska)*, Giant Carp (*Catlocarpio siamensis*), Siamese Crocodile (*Crocodyus siamensis*), Indochinese Box Turtle (*Cuora galbinifrons*), Chinese Three-striped Box Turtle (*Cuora trisfasciata*), Siamese Tiger Perch (*Datnioides pulcher*), Spoon-billed Sandpiper (*Eurynorhynchus pygmeus*), Annam Leaf Turtle (*Mauremys annamensis*), Mekong Giant Catfish (*Pangasianodon gigas*), Pangasid Catfish (*Pangasius sanitwongsei*), Narrowsnout Sawfish (*Pristis zifsron*), White-shouldered Ibis (*Pseudibis davisoni*), and Giant Ibis (*Thaumatibis gigantean*).
- The dire situation of Vietnam's primates, in which all 19 species assessed are threatened – seven are critically endangered and eight are endangered. The critically endangered primates include: Black Crested Gibbon (*Nomascus concolor*), Northern White-cheeked Gibbon (*Nomascus leucogenys*), Cao-vit Crested Gibbon (*Nomascus nasutus*), Grey-shanked Douc Langur (*Pygathrix cinerea*), Tonkin Snub-nosed Monkey (*Rhinopthecus avunculus*) Delacour's Langur (*Trachypithecus delacouri*), and the White-headed Langur (*Trachypithecus poliocephalus*).

6.3 PROTECTED AREAS AND CONSERVATION LANDSCAPES

Vietnam has 164 terrestrial Protected Areas (PAs), covering 7.4% of the country's total land area, as well as nine Marine Protected Areas (MPAs) covering 4.9% of Vietnam's territorial waters. However, there is no formal, centralized system of PAs, and their management is hindered by overlapping legislation and the lack of a clear division between institutional mandates for protected area management (see, for example, ICEM, 2003 or MARD & GIZ, 2011a).

Prime Minister Decision 192/2003 established the requirement to develop a Law on Protected Areas, but no such law has been developed. At present, four different laws[7] and a number of related decrees, decisions and other regulations establish varying categories of terrestrial and aquatic protected areas. While these categories have not yet been systematized, the Law on Biodiversity establishes the five main categories of terrestrial protected areas, called *Special Use Forests* (SUF), and the Law on Fisheries establishes the three main categories of Inland Water PAs and Marine PAs. Terrestrial PAs that do not contain any forested area, such as wetland PAs, are also classified as SUF (MARD & GIZ, 2011).

Vietnam is also home to a host of internationally recognized natural areas, including five Ramsar sites, three UNESCO Natural World Heritage Sites, eight UNESCO Biosphere Reserves, four ASEAN Heritage Parks and 65 Important Bird Areas.

The following table summarizes Vietnam's national PAs and internationally recognized conservation areas, which are presented in Map 7.

[7] The Law on Environmental Protection, the Law on Forest Protection and Development, the Law on Fisheries and the Law on Biodiversity.

Table 6 Protected Areas of Vietnam

TYPE OF PROTECTED AREA	TOTAL NUMBER IN VIETNAM	TOTAL AREA PROTECTED (HA.)
NATIONAL PROTECTED AREAS		
National Parks	30	1,077,236
Nature Reserves	58	1,060,959
Species/Habitat Conservation Areas (SHCA)	11	38,777
Landscape Protection Areas (LPA)	45	78,129
Experimental and Scientific Research Areas[1] (ESRA)	20	10,653
Total Special Use Forest[2]	**164**	**2,265,754**
Marine Protected Areas[3]	9	172,577 (including 104,098 ha. of Marine area)
Internationally Recognized Conservation Areas		
Ramsar Wetlands of International Importance	5	84,982
UNESCO Biosphere Reserves	8	n.d.
UNESCO Natural World Heritage Sites	3	n.d.
ASEAN Heritage Parks	4	n.d.
Important Bird Areas	65	n.d.

[1] This is considered to be a type of Landscape Protection Area under the Law on Forest Protection and Development, but is recognized as a separate category of PA under the more recent Law on Biodiversity (MARD & GIZ, 2011)
[2] Special Use Forest includes National Parks, Nature Reserves, SHCAs, LPAs and ESRAs.
[3] Three categories of MPA are recognized under the law on Fisheries: National Park, Aquatic Natural Reserve, and Species and Habitat Conservation Areas. However, six of the 9 existing MPAs are currently established as SUF.

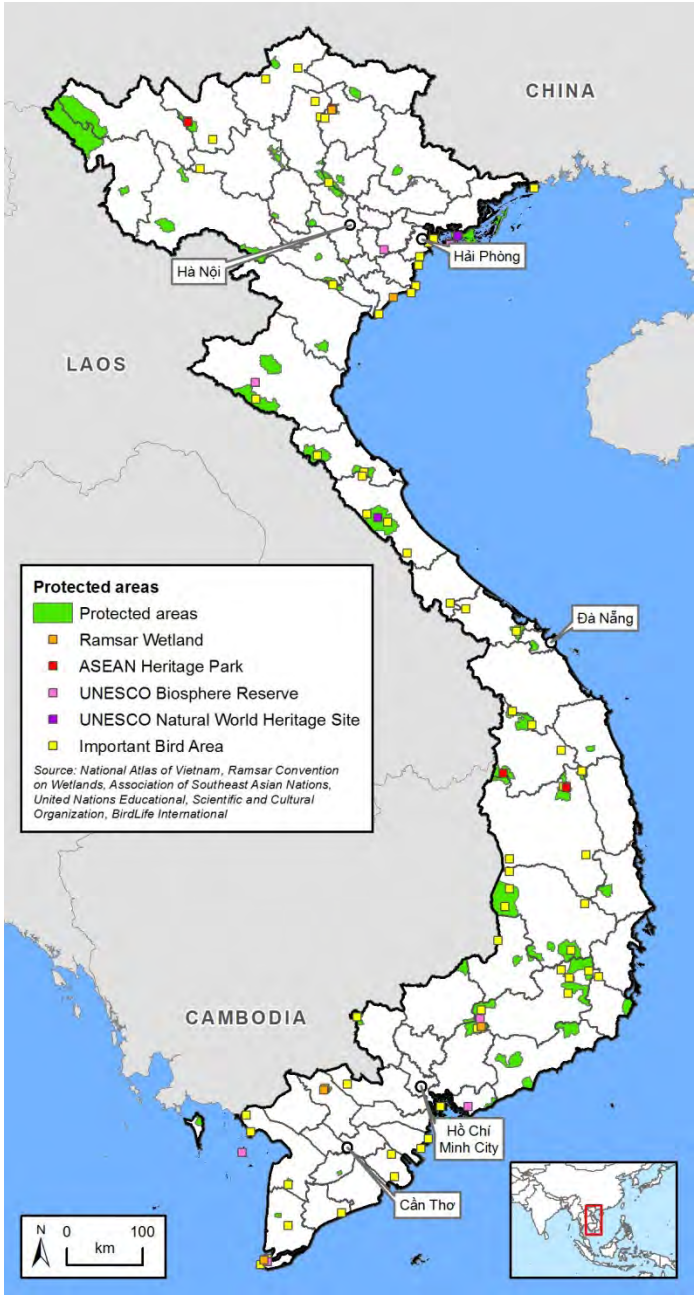
Sources: MARD & GIZ, 2011; MARD, 2013; UNESCO, 2012; UNESCO, 2013; BirdLife International, 2002; and Sunchindah & Probosasi, 1999. Compilation SMTN, 2013.

