Vietnam Experiences: Biodiversity, national targets with forest restoration as part of a climate mitigation and adaptation strategy

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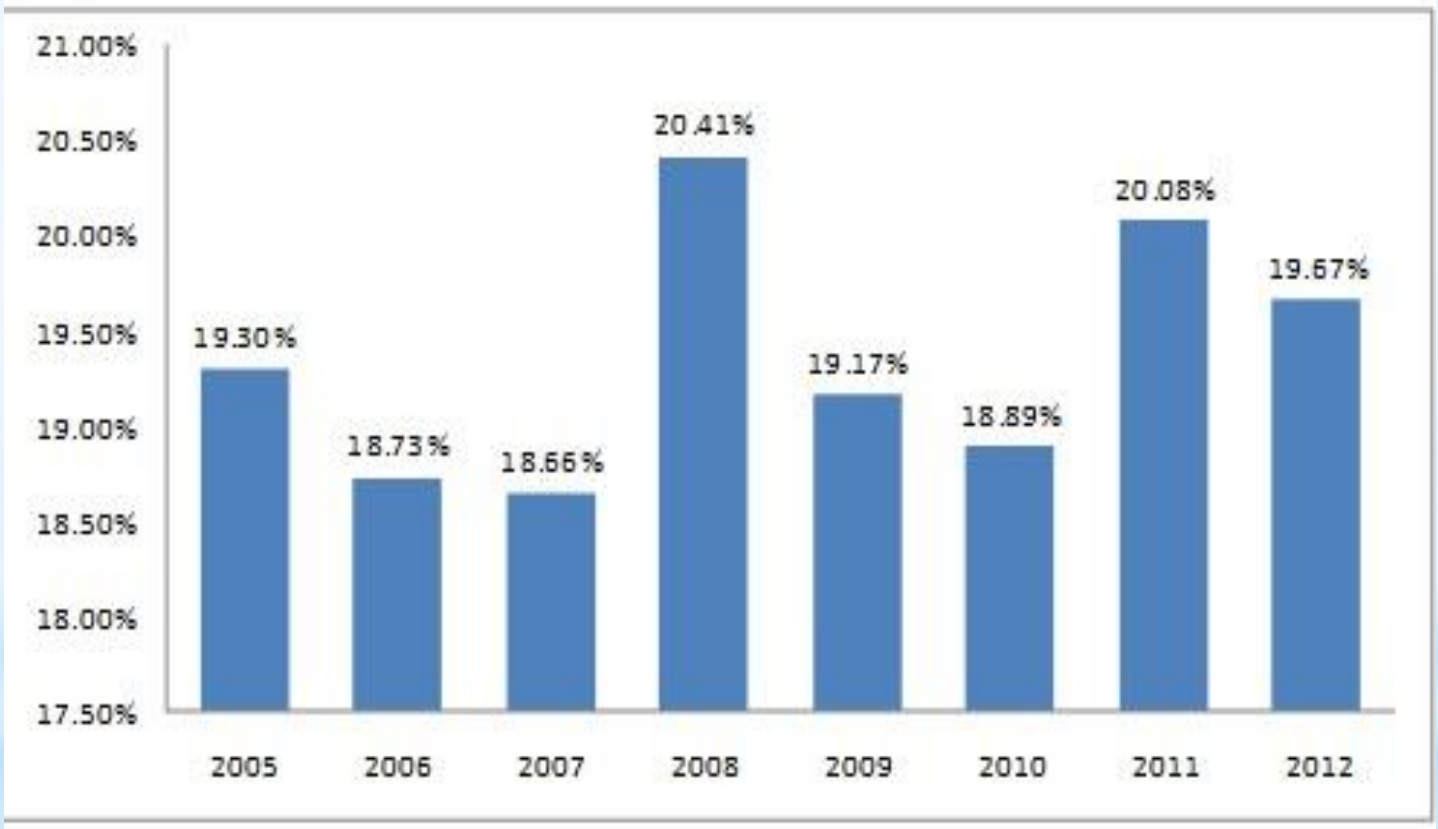
1. Roles of biodiversity in Vietnam

