

**The NEF Bio-ecological Nature Conservation Project in  
Mountainous Region of North Vietnam**

**POLICY BRIEF 2**

**Bio-ecological Nature Conservation in Mountainous  
Region of North Vietnam: From Policy to Practice  
(Case study of Bac Me Reserve)**

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## **Executive Summary**

The limestone ecosystem in the Northern mountainous region of Vietnam has great conservation value, but due to the lack of research in a synchronous manner, conservation and sustainable development policies have not really brought practical effects.

Therefore, an interdisciplinary research project with 10 groups including mammals, birds, amphibians/reptiles, fish, insects, plants, soil invertebrate, macroinvertebrate, GIS/Remote sensing and social group has been conducted in 4 protected areas, representing the study area. This report focuses on the results of research in Bac Me Nature Reserve, Ha Giang province.

Main research results show that 739 animal species, 1037 species of vascular plants are identified in the reserve, among which there are 53 species in the Vietnam Red Book and 76 species on the IUCN Red List; Forest cover is declined for about 14% during 30 years and value of ecosystem services is decreased from 93.13 million USD in 1988 to 90.30 million USD in 2019; The income of local people in Lung Cang village, Ngoc Minh commune of Bac Me Reserve for the H'mong ethnic minority group is very low (240,000 VND/month/person) and they are much dependent on the forest products.

From this result, policy recommendations include: 1). Conduct research on the impact of pollution on biodiversity; 2). Study diversity, distribution and human impact on species; 3). Promote a community-based approach to biodiversity conservation; 4). Promote cooperation between scientists and policy makers; 5). Carry out capacity building for management staff of protected areas.

### ***Challenges in the conservation of limestone karst ecosystems in the North of Vietnam***

The limestone karst ecosystem in the Mountainous Region of North Vietnam in general and in Bac Me Reserve in particular plays an important role in biodiversity conservation. The population of animal species, especially rare and threatened species is small, so they are almost not found even in forests and in surrounding areas. Forest vegetation cover has declined sharply in the past 30 years due to the impact of human production activities and socio-economic development.

Conservation and development policies although have been certain positive impacts but they have not yet made a breakthrough in biodiversity conservation, forest protection and local livelihood development. Furthermore, the lack of systematic studies on the area's karst ecosystems, species biodiversity and threats to biodiversity may limit the application of conservation and development policies and develop in effective manner.

Therefore, this report is an attempt to synthesize the results obtained within the framework of the research project to suggest policy recommendations for the study area.

### ***Policy for biodiversity conservation and forest development***

National policies, including Law on Biodiversity (2008), Strategy for Biodiversity Conservation (2013), Master Biodiversity Planning (2014), Strategy for Management of Special-use Forests and Protected Areas (2014) and other reforestation policies have created

an important legal framework for the provinces of the Northern Vietnam, including Ha Giang province. Most of these policies issued in the last 10-15 years can explain the achievements in biodiversity conservation and forest development in the locality.

On the basis of the national legal framework, Ha Giang province has developed a conservation policy system, the most important of which are the Provincial Biodiversity Conservation Planning (2015) with the completion of the existing protected areas and proposing new ones and Planning for conservation and sustainable development of special-use forests (2016) aiming to preserve forest ecosystems in association with local socio-economic development. In particular, the conservation and sustainable development planning of Bac Me Nature Reserve, Ha Giang province up to 2020 (2016) has laid the basis for conservation work in association with local socio-economic towards sustainability. Furthermore, provincial reforestation programs have been integrated with local development policies.

The research realized by NEF Project "Bio-ecological Nature Conservation in Mountainous Region of North Vietnam" in the Bac Me Nature Reserve has identified 739 animal species, of which 7.0% mammals, 14.8% birds, 4.5% amphibians, 4.5% reptiles, fish 7.6%, insects 24.8%, soil invertebrate 27.2% and macroinvertebrate 10.3%. If only accounting for mammals, birds, reptiles and amphibians, 223 species are identified (in 2020), compared with 194 species previously investigated (in 2016).

1037 species of vascular plants have been identified compared to 625 species listed in the Conservation and Sustainable Development Planning of Bac Me NR (2016). In particular, among them, there are 46.0% of species used as medicine, 26.1 % of species used for construction and household appliances, 14.2 % of species used as ornamental plants and 13.4% of species used as food.

The total number of plant and animal species identified in the Vietnam Red Book is 53 species, of which plants account for 88.7% and amphibians and reptiles for 11.3%; and on the IUCN Red List there are 76 species, of which mammals account for 17.1%, birds account for 2.6%, amphibians and reptiles for 6.6%, fish for 6.6% and plants for 67.1%.

Forest cover, especially evergreen broadleaved tropical forest (close forest) has continuously declined, from 60% in 1988 to 46% in 2019, i.e. for about 14% during 30 years. The largest decrease in forest area occurs at the edge of the reserve, mainly in the altitude belt of 200-1000 m high, where people carry out agricultural and forestry activities. Moreover, the tree species typical for limestone karst ecosystems are usually concentrated in the high belt from 300-900m.

The main causes of biodiversity degradation and loss in Northeastern Region can be grouped into the following: i). Landuse and landcover change; ii). Forest fires; iii). Illegal poaching and hunting; iv). Illegal wood logging and nontimber forest product harvesting; v). Pollution from agricultural production, mining, industrial activities and residential wastes; vi). Other causes.