6.3.1 NATIONAL PROTECTED AREA MANAGEMENT

Administration

The management responsibility of a protected area in Vietnam depends on whether it falls entirely within a province or if it straddles provincial boundaries. MARD has management responsibility for those protected areas that are in more than one province while the PPCs are responsible for PAs contained entirely within one province. This arrangement has resulted in a highly decentralized governance system, with only six national parks directly managed by MARD. Most remaining SUFs are managed at the provincial level under the authority of the PPCs. In fact, while the PPCs typically nominate a management board and retain control over PA budgets, they delegate the day-to-day administration of PA operations and conservation activities to the Provincial Department of Agriculture and Rural Development (DARD) or even the DARD's Sub-Department of Forest Protection.

Map 7 Protected Areas and Internationally Recognized Conservation Areas of Vietnam



In the case of MPA the management responsibility situation is unclear. While the 2003 Fisheries Law established a legal framework for three categories of MPA, they have not yet been systematized in practice, and six of the nine existing MPAs are still legally classified as special use forests. Furthermore, the Fisheries Law does not clarify which governmental entity is responsible for managing MPAs. The ambiguity is further complicated when a PA includes both coastal and marine areas.

Protected areas are zoned according to three resource use categories: a strict protection zone, ecological restoration zone, and service-administration zone. Furthermore, a buffer zone is established around the protected area, although no formal standards for buffer zone management are established (MARD & GIZ, 2011).

When PAs cross provincial boundaries, they can only be established by agreement among the PPC from all provinces in which the PA is located. While this can create hurdles to establishing trans-provincial PAs, a number have already been successfully established in Vietnam.

Conservation Status

There is no comprehensive data set on the conservation status of Vietnam's PAs. Conservation status can be inferred, however, from the relevant authority's capacity to effectively manage and conserve existing protected areas, the viability of PAs as ecosystem units, and socioeconomic pressures on protected area resources.

In many PAs, habitat degradation is occurring as a result of weak management capacity, fragmentation of habitat, and resource use pressure by surrounding communities. In conjunction with this assessment, interviews with key stakeholders and a review of secondary data identified the following factors as the major causes of limited PA management capacity:

1. **Limited funding for PA management** – The Ministry of Planning and Investment coordinates with MARD to allocate funds for PAs, but in the case of provincially managed PAs the PPCs have the final authority on provincial budgets and are able to divert this funding if they don't consider PA management to be a priority. Donors provide funding to some PAs in Vietnam in addition to GVN funds, particularly to PAs that are centrally managed.
2. **Lack of enforcement authority for PA management boards** – PA management boards and staff have the authority to implement conservation activities, but do not have the authority to enforce environmental protection measures and resource use restrictions. Instead, they must inform the appropriate regulatory body, such as the Provincial Forestry Protection Department or Provincial Fisheries Protection Department, among other authorities, depending on the type of infraction.
3. **Overlapping institutional mandates** – Unclear divisions between mandates prevent effective planning and centralized management of PAs nationally. A total of 6 central government institutions, as well as the PPCs and the provincial or departmental representations of national ministries have a role in PA management (MARD & GIZ, 2011). MARD and MoNRE are one of the prime examples of this overlap, as they both have a mandate to manage protected areas but with different institutional objectives (see, for example, MARD & GIZ, 2011a).
4. **Focus on hard infrastructure** – Sixty percent of the budget for protected areas goes to infrastructure such as dikes and roads rather than conservation activities (PARC, 2006), such as research, planning, capacity building and community involvement. This is particularly true for chronically underfunded PAs under the jurisdiction of PPCs.
5. **Limited human and institutional capacity at the PA level** – While MARD earmarks funding for PA management, salaries for park rangers and other staff are low making it difficult to attract and retain qualified personnel. Furthermore, individuals with the skills needed for effective PA management, such as lawyers, social scientists and tourism specialists are discouraged from following a career in protected area management because the current job classification scheme does not differentiate between professions. Moreover, PA directors are political appointees and in some cases do not have either the commitment or a strong background in conservation. Finally, staffing allocations are based on the size of each protected area and not need. Hence, a protected areas in a densely populated area that require more staff to effectively control access and resource use may be allocated the same number of personnel as a similarly sized protected area in a sparsely populated area.
6. **Population and resource use pressure** – Many PAs in Vietnam are in densely populated areas. Often, local residents hunt, fish and collect NTFP within PAs. In fact, eighty percent of the country's protected areas have people residing within them (PARC, 2006). In some cases these activities predate the establishment of the PA and may constitute an important supplemental source of income or food. However, when uncontrolled, illegal hunting leads to empty forests and fishing to depleted rivers and wetlands.

7. **Fragmentation of PAs into smaller conservation units** – The number of PAs in Vietnam has increased from 122 to 164 since 2003, but the total area of the network of PAs has not increased in size. This fragmentation has occurred as degraded PAs have been eliminated and new (and on average smaller) PAs have been established, resulting in a small average size of conservation units.
8. **The construction of infrastructure within PAs** – Despite legal restrictions, roads, dams, and dykes are frequently built within PAs, affecting ecosystem function, increasing human access and fragmentation, and causing direct damage to forest cover.
9. **Land Grab** – PAs under the jurisdiction of PPCs are susceptible to land grabbing by influential people. In a recent case, for example, well connected individuals attempted to abstract land assigned to the Bear Rescue Center in Tam Dao National Park in the north of the country (Vandenbrink, 2013). The Tam Dao park director was, in fact, reported to have been involved in this attempt, which was only thwarted after the Prime Minister intervened.

The GVN is working to remove many of the obstacles to effective conservation. MARD and MoNRE are currently working on an agreement to reconcile their overlapping mandates. Such an agreement is needed in order to implement all of the provisions of the Law on Biodiversity, including the systematization of PA categories and the creation of a centrally managed PA system (MARD & GIZ, 2011). The government, with donor assistance, is piloting co-management and benefit sharing schemes to assess how best to reconcile livelihood and conservation needs.

6.3.2 REPRESENTATIVENESS OF TROPICAL FORESTS AND BIODIVERSITY IN VIETNAM'S PROTECTED AREAS

Terrestrial PAs in Vietnam are the country's last bastions of primary tropical forest and other vegetation types (UN-REDD.org). The country's PA network contains representative patches of virtually all of Vietnam's major terrestrial ecosystems (MARD & GIZ, 2011a). If well managed, Vietnam's protected areas may be able to conserve up to 85% of the country's remaining biodiversity (Carew-Reid, 2013; FAO, 2010) including the majority of the estimated 80,000 ha. of remaining primary forest. While difficult to quantitatively verify this estimate, it is most likely that a majority of Vietnam's remaining primary tropical forest and overall terrestrial biodiversity can be conserved through the judicious management of the country's network of PAs. On the other hand, any degradation or loss of PA habitat results in significant negative impacts to biodiversity.

That said, there are still many important ecosystems that are under-represented in Vietnam's network of PAs, many of them of global significance. For example, of the 110 Key Biodiversity Areas identified by the CEPF in Vietnam, only 59 are currently within PAs (CEPF, 2012). Under-represented ecosystems include lowland rivers, tropical evergreen forests, coastal wetlands and marine ecosystems (MARD & GIZ, 2011, IUCN, 2007, PARC, 2006).