Biodiversity is essential to both nature and human society in Vietnam. Ecosystems provide habitats for a great variety and number of wildlife. In addition, ecosystems provide a range of services. The 4 main ecosystem services recognized in Vietnam are outlined below:

1.1.Provisioning Services: Ecosystems provide direct benefits to humans through providing a range of "provisions" to support society. These include contributions to the national economy – through provisioning agricultural, forestry and fishery products. For example, about 80% of fishery products are harvested from coastal seas and meet nearly 40% of the protein demand of Vietnam's people.

Figure 1- Percentage contribution of agriculture, forestry and fisheries in gross domestic product over the years



Source: General Statistics Office (2013), Statistic on agriculture, fishery and forestry

1.2 Cultural services:

Ecosystems not only provide direct material benefits, but also provide cultural and recreational opportunities for communities, which can motivate people to conserve biodiversity.

About 70% of Vietnam's rapid tourism growth is occurring in the coastal areas and these areas contain natural ecosystems with high biodiversity. Fourteen of the 30 National Parks and Natural Reserves indicated they welcomed 728,000 visitors in 2011, with a total revenue of over 30 million VND.

1.3. Regulatory Services:

Regulatory services include: climate regulation through carbon storage, rainfall control, air and water purification, waste decomposition and contribute to the mitigation of the adverse impacts of natural disasters such as landslides or floods.

Research indicates the value of carbon storage of natural forests in Vietnam is 37 to 91 million VND/ ha/year, and the value of carbon sequestration gets 0.5 to 1.5 million VND/ha/year.

1.4 Support Services:

Besides the economic value of biodiversity to humans, biodiversity is also essential in supporting ecosystem functions. Biodiversity affects a range of services such as the formation of soil and the growth of plants. Vietnam is located in the tropical monsoon belt and typically suffers from between 5 to 8 hurricanes and tropical depressions accompanied by heavy rain each year.

2. Threats to biodiversity in Vietnam

2.1 Land conversion without proper scientific base

The conversion of naturally forested land and wetlands for agriculture, industrial plantations and aquaculture, coupled with urbanization and infrastructure development has led to the loss or fragmentation of ecosystems and natural habitats, and contributed to the degradation and loss of biodiversity.

2.2 Introduction of new varieties and invasive alien species

Introduction of new plant varieties, particularly in agriculture, especially hybrid varieties with high productivity, has led to a decrease in both the planted area and genetic diversity of native crop varieties. According to the statistics, there are at least 94 species recorded as exotic, which belong to 31 different families with 12 species of invasive plants.