### ***Policies for livelihood development policy and sustainable development***

National policies, including Vietnam's Strategic Orientation for Sustainable Development (Agenda 21) (2004), Sustainable Development Strategy 2011-2020 (2012), Strategy Socio-economic development 2011-2020, Green Growth Strategy (2021), Forestry Strategy (2021), Tourism Development Strategy (2011), Sustainable Agriculture and Rural Development Strategy (2022) and National Action Plan to Implement Agenda 2030 with 17 Goals SDG Sustainable Development (2017) has created an important legal framework for the provinces of the Northern Mountainous Region, including Ha Giang province. Most of the policies issued in the last 10 to 15 years can explain the achievements in poverty alleviation and significant improvement in living standards of local people in the northern mountainous region, especially minority ethnics.

On the basis of the national legal framework, Ha Giang province has developed a system of policies for socio-economic development towards sustainability, the most important of which are Ha Giang' Action Plan to implement the 2030 Agenda (2017) with 17 Sustainable Development Goals and with 115 specific goals and the Master Plan for Socio-Economic Development of Ha Giang Province to 2020, vision to 2030 (2016). Some provincial policies localizing national sustainable development are programs on poverty alleviation policy (135, 30A) to support especially difficult districts and communes, policy of payment for forest environmental services and New rural program.

For Bac Me Reserve, the total value of ecosystem services (provisioning, regulating, cultural and supporting) for its communes is estimated to decrease from 93.13 million USD in 1988 to 90.30 million USD in 2019 and, respectively, at USD 4,416/ha and USD 4,282/ha.

Thanks to synchronous policies and efforts of local authorities, the multidimensional poverty rate of the Northern mountainous region has decreased from 23.0% in 2016 to 16.4% in 2019, meanwhile the poverty rate in Ha Giang province is 71.5% in 2010. Similarly, the poverty rate for the communes of Bac Me Reserve have also decreased from 35.5% in 2015 to 30.6% in 2019, or for 4.9% in 4 years. However, this poverty rate is still the highest among economic regions in Vietnam.

According to a case study in Lung Cang village, Ngoc Minh commune of Bac Me Reserve for the H'mong ethnic minority group, the average total income of a household is about 14.2 million VND/year (about 1.2 million VND)/month/household or 240,000 VND/month/person). This is a very low level of income, equivalent to the poverty line for rural areas. In fact, 58% of households in this village are insufficient in food for a month and more. The situation is even worsen for households headed by a woman.

The special thing is that the average income from exploiting forest products is very high, accounting for 45.7% of the total income and this demonstrates the high dependence of local people on the forest. The policy of payment for forest environmental services is applied to the communes of the Reserve and this financial source contributes 12.6% of the total income of the households in the village. However, the payment rate for forest environmental services in Ha Giang province is generally low (about 150,000 VND/ha/year), so people have not been encouraged to protect forests.

Furthermore, according to a preliminary assessment, the income of local people from exploiting wild fish in the river basin of the Reserve has decreased by 50-79% in the last 5 and 10 years.

The conservation and sustainable development planning for Bac Me Reserve (2016) is developed with the aim of promoting the conservation of forest ecosystems and the wildlife species, in association with the policy of ecotourism development thereby improving people's livelihoods and reducing pressure on forests. However, since then, tourism activities have not been implemented, and people have not received any income from these activities. Limitations in facilities, equipment, boundary markers of the Reserve and capacity of staff are also difficulties and challenges for conservation and sustainable development in the study area.

The conservation and development policies implemented in protected areas are often applied in a unified approach to localities across the country. Therefore, socio-economic characteristics, poverty rates, ethnic minorities and gender issues have not been properly considered, leading to low implementation efficiency, and unsatisfactory expected outcomes. Studies have also pointed out that challenges for the conservation of karst forest ecosystems and their species diversity are deforestation, unsustainable exploitation and use, land use change, and hunting, grazing, mining, environmental pollution and invasion of invasive alien species, especially for aquatic ecosystems. Thus, in order to achieve conservation and development purposes at the same time, multiple synchronous solutions need to be implemented.

### **Policy Recommendations**

(1). To develop and carry out research programs on environmental/ pollution impact on biodiversity/ species in order to develop appropriate policies for species and habitat conservation and management;

(2). As many species are under declining and less understood of their status, it is therefore essential to conduct an in-depth study to better understand diversity, distribution, and anthropogenic threats to the taxa using robust scientific methods to better protect the species from further decline;

(3). To apply a community-based conservation approach in the study area, involving local villagers into various forest protection and biodiversity conservation activities; increase the livelihood of local residents through various income-raising approaches to mitigate their dependence on forest products and lands;

(4). To enhance collaboration between provincial/district authorities and their enforcement forces (forest rangers) for regular information exchange, sharing experience on forest management and collaborative actions on combating transborder illegal logging and harvesting non-timber forest products;

(5). To carry out capacity building for staffs of protected areas in term of scientific knowledge, technical skills and research equipment for conservation and development works.

***Box: Brief information about the project; Implementing agency; Research methodology***

This study was carried out within the framework of the project " Bio-ecological Nature Conservation in Mountainous Region of North Vietnam", funded by the Nagao Natural Environment Fund and coordinated by the Central Institute for Natural Resources and Environmental Studies, Vietnam National University, Hanoi. Biodiversity survey methods on Mammals, Birds, Amphibians/Reptiles, Fish, Land fauna, Aquatic fauna and Plants were carried out seasonally (2 field studies each site) during the period of 2019 -2020; Remote sensing method and GIS method using remote sensing images for the period 1988-2019 to assess land use changes and combine with value transfer method to estimate the value of ecosystem services; Social survey method (Semi-structured interview/7 people, Group discussion/2 groups of 14 people, Farm household survey/50 households in) was carried out in Lung Cang village, Ngoc Minh commune, Bac Me Reserve in the period 2019-2020 to assess the poverty situation and the dependence of livelihood and income on forest resources of local communities.