Recently the GVN has increased its effort to increase the area of marine ecosystems in its PAs network. It is committed to establishing 16 MPAs by 2020, a significant increase from the 6 MPAs that have been approved to date (MARD & GIZ, 2011). This government effort should reduce the current gap in conservation coverage of marine ecosystems, provided these areas are well managed. It is not clear however, whether Vietnam's lack of experience in MPA management will limit the effectiveness of this effort.

Climate change will affect the spatial and temporal distribution of rainfall and temperature extremes. Because the PA network is fragmented, it will be difficult for forest ecosystems and species in small PAs to migrate in response to these changes.

7 CAUSES OF FOREST DEGRADATION AND BIODIVERSITY LOSS

Vietnam is a global center of biodiversity yet, nationwide, remaining biodiversity and tropical forests are critically threatened. At a recent workshop (CEPF, 2012) conservation experts ranked the proximate causes of biodiversity loss as follows: 1) Hunting and trade in wildlife; 2) Habitat loss, degradation and fragmentation; 3) Climate change; 4) Logging; 5) Unsustainable exploitation of NTFPs (CEPF, 2012). These are addressed below, albeit using slightly modified terminology. The significance of each of these varies depending on the region and the conservation objective.

7.1 PROXIMATE CAUSES

7.1.1 DEFORESTATION AND LAND USE CHANGE

The FAO estimates that 13,800,000 ha. of Vietnam's surface is under forest cover. Naturally regenerated forest accounts for approximately 10,200,000 ha, (74%), and planted forests accounts for another 3,500,000 ha. (35%) (FAO, 2010, in: CEPF, 2012). Primary forests are estimated to represent only 80,000 ha. (1%) of Vietnam's forest cover (ibid). These estimates are comparable to US Forest Service estimates that Vietnam has roughly 13 million ha. of forest cover (39% of the national territory).

Forest cover in Vietnam increased by approximately 50% between 1990 and 2010, partly as a result of natural regeneration and the Five Million Hectare Program for reforestation undertaken from 1998 to 2010 (CEPF, 2012; Carew-Reid, Kempinski, & Clause, 2010). While the increase in single species plantations helps stabilize soils, regulate the hydrologic cycle, store carbon and reduce the pressure on native forests by offering an alternative source of timber and fuel wood, their intrinsic biodiversity value is negligible when compared with that of tropical forests.

Encroachment and land grabbing continue to threaten PAs in Vietnam (FAO, 2011, in: CEPF 2012). While overall forest cover has increased, mature tropical forests continues to be replaced, albeit on a small localized scale, by more lucrative forestry plantations and cacao cultivation (Carew-Reid, Kempinski, & Clause, 2010). The increase in commercial agriculture and overall economic growth requires the construction of roads and transmission lines, which further increase the vulnerability and fragmentation of forest patches. Since an estimated 85% of Vietnam's biodiversity is contained in the 1% that remains of mature natural forests, even small losses have a significant negative impact on biodiversity (Carew-Reid, 2013).

Over the past decades, Vietnam has lost a significant proportion of its mangroves. On a per-unit area this ecosystem is one of the most productive on earth. Because many fish, mollusks and crustacean species spend critical phases of their lives in mangroves, this loss may have had a profound impact on the productivity of coastal zones along the entire Vietnamese coast. One of the prime drivers of mangrove deforestation has been aquaculture.

Sea and brackish water aquaculture increased in area from 400,000 to 700,000 ha. between 2000 and 2007 (McNally, McEwin, & Holland, 2011). Some influential individuals are now establishing industrial scale shrimp farms, which entail clear-cutting mangroves and building shrimp ponds (McNally, McEwin, & Holland, 2001; Carew-Reid, 2013; Pham Tien & Yoshino, 2013). Clam farming in inter-tidal mud flats has recently become another important driver of mangrove deforestation, while low intensity cutting for

firewood and timber is a pervasive threat to the integrity of this ecosystem (McNally, McEwin, & Holland, 2011).

7.1.2 ILLEGAL TRADE IN WILDLIFE

As described above, Vietnam is of global importance as a transit country in the illegal international trade in animal and plant products. Unfortunately, the country also plays a role as a supplier to this trade, both nationally and internationally. For example, of the more than 53 species hunted or collected at Bac Huong Hoa Nature Reserve, 14 are globally threatened and 36 are nationally protected species. Many species are listed under CITES (WCS, 2012). Evidence suggests that the wildlife trade is the greatest threat to the reserve's animal population (Dang Ngoc, Mahood, & Tran Van, 2008). Most of the illicitly traded products are for commercial purposes.

Demand for wildlife products in Vietnam and neighboring countries is driven largely by "cultural preferences that encourage the consumption of products made from endangered wildlife." There are also indications that the increased purchasing power of Asian consumers has helped drive demand for what are considered "luxury and status" products (Traffic, n.d.). Campaigns to raise awareness about the negative impacts of the consumption of threatened species have been ineffective (Brunner, 2012) in stemming trade in wildlife. Illegal cross-border wildlife trafficking is run by organized gangs who often have ties to human, arms and e-waste trafficking and typically use the same smuggling routes (WCS, 2012).

Illegal cross-border traffic is possible in Vietnam because of poor customs enforcement in ports, airports and along the nation's porous borders and it is driven by the high profits that the illegal trade in plants and animals generates. Observations during several days at Vietnam-China border crossings in Quang Ninh Province showed that 76% of the vehicles crossing into China used illegal crossing points and avoided customs inspection (Traffic, n.d.; WCS 2012). Furthermore, the cost of shipping illegal wildlife products to China is actually lower when products enter through Vietnamese ports, which have lower seizure rates, thereby offsetting the added expense of overland transit into China (WCS, 2012). Thus, the combination of healthy profits and poor law enforcement results in overexploitation of endangered species in Vietnam and the countries that supply this trade (Corlett 2007 and Nijman, 2010, in: CEPF, 2012).

7.1.3 ILLEGAL LOGGING

Vietnam's wood processing industry required about 6.4 million m^3 of roundwood equivalent (RWE) in 2010, only 1.6 million of which came from domestic supply. The remainder was imported from 26 other countries, principally Cambodia, Lao PDR, China, Malaysia and Thailand (To Xuan & Canby, 2011). Much of the timber exported from these countries is illegally logged from natural forests and trafficked for export due to high levels of corruption, particularly in Lao PDR, Cambodia and Malaysia. There are strong indications that Vietnamese state-owned enterprises are involved in the timber trade in Lao (EIA, 2011).

The vertiginous growth of furniture, paper and pulp production in Vietnam – fivefold from 1.5 million m^3 of RWE in 2000 to 8.2 million m^3 in 2008 – indicates that the demand for illegal wood in Vietnam will continue to be strong, as the government and industry have demonstrated "interest in expanding to new markets" (To Xuan Phuc & Canby, 2011).

There is clear evidence that domestic illegal logging is largely run by organized criminal groups. Forestry department efforts to control illegal logging have had limited success. Hundreds of attacks on forestry

officials were reported in the first six months of 2009 (IRIN, 2009). In fact, less than 200,000 m^3 of RWE timber are confiscated each year (To Xuan Phuc & Canby, 2011).

Finally, Illegal logging by local residents for firewood, construction and other uses is widespread and has significant local impact as discussed below.