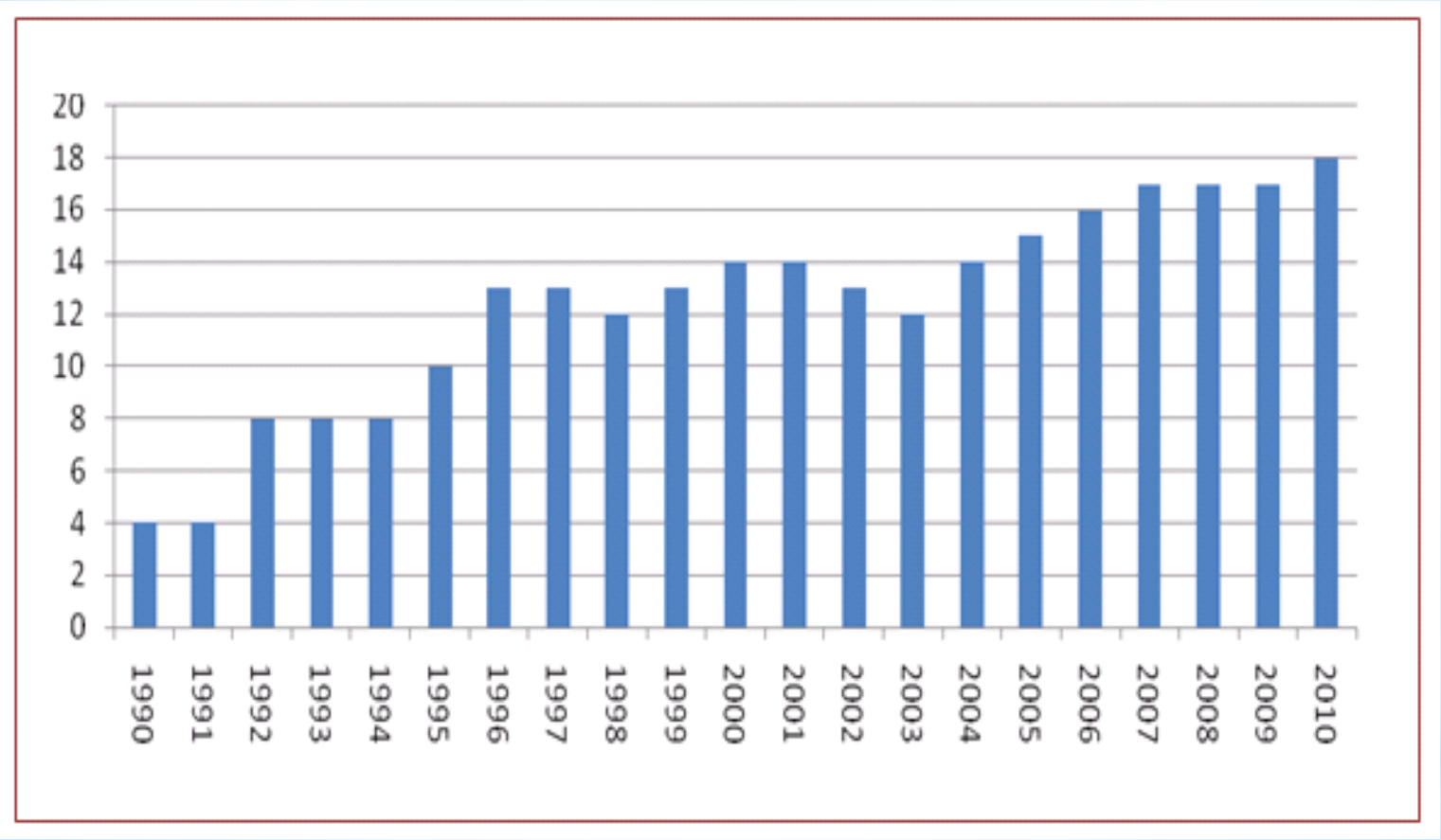
2.3 Population growth pressure, overexploitation of biological resources and increasing consumption of natural resources

Population of Vietnam increased from 52.7 million to 90 million people from 1979 to 2013 and it could rise to nearly 122 million people by 2050. Currently, Vietnam has a very high population density with about 240 people per km^2.

2.4 Environmental pollution and climate change

Vietnam is one of five countries most affected by global climate change. In this context, fragmented ecosystems will have a weaker response to these changes and may encounter unavoidable loss of species at a high rate.

Figure 2 - Number of flash floods from 1990 to 2010



Source: The Vietnam Institute of Meteorology, Hydrology and Environment (IMHEN)

3. Integration of biodiversity conservation into inter-sectoral plans, programs and policies and regional development.

3.1. Integrated various elements of environmental protection, natural resource management, and biodiversity conservation into national plans, programs and policies.

- **Strategies for hunger eradication and poverty reduction;**
- **Planning to respond to climate change:** Vietnam had a plan to implement the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) in the period 2007-2010 in order to manage, exploit and use natural resources appropriately and effectively; to protect the environment, resources and climate; and to reduce greenhouse gas emission.
- **Vietnam Sustainable Development Strategy for 2011 – 2020 approved since 2012:** with mandates that sustainable development is critical to the process of national development.
- **Regional development plans:** Vietnam has 8 recognized geographical regions and areas with high biodiversity selected for establishing Protected Areas.

