

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

**POLICY BRIEF 3**

**Bio-ecological Nature Conservation in Mountainous  
Region of North Vietnam: From Policy to Practice  
(Case study of Phia Oac-Phia Den National Park)**

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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 Phia Oac-Phia Den National Park, Cao Bang province.

Main research results show that 889 animal species, 822 species of vascular plants are identified in the park, among which there are 35 species in the Vietnam Red Book and 29 species on the IUCN Red List; Forest cover is declined for about 3 % during 1988-2009 and then increased for 6.4 % during 2009-2019 and value of ecosystem services is increased from 126.22 million USD in 1988 to 129.37 million USD in 2019; The income of local people in Ban Tong village, Thanh Cong commune in Phia Oac-Phia Den National Park for the Dao ethnic minority group is low (720,000 VND/month/person) and they are rather 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 Phia Oac-Phia Den 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 in the past 30 years due to the impact of human production activities and socio-economic development and, although secondary forests have also been increased.

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 Cao Bang 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, Cao Bang province has developed a system of conservation policies, the most important of which are the Provincial Biodiversity Conservation Planning (2014) with the completion of existing protected areas and proposing new ones and biodiversity corridors and Forest protection and development planning in Cao Bang province in the period of 2013-2020 (2015) in order to preserve forest ecosystems associated with local socio-economic development. The Cao Bang Biodiversity Conservation Action Plan to 2020 (2017) localizes the national conservation targets in the province's conditions. In particular, the decision to establish Phia Oac - Phia Den National Park, Nguyen Binh district, Cao Bang province by upgrading the Reserve (2018) is a recognition of biodiversity value and is the basis for conservation work associated with local socio-economic development in a sustainable way.

The research realized by NEF Project "Bio-ecological Nature Conservation in Mountainous Region of North Vietnam" in the Phia Oac - Phia Den National Park has identified 889 animal species, of which 3.8 % mammals, 15.9 % birds, 3.9% amphibians, 4.2 % reptiles, 1.9 % fish, 34.4% insects, 19.9 % soil invertebrate and 16.0 % macroinvertebrate. If only accounting for mammals, birds, reptiles and amphibians, 247 species are identified (in 2020), compared with 496 species previously investigated (in 2016).

822 species of vascular plants have been identified compared to 1287 species listed in the Conservation and Sustainable Development Planning of Phia Oac - Phia Den National Park (2016). In particular, among them, there are 40.75 % of species used as medicine, 29,08 % of species used for construction and household appliances, 11,8% of species used as eatable vegetables, 10.95 % of species used as ornamental plants and 6.45% of species used as fruit, and 1.95% of species used as fiber.

The total number of plant and animal species identified in the Vietnam Red Book is 35 species, of which plants account for 94.3% and amphibians for 5.7%; and on the IUCN Red List there are 29 species, of which mammals account for 34.5%, birds for 13.8%, amphibians and reptiles for 20.7%, fish for 10.3% and plants accounted for 20.7 %.

Forest cover, especially evergreen broadleaved tropical forest (close forest) has declined slightly, from 60.4 % in 1988 to 57.4 % in 2009, i.e. about 3% in this period, then increased up to 63.8% in 2019. The largest decrease in forest area occurs at the edge of the national park, 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 altitude 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 Cao Bang 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, Cao Bang province has developed a policy system for socio-economic development towards sustainability, the most important of which is the Action Plan to implement the 2030 Agenda for Sustainable Development (2018) with 17 Sustainable Development Goals and 115 targets and the Master Planning for Socio- Economic Development of Cao Bang province to 2020, with orientation to 2025 (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 Phia Oac - Phia Den National Park, the total value of ecosystem services (provisioning, regulating, cultural and supporting) for its communes is estimated to increase from 126.22 million USD in 1988 to 129.37 million USD in 2019, respectively USD 6,292/ha and USD 6,449/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 Cao Bang province is 53.1% in 2010. In fact, this poverty rate is very high, in comparison with other economic regions in Vietnam.

According to a case study in Ban Tong village, Thanh Cong commune in Phia Oac-Phia Den National Park for the Dao ethnic minority group, the average total income of a household is about 41.1 million VND/year (about 3.4 million VND/month/household or 720,000 VND/month/person). In fact, 80 % of households in this village are insufficient in food for a month and more and the situation is even worse for households headed by a woman.

The special thing is that the average income from exploiting forest products is quite high, accounting for 24.5 % of the total income and this demonstrates the high dependence of local people on the forest.

The Report on the Detailed Planning to upgrade the Phia Oac-Phia Den Nature Reserve into a National Park (2017) has emphasized the purpose of promoting the conservation of forest ecosystems and wildlife species, associated with forestry development and ecotourism, 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.

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/20 people, Group discussion/2 groups of 18 people, Farm household survey/50 households) was carried out in Ban Tong village, Thanh Cong commune in Phia Oac-Phia Den National Park in the period 2019-2020 to assess the poverty situation and the dependence of livelihood and income on forest resources of local communities.