7.1.4 LOCAL OVEREXPLOITATION OF BIOLOGICAL RESOURCES

The risk of locally driven overexploitation of NTFPs and other resources generally depends on the population density in relation to available resources. It also depends on the capacity of forest and environmental protection staff to control these practices, particularly in protected areas (Dang Ngoc Can, Mahood, & Tran Van Hung, 2008).

The demand for NTFPs and other resources that leads to local overexploitation stems from both domestic and international markets. For example, there is widespread overexploitation of medicinal and aromatic plant species driven by strong demand in both China and Vietnam. Many ethnic minority communities in Northern Vietnam collect large quantities of these plants and sell them to middlemen at prices far below market value. Efforts to promote sustainable collection by improving prices paid to collectors are nascent, such as the FairWild Standard promoted by Traffic (TRAFFIC, n.d.b).

Overexploitation of aquatic resources is also a serious threat to biodiversity conservation in Vietnam. Unsustainable fishing in freshwater systems, at times with poison and explosives, has expanded as a result of road construction and increased accessibility (S. Kullander, C. Ferraris, Jr. and Fang Fang in litt. 2004, in: CEPF, 2012).

Marine fisheries have also been greatly affected by overfishing, particularly in inshore areas. This is evident by the fact that fishers are now resorting to fishing juvenile individuals (Wyatt et. al. 2012) in different locations along Vietnam's coasts and that fishing effort per unit caught more than doubled from 1990 to 2002 (VEPA, 2005).

7.1.5 POLLUTION

Water, solid waste, air and noise pollution are nearing critical levels in Vietnam, in terms of load, toxicity and concentration, with significant impacts to terrestrial and aquatic biodiversity (Sawdon, Carew-Reid, & Laplante, 2011) (EPA, 2011). The problem is particularly acute in the case of water pollution in the lower watersheds of Vietnam's major rivers (Ibid), with impacts at the ecosystem level, presenting serious consequences for human and ecosystem health, in spite of legislation to regulate point source pollution (Sawdon, Carew-Reid, & Laplante, 2011) and significant capacity building efforts (Tran Thi Thahn Phuong & Le Thanh Huong Giang, 2013).

Urban areas are particularly affected by rapid industrialization. Municipal and industrial wastewater discharge has increased from less than 2 billion m^3 in 2002 to nearly 5 billion m^3 in 2010. Urban wastewater discharge is expected to exceed 14 billion m^3 in 2020 (ibid). While cities are not commonly viewed as an important contributor to biodiversity conservation, urban biodiversity can be important to the quality of life of its inhabitants. In Vietnam, where lowland ecosystems have been almost entirely transformed, parks and lakes in urban settings may serve as a refuge to endangered species. In an extreme example, two of the only four known remaining individuals of the Hoan Kiem turtle (*Rafetus swinhoei*) live in Vietnam, including one Hoan Kiem Lake in downtown Hanoi and one in Dong Mo Lake 60km from Hanoi (pers. obs. Nguyen Duc Tu, 2013).

7.1.6 INFRASTRUCTURE DEVELOPMENT

The construction of roads, canals, dams, dikes, ports and other infrastructure across Vietnam exacerbates habitat fragmentation and increases access and resource use pressure in remnant forests, wetlands and other natural habitats.

While the impact of individual infrastructure projects may be locally confined, the cumulative impact of widespread infrastructure and industrial development, even at small and medium scales, poses a threat to the viability of wetlands, coastal areas and agro-ecological ecosystems at the regional and national levels.

Dikes and Canals

Much of Vietnam's investment in climate change adaptation and resiliency has focused on developing dikes and canals in areas vulnerable to sea level rise and storm swells. This infrastructure can alter natural flood regimes that are an integral part of coastal and deltaic systems, and which are important for the maintenance of soil fertility, saline balance, and sedimentation in Vietnam's Mekong and Red River Deltas, which together account for a large majority of Vietnam's food production.

Canals, conversely pose a risk to conservation of natural aquatic and terrestrial habitats by facilitating fluvial access to some of the last remaining remote wetland and riparian grassland areas in the Red River and Mekong Deltas, while simultaneously draining these natural wetlands and grasslands at an accelerated rate. This increases the risk of invasive species and reduces the length of time water remains after floods (if flooding is not prevented by dikes) and rains, both of which can significantly alter the natural ecosystem equilibrium.

The construction of dikes and canals also contributes to the dual phenomenon of fragmenting aquatic habitat in some places and, to a lesser extent, in connecting previously separate aquatic habitat. For example, rangers at the Lang Sen Nature Reserve reported that dikes have separated the protected area from the rest of the Mekong Delta water network, isolating it from the natural ecosystem dynamics. This change is associated with a significant increase in snakehead fish populations relative to what existed prior to dike construction, which in turn affects the wetlands species composition.

Hydropower projects – dams and transmission lines

Hydropower generating capacity in Vietnam is slated to increase to between 13,000 and 15,000 MW from the current 4,000 MW by 2020 (ICEM, 2007). Seventy-three medium and large hydropower projects and an undetermined number of smaller plants are proposed to be in operation by that date. Of the large and medium dams, 16 were under construction in 2007 and 11 were in the planning or feasibility stages. An estimated 189,500 persons will need to be resettled, with new land for housing and farming in order to complete only 20 of these projects. ICEM (2007) assessed the impact of 22 proposed projects for which there was enough information and found that 13 would have high or very high impact on aquatic biodiversity. One recent study estimates that the construction of just one hydropower dam, the Tuyen Quang Hydropower Dam, "would lead to significant population declines downstream in 32 freshwater species and some fish spawning grounds" (Carew-Reid, Kempinski, & Clause, 2010). Since the expansion of the hydroelectric network is likely to continue, it behooves Vietnam to judiciously comply with existing SEA and EIA legislation to avoid, mitigate or compensate for the impacts to biodiversity.

Roads

Roads, both public roads and PA access roads, increase access and fragments forests, wetlands and other isolated natural habitats. Recently a road through the core zone of Chu Yang Sin national park was approved, despite the existence of viable alternative routes outside the park (ICEM, 2010; Carew-Reid, 2013). This demonstrates a disregard for Vietnam's environmental impact assessment procedures and regulations. On a regional scale, the construction of the Ho Chi Minh Highway through much of the length of the Annamite Mountains increased access and fragmented a biodiversity-rich area that was previously much more isolated (CEPF, 2012).

7.1.7 CHANGING AGRICULTURAL PRACTICES – REDUCTION OF AGROBIODIVERSITY

Vietnam has passed from a food insecure country to the world's second leading rice exporter after India (DW, 2013). This achievement has come at a price. While production has increased, the widespread adoption of high-yield crop varieties has led to the loss of traditional varieties adapted to local conditions and tastes otherwise known as land races. This is the case not only for rice but also other important food crops with estimated losses of land races reaching 80% for rice, 50% for maize and beans, 20% for bulbs, tubers and root plants, 90% for tea and fiber plants; and 70% for fruit trees (Phan Truong, 2003, in: MARD & VEA, 2008).

Changing agricultural practices required by the government also threaten traditional, *in situ* landrace management techniques. For example, a UNDP-funded project found that a government ban on shifting cultivation practices prevented traditional management practices for upland rice by ethnic minorities in northern Vietnam, potentially contributing to the loss of both these landraces and the related traditional knowledge (Margraf, Vu Van, & Tran Dinh, 2006).

While the government has avoided the introduction of genetically modified organisms (GMOs) it is now contemplating the introduction of genetically modified seeds in 30% of Vietnam's farmland by 2020 (Hoang, 2013). If unregulated the introduction of GMOs may threaten the genetic diversity of cropping systems in the country and may have unpredictable negative impacts of biodiversity in general.