3.2 Integration of biodiversity conservation into relevant sectors:

Many legal documents have been issued by Vietnam Government in all sectors relating to biodiversity conservation as follows:

- **The Natural Resources and Environment sector:**

+ National Biodiversity Strategy to 2020, vision to 2030 (NBSAP);

+ National Target Program to Respond to Climate Change for 2012-2015;

+ "National Strategy for Water Resources until 2020" and "Master Plan on Baseline Survey and Management of Marine Resources and Environment until 2010, vision to 2020";

+ Master Plan on Baseline Survey and Management of Marine Resources and Environment until 2010, vision to 2020.

+ National Environment Protection Strategy upto 2020, vision by 2030

3.2 Integration of biodiversity conservation into relevant sectors:

- **Agriculture and Forestry sectors**

+*"5 million Hectares Reforestation"* Program aimed to increase forest coverage in Vietnam to 43% by 2010

+ *Vietnam Strategy for Forestry Development from 2006-2020* includes a comprehensive forestry development strategy covering all dimensions from management, protection, development, sustainable resources use, reforestation, forest product exploitation and processing, environmental services and ecotourism.

- **The Fishery Sector**

+ *Protection of Endangered, Rare and Precious and Aquatic Species to 2015 and Vision Towards 2020 Project* to prevent an increase in number of endangered species, and to support the gradual recovery of endemic, rare and precious species in Vietnam.

+ *Management Regulations for Vietnam's Marine Protected Areas*

4. Conservation of natural ecosystems to climate mitigation and adaptation strategy

4.1. Targets of Vietnam National Biodiversity Strategy in 2013:

+ To improve the quality and increase the area of protected ecosystems, ensuring that the area of terrestrial protected areas accounts for 9% of the total territorial area; marine protected areas account for 0.24% of the sea area, forest coverage reaches 45%,and primary forest remains at 0.57 million hectares, coupled with effective protection plans;

+ Mangrove forests, seagrass beds, and coral reefs are maintained;

+ 15% of degraded critical ecosystems are restored;

+ Number of internationally recognized protected areas are increased to 10 Ramsar wetlands, 10 Biosphere Reserves, and 10 ASEAN Heritage Parks. (NBSAP, 2013).

4.2. Intervention activities:

a) Consolidate and complete the system of natural protected areas:

- Identify critical ecosystems and prepare plans for expanding the system of protected areas;