7.1.8 WEAK PROTECTED AREA MANAGEMENT

As indicated in section 0, effective protected area management in Vietnam is compromised by a number of factors; some intrinsic to the legal and institutional system that is responsible for protected area management, and others related to the social, cultural, political and geographic context in which protected areas exist. Overlapping and conflicting institutional mandates, lack of capacity and reduced financing fall within the former; high population pressure and Vietnam's geographic location next to China fall within the latter. As suggested elsewhere within this report, the judicious management of protected areas should be a keystone of any strategy to help save Vietnam's remaining pockets of high biodiversity and tropical forests.

7.1.9 WEAK ENFORCEMENT OF EXISTING LEGISLATION

While there are problems with Vietnam's existing legal environmental framework, the threats to biodiversity and tropical forests in Vietnam would be reduced by the full application of this framework even if imperfect. The prior sections illustrate how the legal framework is circumvented in many sectors, resulting in illegal logging, illicit trade in endangered species, land grabbing, and weak application of environmental impact mitigation measures. Some of the reasons why laws are not applied have to do with systemic problems as discussed in Sections 5 (Policy and Legal Framework) and 6 (Institutions and their Mandates). Others derive from ethical flaws and political commitment which together point to a

fundamental problem with the overall system of environmental governance in Vietnam, the principal theme of section 7.2 (Root Cause).

7.2 ROOT CAUSE

Identifying the root cause of tropical forest degradation and biodiversity loss in a country is a complex, nuanced process. If the identified root cause is overwhelming in complexity and scale (i.e. globalization) addressing it becomes an overwhelming task; if it is too specific (i.e. illegal hunting) it is not a *bona-fide* root cause but a proximate cause and addressing it would have a limited impact.

Therefore, in seeking the root cause for environmental degradation in Vietnam, the assessment team adhered to two criteria: 1) the "root cause" should be within the management interest of the donor community in general and USAID specifically; and 2) it should be so defined such that, if addressed, it would help solve Vietnam's biodiversity and tropical forest loss and degradation across sectors and scales.

During this assessment, the assessment team interviewed more than 40 individuals from a broad spectrum of institutions, technical backgrounds and decision-making levels. When asked to identify the principal driver of biodiversity loss in Vietnam, most interviewees answered that it was an outcome of economic growth or development, or activities derived from these processes such as the expansion of infrastructure (roads, dikes, dams), expansion of cultivation, and international trade among others.

Indeed, Vietnam's GDP is growing vertiginously, averaging around eight percent over the last decade. Today, its economy is four times larger than it was in the early 1990s and the country now falls into the ranks of lower-middle-income countries (The World Bank, 2012). Poverty, using a "basic needs" 1990 baseline, has fallen from 58% to 14.5%. Other indicators of quality of life – such as education, reduced morbidity and reduced mortality – have also improved.

Vietnam has little option but to continue expanding its economy in the foreseeable future. While tens of millions of households have risen out of poverty, many remain vulnerable to falling back into it as a result of unexpected shocks at the household (e.g. personal accident), or national levels (e.g. droughts, floods, pandemics). Citizen aspirations are increasing and pockets of poverty persist primarily in minority areas (The World Bank, 2012). Faced with this situation, the Eleventh Congress of the Communist Party of Vietnam endorsed the 2011-2020 Socio Economic Development Strategy, which aims to turn Vietnam into an industrialized nation in the next decade. ***Therefore, accepting economic development as the root cause of biodiversity loss would be a capitulation and acceptance that nothing can be done about it.***

The team posits, instead, that economic development can be reconciled with conservation of biodiversity and tropical forests. The team believes that better environmental stewardship is a necessary condition for Vietnam's sustainable development and that economic development in and of itself is not the root cause of the loss of biodiversity in the country. Instead, the team maintains that ***the root cause for the precipitous loss of biodiversity and tropical forest degradation in Vietnam is the country's dysfunctional environmental governance system in the context of a fast-evolving national and global economy.*** In short, the assessment team believes that the negative impacts of economic development on tropical forests and biodiversity can and should be better managed, avoided and mitigated.

The weaknesses in Vietnam's environmental governance can be attributed to a number of factors, most of them outlined in Section 4 (Policies and Legal Framework). These have to be addressed to enhance

biodiversity and tropical forest conservation, and to ensure that the country's ecosystems can continue to provide the environmental services needed for sustainable development. The principal elements of Vietnam's poor environmental governance are:

- Confusing, conflicting and overlapping institutional and legal frameworks;
- Lack of coordination among agencies that have a bearing on the environment;
- Lack of *a bona fide* system of protected areas;
- Inadequate enforcement of existing environmental laws and regulations;
- Lack of appreciation by decision makers of the importance of biodiversity and environmental services to sustainable development;
- Weak implementation, monitoring and enforcement of environmental impact assessment regulations;
- Inadequate capacity to implement conservation strategies and plans;
- Inexistence of a strategy and mechanisms to engage local communities in the conservation of biodiversity and tropical forests;
- Weak environmentally oriented civil society organizations;
- Weak border controls and illegal trade endangered species (timber, animals and parts, plants (ornamental and medicinal)
- A flawed decentralization of tropical forest and biodiversity conservation responsibilities.

Section 8 (Priority Actions to Conserve Biodiversity and Tropical Forests) presents the extent of these shortfalls and the actions necessary to remedy them.

8 PRIORITY ACTIONS TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS

Based on the outcome of this assessment we propose that the actions necessary to conserve biodiversity in Vietnam fall under three interdependent themes: 1) environmental governance; 3) site-based conservation actions; and 3) conservation financing.

8.1 ENVIRONMENTAL GOVERNANCE

As indicated above, Vietnam's legal and institutional framework has many conflicting and overlapping policies, laws and regulations that translates into a confusing set of institutional mandates and inefficient conservation planning, implementation, financing, monitoring and enforcement. To improve this situation the following actions are necessary:

8.1.1 CLARIFY THE NATIONAL LEGAL AND INSTITUTIONAL FRAMEWORK WITH A BEARING ON FOREST AND BIODIVERSITY CONSERVATION.

This action includes: review and modification of laws, regulations, decrees, decisions and other legal instruments. Much of the review of environmental regulations has already been accomplished by the "Preservation of Biodiversity in Forest Ecosystems" project implemented jointly by GIZ and the Ministry of Agriculture and Rural Development (MARD). The recommendations from these studies must now be effectively implemented. To accomplish this USAID would have to work in partnership with a reputable Vietnamese NGO that has strong convening power.

8.1.2 HELP TRANSFORM A POTPOURRI OF CONSERVATION UNITS INTO A *BONA FIDE* SYSTEM OF CONSERVATION AREAS.

Currently Vietnam does not have a *bona fide* protected areas system, nor even a network of conservation units. With the exception of six centrally managed national parks, there is a variety of independent units administered by different entities, with no common management approach or guidelines, no common categorization scheme, highly uneven and uncertain financing, inadequate staffing and no regular monitoring or evaluation. It is particularly important to develop and apply a set of common guidelines to protected areas under the jurisdiction of PPCs. To be effective, such a "system" would include, at least a common monitoring and evaluation methodology, a common guideline for protected areas management, clear and functional institutional mandates, the adoption of one and only one system for categorizing protected areas, a financing process that allocates resources based on the needs of the overall system instead of individual units, and the organization of conservation units under the jurisdiction of only one institution.