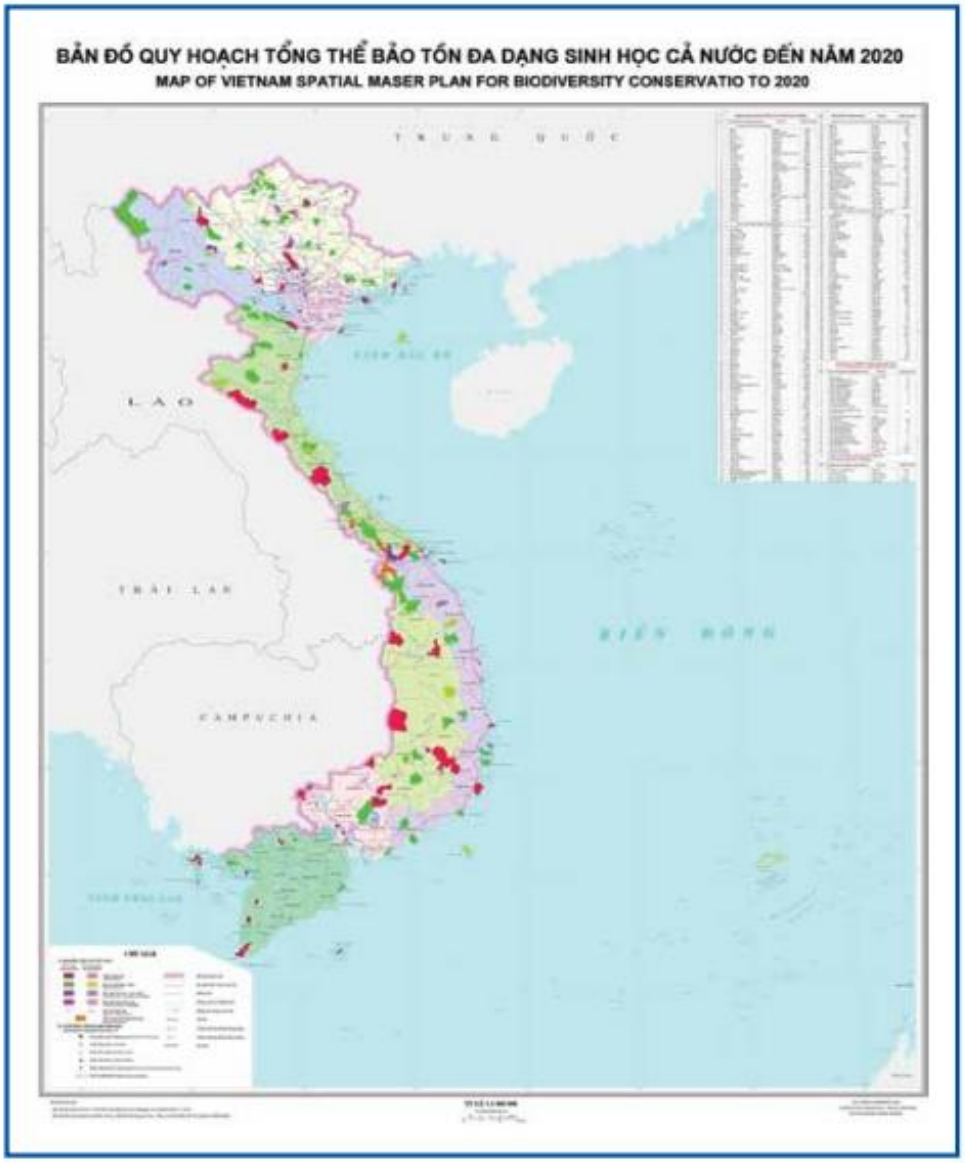
- Conduct a comprehensive review of biodiversity–related provisions in the current legal documents; Conduct researches on institutional structures ; highlight the involvement of and benefits to the communities living in the buffer zones;

-Improve the management system, infrastructure and operation supports for protected areas;

-Develop and improve regulations on the decentralization, ranking and classification of protected areas, and the procedure for establishing new protected areas;

- Conduct investigations and assess the values and ecosystem services of natural protected areas;

- Develop long-term plans for investment in the buffer zones of protected areas and implement a sustainable economic development model for households in these zones.



Map of Protected Areas planning by 2020 under Law on Biodiversity

(Source: BCA, 2013)

Name of site	Number	Area (ha)
Natural Park	30	1,077,236
Nature Reserve	58	1,060,959
Species PAs	11	38,777
Landscape PAs	45	78,129
Forests for empirical research	20	10,653
Total	164	2,198,744

b) Conservation of important ecosystems at national and international levels

- Investigate, review and map ecological regions, identifying areas of high biodiversity value, degraded areas, and sensitive areas;