8.1.3 STRENGTHEN ENVIRONMENTAL LAW ENFORCEMENT

Vietnam cannot afford to wait for a perfect legal and institutional framework before it takes action to stop the rapid decline of its biodiversity and ecosystems. The situation is critical. While the country's laws and regulations on protected areas and conservation are deficient, when considered together with the international legal instruments to which the country has adhered, they provide a basis for improving conservation while the legal and institutional frameworks are improved. An analysis of the reasons why enforcement is weak and the identification of strategic interventions would be an important first step towards helping the GVN enhance the enforcement of environmental laws and regulations.

8.1.4 IMPROVE THE APPLICATION OF THE NATIONAL ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT SYSTEM.

Much of the damage to Vietnam's biodiversity and remaining tropical forests is caused by the expansion of infrastructure (roads, dams, dikes, ports, transmission lines), large-scale or widespread economic activities (i.e. shrimp farming, irrigation, mining), and policies and programs in the absence of appropriate environmental and social safeguards. While the Law on Environmental Protection of 2005 and supplemental decrees and circulars establish an adequate legal framework for an EIA/SEA system, the institutional capacity to implement these legal requirements is lacking (Carew-Reid et al., 2010, The World Bank, 2010). Because of this weak capacity on the part of the government, companies tend to prepare EIAs to conform to the letter of the law rather than to integrate the findings of the studies into planning, design and operation. It follows that to reconcile economic growth with sustainable development Vietnam needs to take the next step by taking its legal framework on EIAs and SEAs from theory to practice. For this the country could benefit from capacity building on EIA/SEA methodologies, including the development of sector specific guidelines, capacity building on reviewing and assessing EIAs and SEAs, and monitoring the implementation of mitigation actions through environmental audits and other approaches.

8.1.5 DEMONSTRATE AND COMMUNICATE, IN ECONOMIC AND NON-ECONOMIC TERMS, THE COST OF POOR ENVIRONMENTAL MANAGEMENT AND THE VALUE OF ENVIRONMENTAL SERVICES.

Vietnam's government has a clear development strategy. It is focused on economic growth with industrialization as a key sector. Conservation for the sake of conservation and respect for the intrinsic value of nature are a "hard sell" in a country with pressing economic and social needs such as Vietnam. Decisions are made based primarily on political, security, economic, and social considerations. For conservation of biodiversity and tropical forests to be considered a priority it needs to contribute to this overall growth strategy. Therefore, to secure widespread support for improving environmental governance it is important to demonstrate and communicate to decision makers at all levels the importance of biodiversity conservation to sustainable development. Some potential topics include: 1) the economic and social contribution of mangroves to sustainable development; 2) the economic and cultural value of tropical forests (soil stability, pollination, flood control, products (NTFP), medicinal plants, energy, tourism); 3) the economic and practical value of ecosystem-based adaptation; 4) the value of biodiversity-based traditional medicine; and 5) the value of traditional varieties to climate change adaptation.

8.1.6 USE ENVIRONMENTAL REQUIREMENTS OF INTERNATIONAL TRADE AGREEMENTS

Since it began to open its economy in the 1990s, Vietnam has become increasingly dependent on the global market. Its exports reached an all time high of 11472 USD million in January of 2013. Crude oil, textiles, wood products, seafood, rice, electronics, computers and rubber accounted for a large proportion of the country's exports. Vietnam's main trading partners are: United States, Japan, China, Australia and Singapore. The country is poised to increase international trade through its participation in various free trade agreements, amongst them the Trans-Pacific Partnership (TPP) trade agreement and the ASEAN free trade agreement. These and bi-lateral trade agreements require adherence to environmental performance standards. With respect to tropical forests and wood products, the EU's Forest, Law Enforcement, Government and Trade (FLEGT) Initiative and the Lacy Act in the US both require that wood and wood products entering their respective jurisdiction are secured from legally verified sources. Furthermore, constituencies in the three principal export markets for wood product

exports from Vietnam (EU-FLEGT 2011) – USA, EU and Japan – are increasingly concerned with the environmental impact of their consumption patterns on tropical forests. Vietnam must comply with these environment-related trade requirements to maintain access to its most important export markets. This situation creates an incentive for Vietnam to strengthen its environmental governance performance and an opportunity for donors to assist it to meet environmental trade requirements.

8.1.7 HELP VIETNAM PUT IN PLACE MEASURES TO CONTROL THE ILLEGAL TRAFFIC OF ANIMALS AND PLANTS

Vietnam is a vital link in the illicit animal and plant trade network. As indicated elsewhere in this report, the country is both; a destination and transit country. Moreover, the fast growth of Vietnam's wood products industry is fueling the massive importation of illegal timber from neighboring Laos and Cambodia. As long as it continues to play these roles Vietnam will be a global and regional threat to biodiversity. To a large extent, the specific points where these items enter and leave Vietnam are known. It is a matter of mustering the political will and enhancing the capacity to enforce national laws and Vietnam's commitments under CITES. The trade-related requirements referred to above and government sensitivities to world opinion could serve as effective incentives to catapult the government into action. At a regional scale, USAID could work to enhance environmental governance by Vietnam's neighbors, particularly Cambodia and Lao PDR.

8.1.8 STRENGTHEN ENVIRONMENTAL CIVIL SOCIETY ORGANIZATIONS WHILE IMPLEMENTING CONSERVATION ACTIONS

Vietnamese civil society has played an important but modest role in helping conserve the nation's forests and biodiversity. There is a need to strengthen civil society organizations including both; those that operate nationally and those that are locally based and focused. Because of ecosystem fragmentation and the small size of conservation units, effective conservation can be achieved through small-scale activities by relatively small organization with in-depth knowledge of local conditions. This combination of factors creates an opportunity for small grants-based conservation assistance programs that play a dual role: 1) achieving conservation outcomes; 2) strengthening civil society organizations. These two benefit streams may be achieved if the national and local level Vietnamese organizations participate in an iterative bidding process and are concomitantly provided with the necessary technical and managerial support including for example, the establishment of procurement and financial management systems, adjustment of organizational structure, the development of manuals, development of overall internal policies and procedures (human resources, procurement, travel), assistance with strategic planning, capacity-building on technical aspects of conservation, legal support, and improvement of installations and equipment.

8.2 SITE-BASED CONSERVATION ACTIONS

8.2.1 UNDERTAKE EMERGENCY IN-SITU CONSERVATION ACTIONS

Vietnam distinguishes itself by its overall biodiversity and high level of endemism and the crucial role it plays in the life cycle of migratory species. The country's limestone forest ecosystems are a global biodiversity conservation priority. Despite extensive clearing and degradation, these forests still harbor an important number of endemic species, many of them yet to be discovered. The country's inland and coastal wetlands are important stopover and wintering sites for globally threatened migratory species using the East-Asian flyway (Nguyen Duc Tu, 2006). **Both Vietnam's limestone forests and wetlands are under intense pressures and immediate high impact actions are needed while the country improves its overall environmental governance.**

The situation is particularly critical with respect to Vietnam's primates with 21 out of 24 species (81%) threatened. Urgent conservation actions, such as law enforcement, are needed at strategically selected sites to prevent extinctions of global significance. Considerable work has been done in Vietnam to identify areas of key global importance for conservation that can be used as a basis for site selection and activity design. Recent work (Mant et al. 2013) can help identify where biodiversity conservation can be combined with climate change mitigation. The provinces of Nghe An (Pu Huong Nature Reserve), Quang Binh (Phong-Nha – Ke Bang National Park), Dak Lak (Yok Don National Park), and Lam Dong (Cat Tien National Park) could provide interesting opportunities for synergies among conservation, climate change mitigation and poverty alleviation. Because some of the protected areas in those provinces share borders with protected areas in Laos or Cambodia, there are opportunities for cross border conservation initiatives.

8.3 CONSERVATION FINANCING

8.3.1 PROTECTED AREA FINANCING: ALLOCATION AND MANAGEMENT

Decree 117/2010/ND-CP on Special Use Forest Organization and Management, and Articles 10 and 11 of the Law on Forest Protection and Development (2004) establish that funding for conservation shall come from three sources – state budget, income from the provision on environmental services, and funding from domestic and international organizations and individuals. While the funding sources are clearly specified, the allocation, use, monitoring and financial reporting of these funds are chaotic in practice. In fact, MARD, the entity hereto responsible for the management of protected areas has no information on PA funding since 2006 (GIZ 2012). Nonetheless, the available data reveals a great variation of funding among centrally managed protected areas, and a wide gap in funding between centrally managed and provincially managed protected areas. Funding fluctuates widely from year to year and conservation suffers from chronic underfunding. In large measure these weaknesses stem from the lack of a *bona fide* protected areas system as discussed elsewhere in this document. Fixing them requires that the lack of information on protected area financing be remedied. Without reliable information on the use of financial resources the planning and executing of conservation actions are difficult. There is a need to help MARD and PPC establish budgeting and financial management systems to enable for rational funding decisions, reporting, and overall transparency.

8.3.2 PAYMENT FOR ENVIRONMENTAL SERVICES AND OTHER INNOVATIVE CONSERVATION FINANCING MECHANISMS

Vietnam is a leader in PES in Southeast Asia. Experiences with USAID pilot programs (Winrock, 2011) in Lan Dong and Son La Provinces guided the development of Decree 99 that establishes the legal foundations that enable provinces to demand hydropower plants, water companies and tourism businesses to pay a certain percentage of their income to relevant environmental service providers. The government is also fully behind the UNFCCC's REDD+ initiative. This favorable environment creates an opportunity for provinces to implement PES. Furthermore, Vietnam is also interested in testing compensations schemes, such as biodiversity offsets, for unavoidable environmental effects. However, setting up these schemes is complicated. Vietnam could benefit from USAID's assistance to identify opportunities, design, negotiate and implement PES.

9 INTEGRATING ACTIONS FOR BIODIVERSITY AND TROPICAL FOREST CONSERVATION IN THE PROPOSED USAID/VIETNAM STRATEGY

Looking beyond the FAA statutory requirement and ADS operating policy, the true objective of assessing biodiversity and tropical forestry in Vietnam is to inform USAID planning, decision- making and resource allocation. This report describes the natural and human environments in Vietnam, reviews relevant policies and legal and institutional frameworks, analyses ecological trends and causes of degradation, and identifies priority actions to protect biodiversity and tropical forests. These conditions and factors should frame conservation efforts.

USAID/Vietnam is currently preparing its CDCS, offering the ideal opportunity to integrate conservation-oriented objectives into the mission's portfolio. In fact, arguably the mission's draft development objectives (DO): DO1) Governance enhanced to facilitate broader-based sustainable growth; and DO2) Capacity strengthened to protect and improve health and well-being, cannot be realized without addressing environment degradation. Sustainable growth is unlikely without conserving the environmental services that make it possible, and good health and well-being require a healthy environment. Hence, while USAID/Vietnam's evolving CDCS does not explicitly address the required actions for tropical forest and biodiversity conservation, it can accommodate environmental management and conservation-related themes and interventions in programs that might not otherwise be considered 'environmental' in nature, such as health and governance programs. This section of the report suggests specific opportunities for linking conservation priorities with the proposed USAID/Vietnam results framework.

Figure 1 summarizes the findings of the assessment by bringing together what this assessment found to be the root cause (*Dysfunctional environmental governance in the context of fast economic growth*) of biodiversity and tropical forest loss, factors that give rise to the root cause, threats (proximate causes) to tropical forests and biodiversity, and a list of actions necessary to reverse current trends. Figure 2, shows how lower-level intermediate results designed to address some of the threats to biodiversity and tropical forests could fit into USAID/Vietnam's evolving results framework.

DO1 (*Governance enhanced to facilitate broader-based sustainable growth)* is directly linked to the overall root cause of environmental degradation: weak environmental governance. Without mitigating the negative impacts that Vietnam's economic growth is having on the country's environmental fabric neither sustainable growth or development can occur. In the case of the environment, weak governance manifests itself at all levels and is particularly applicable to USAID/Vietnam.

In the case of DO1, bilateral donor GIZ has made considerable progress in identifying the topics and road map to help improve Vietnams' legal and regulatory framework that bears on the environment. Any involvement of USAID/Vietnam in this topic should be complementary to what GIZ has accomplished. It is difficult at this juncture to specify what actions should be undertaken to rectify weaknesses in the legal and regulatory framework. The assessment team suggests that USAID/Vietnam could address environmental governance under a lower level intermediate result stated: *Legal framework and institutional mandates with a bearing on forests and biodiversity clarified.*

In the case of DO1, the needs are many. The assessment team recommends four priority areas of intervention for USAID: 1) improve Vietnam's capacity to enforce its commitments under CITES; 2)

work at the local level in selected protected areas to help communities and the government enforce laws and regulations at the local level; 3) enhance the knowledge of provincial and local-level government (PPCs DPCs and CPCs) about forest and biodiversity conservation, particularly protected area management and how it all links to adaptation to climate change and economic development; and 4) enhance the capacity of MoNRE and PPCs to apply the existing legal and regulatory framework pertaining to environmental and social impacts of large projects and policies. It is important to note that new Governance for Inclusive Growth mechanism under the Economic Growth Office could be adjusted to include compliance with the environmental requirements of trade agreements. This would entail the incorporation of MoNRE in the project. These activities could be encapsulated by the following lower-level intermediate result: *Compliance with environmental requirements of international agreements improved.* The team further recommends two yet lower level IRs: 1) *measures to control illegal traffic of plants and animals in place; and* 2) *Improved application of environmental impact assessment and management regulations*.

Under DO2 (*Capacity improved to protect health and well-being*), achieving climate and disaster resilient development and addressing vulnerable populations calls for interventions in support of forest and biodiversity conservation. In the first case, USAID/Vietnam's Forests and Delta project is undertaking forest and biodiversity conservation under the aegis of climate change adaptation. USAID/Vietnam is also addressing the needs of vulnerable populations at the community level through four activities under its Disaster Assistance Program and one (support for cocoa production) under the Economic Growth Office. The descriptions of the community-level adaptation activities indicate that their aim is to enhance the ability of affected communities to respond to extreme events instead of mitigating *a-priori* the impact of the events themselves. The team suggests that USAID/Vietnam could expand its approach to adaptation through pilot "ecosystem-based adaptation" that brings together ecological, economic, cultural, and social dimensions of a system to make it more resilient to shocks. These activities could be implemented in high biodiversity forest ecosystems in critical watersheds where minority populations dwell.