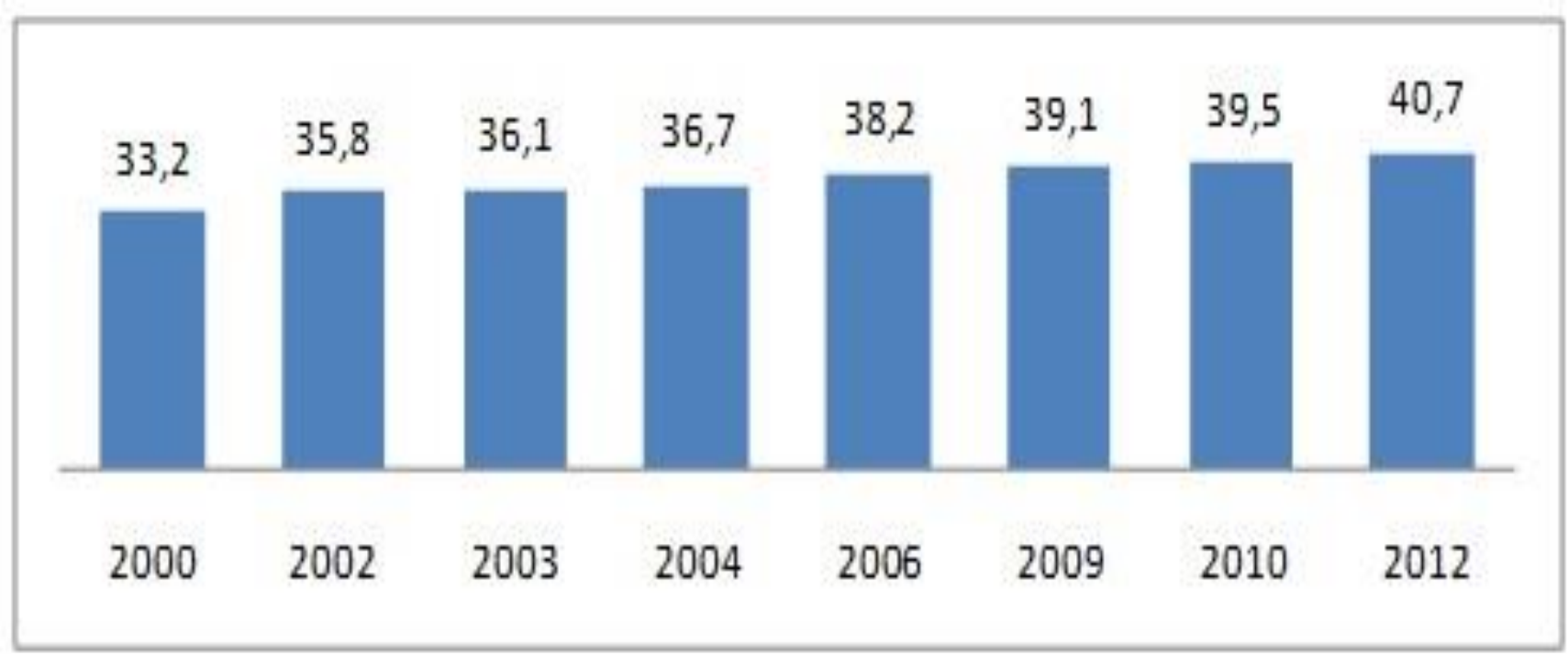
- Conduct research, collect statistical data to assess the situation, and develop a data bank and maps of natural wetlands, seagrass beds, coral reefs and other typical natural ecosystems;

- Strengthen protection activities in primary forests, ensuring the primary forest remains at 0.57 million hectares, coupled with effective protection plans, and take measures to prevent deforestation and illegal logging in natural forests, specialuse forests, and protection forests to reach forest coverage of 60%;

- Continue to implement forest regeneration and afforestation programs, taking measures to enrich forests with native plants, and promote the active prevention of forest fires and increase fire response capacity for all forest levels;

- Continue to implement the targets and tasks in the mangrove forest restoration program;

Figure 3 - Progress in coverage of forest over year



Source: Report on forest area, VAF, 2013

4.3 Biodiversity conservation in the context of climate change

-Identification of climate change impacts on biodiversity and promote biodiversity conservation as a means to actively respond to climate change;

-Development of biological corridors to increase connectivity among forest ecosystems and critical biodiversity areas to adapt to climate change;

-Implementation of forest regeneration program using methods and approaches such as biodiversity conservation, enhancing carbon stock, and adaptation and mitigation of climate change;

Thank you for your attention!