In a situation such as one finds in Vietnam's minority areas, where short-term needs typically take precedence over long-term consequences, both long term conservation and immediate well-being must go together. For this reason, the team suggests (Figure 3) that USAID/Vietnam could *expand opportunities for vulnerable populations* by *enhancing benefits to communities from sustainably managed forested, wetlands and coastal ecosystems.* Vietnam's legal provisions for the implementation of payments for environmental services creates opportunities for synergies between biodiversity conservation and economic benefits that should be explored and made to work at the ground level. Other benefits[8] not quantifiable in economic terms include improved health, improved environment, and greater flexibility in the face of uncertainty.

[8] It is worth noting that improved watershed (i.e. forest) management is important for long-term sustainable discharge in watersheds used for hydropower generation. This being the case, tropical forest conservation goes hand-in-hand with USAID/Vietnam's Vietnam Clean Energy Program (VCEP). Sound watershed management is an important part of the foundation for sustainable hydropower generation, which is currently an important source of energy for Vietnam.

10 CONCLUSIONS

A multidisciplinary team conducted USAID/Vietnam's 118/119 biodiversity and tropical forest assessment as required under the FAA. Besides fulfilling the statutory requirement, the current assessment sought to provide USAID with information to help it identify and prioritize feasible and effective interventions to address proximate and root causes of biodiversity and tropical forest losses. The team used three primary sources of information: a desk-top study, interviews and conversations with over 40 knowledgeable individuals from a broad spectrum of organizations, and direct field-level observations during two field trips. The analysis of the information by the team led to the following conclusions:

- Due to a unique combination of location, topography, climate, geology and culture Vietnam is on a per/unit area one of the 20 most biodiverse countries on earth. This biodiversity is accompanied by a high level of cultural diversity (54 ethnic groups).
- From a biodiversity perspective Vietnam is of global importance for several reasons: 1) the intrinsic value of its biodiversity; 2) the high level of its endemism; 3) the fact that the country is a center of plant domestication; 4) the fact that cultural and biological diversity interact to make the country bioculturally diverse; and 5) the role that the country plays in the global illicit trade in animal and plant species.
- The literature review, the information derived through interviews and field observations, all point to a worrisome environmental state of affairs in Vietnam. Relatively new and some innovative legal instruments plus some specific actions by the government indicate increased concern for the currently negative environmental trends.
- There are many indicators of Vietnam's deteriorating environmental situation; among them, the degradation of its wetlands, fisheries, mangroves, tropical forests, declining agrobiodiversity and overall biodiversity loss as indicated by IUCN's Red Species List for the country. The situation is particularly worrisome in the case of mammals, reptiles and fish with 17%, 14%, and 8% of known species are threatened. The situation is critical in the case of primates with all 19 species threatened, seven of them critically endangered.
- On paper, Vietnam's "protected area" system would seem adequate to conserve the countries biodiversity; however, fundamental legal, regulatory and institutional weaknesses undermine the potential of Vietnam's protected areas to conserve the country's natural heritage.
- Vietnam's economy is growing at a fast pace (5.5% since 2010). This growth entails increases and diversification of agricultural production, the expansion of the country's infrastructure, including dams, roads, transmission lines, homes, and dykes among others. This growth is taking place in a context of weak environmental governance.
- *Fast economic growth without the necessary safeguards of an effective environmental governance framework is the root cause of tropical forest and biodiversity loss and degradation*.
- Weaknesses in environmental governance manifests itself at all levels but has its origin in an inadequate legal, regulatory and institutional framework, in spite of the numerous legal instruments that have a bearing on biodiversity and tropical forests. Conflicting and overlapping institutional responsibilities undermines the effectiveness of government institutions dealing with biodiversity and tropical forests.
- The fragmentation of protected area management responsibilities between the national government and provincial governments, as well as lack of clarity and overlapping institutional mandates, are of particular concern. The devolution of management responsibility to PPCs adds a political dimension to protected area management and places management decisions in the hands of decision makers that often do not have the necessary know-how or experience. Other factors include inadequate financial and human resources.

- The drivers of biodiversity and forest loss and degradation include: deforestation and land-use change, illegal trade in wild plant and animal species, illegal logging, overexploitation of NTFP by local populations, pollution, expansion of infrastructure, adoption of modern crop varieties at the expense of traditional land races, weak PA management and weak law enforcement.
- The draft USAID/Vietnam results framework and its ongoing program do not explicitly address the priority actions for biodiversity and tropical forest conservation; however, the two proposed development objectives imply a role for activities to conserve biodiversity and tropical forests.
- DO1 *(Governance enhanced to facilitate broader-based sustainable growth)* offers the opportunity for USAID/Vietnam to directly address the root cause for environmental degradation: *dysfunctional environmental governance in a context of fast economic growth*. The two IRs under DO1 could accommodate the activities necessary to address environmental governance weaknesses.
- DO2 *(Capacity strengthened to protect and improve human well-being)* also implies interventions related to biodiversity and tropical forests. USAID/Vietnam's current program includes a number of activities designed to improve the capacity of communities to respond to disasters and one large activity that places mangroves at the center of climate change adaptation. The two DO2 IRs offer an opportunity for USAID/Vietnam to expand its adaptation portfolio into biodiversity rich areas and incorporate disaster avoidance into its adaptation portfolio by conserving ecosystems that buffer the impact of extreme climate events. USAID/Vietnam should implement "ecosystem-based adaptation" activities on a pilot basis. The legal basis that exists in Vietnam for PES schemes creates an opportunity to join enhanced resilience with increased opportunities for local people. This is particularly true in areas where minority people dwell.

Figure 1

ENVIRONMENTAL GOVERNANCE, WEAKNESSES, CONSEQUENCES AND SOLUTIONS

Root Cause

Dysfunctional environmental governance in a context of fast economic growth

Proximate Causes/Drivers

- Deforestationa/land-use change
- Illegal trade in wildlife/plants
- Illegal logging
- Overexploitation of biological resources
    - Fishing
    - Hunting
    - Collection
- Pollution, particularly water
- Infrastructure with no impact mitigation
    - Dikes
    - Hydropower projects
    - Roads
- Weak PA Management
- Weak enforcement of laws and regulations
- Weak border controls

ELEMENTS OF WEAK ENVIRONMENTAL GOVERNANCE

- Confusing, conflicting and overlapping institutional and legal framework;
- Lack of coordination among agencies with a bearing on the environment;
- Lack of appreciation by decision makers of the importance of biodiversity and environmental services;
- Inexistence of a functional conservation units system;
- Inadequate capacity to implement conservation strategies and plans;
- Inadequate enforcement of existing environmental laws and regulations;
- Weak implementation, monitoring and enforcement of environmental impact assessment regulations;
- No strategy or mechanisms to engage local communities in the conservation of biodiversity and tropical forests;
- Weak environmentally oriented civil society organizations;

ACTIONS NEEDED (SELECTED)

- Clarify the legal framework and institutional mandates with a bearing on rainforest and biodiversity conservation
- Raise appreciation of economic value and importance of ecosystem functions by decision makers.
- Integrate conservation units into a bona-fide protected area system
- Improve the Application of Environmental Impact Assessment and Management System.
- Help Vietnam meet environmental requirements of international trade
- Improve financial management of protected area
- Help Vietnam put in place measures to control the illegal traffic of animals and plants
- Strengthen environmental civil society organizations while implementing conservation actions
- Test and demonstrate innovative conservation financing mechanisms
- Undertake emergency in-situ conservation actions with community engagement

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