

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

**POLICY BRIEF 1**

**Bio-ecological Nature Conservation in Mountainous  
Region of North Vietnam: From Policy to Practice  
(Case study of Cham Chu 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 Cham Chu Reserve, Tuyen Quang province.

Main research results show that 802 animal species, 1089 species of vascular plants are identified in the reserve, among which there are 56 species in the Vietnam Red Book and 72 species on the IUCN Red List; Forest cover is declined from 60.4 % in 1986 to 57.4 % in 2007, i.e. for about 3.0 % during 1986-1998 and then increased to 63.8%, i.e. increased for 6.4 % during 1998-2017 and value of ecosystem services is decreased from 179.05 million USD in 1986 to 173.05 million USD in 2017; The income of local people in Nam Luong village of Phu Luu commune in Cham Chu Reserve for the Tay minority ethnic group is rather high (2,700,000 VND/month/person).

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 Cham Chu 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 increased in the past 10 years thanks to the efforts of local authorities and people in reforestation and reduced impact of human production activities on the forest.

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 Tuyen Quang 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, Tuyen Quang province has developed a system of conservation policies, the most important of which are the Tuyen Quang' provincial Biodiversity Conservation Planning (2013) with the completion of existing protected areas and proposing new ones and Forest protection and development planning in Tuyen Quang province in the period of 2011-2020, supplementing the planning up to 2025 (2016) in order to conserve forest ecosystems associated with local socio-economic development. In particular, the conservation and sustainable development planning of Cham Chu Reserve, Tuyen Quang province (2014) 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 Cham Chu Reserve has identified 802 animal species, of which 7.2 % mammals, 14.8 % birds, 4.9 % amphibians, 2.7 % reptiles, 7.7 % fish, 33.9 % insects, 21.9 % soil invertebrate and 6.7 % macroinvertebrate. If only accounting for mammals, birds, reptiles and amphibians, 238 species are identified (in 2019), compared with 91 species previously investigated (in 2009).

1089 species of vascular plants have been identified compared to 906 species listed in the Conservation and Sustainable Development Planning of Cham Chu Reserve (2009). In particular, among them, there are 48.57 % of species used as medicine, 17.07 % of species used for construction and household appliances, 15.05 % of species used as ornamental plants, 13.50 % of species used as eatable vegetables, 4.68% of the species used as animal food, for fodder, 3.40% of species used as biological active, and 2.02 % of species used as fiber.

The total number of plant and animal species identified in the Vietnam Red Book is 56 species, of which plants account for 89.3 % and amphibians and reptiles for 10.7 %; and on the IUCN Red List there are 72 species, of which mammals account for 16.7 %, birds for 1.4 %, amphibians and reptiles for 52.8 %, fish for 6.9 % and plants accounted for 72.2 %.

Forest cover, especially evergreen broadleaved tropical forest (close forest) has declined from 60.4 % in 1986 to 57.4 % in 2007, i.e. for 3.0 % in this period, then increased to 63.8 % in 2017, thanks to the efforts of local authorities and people in reforestation program and forest protection. The decrease in forest area often 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 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 Bac Kan 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, Tuyen Quang province has developed a policy system for socio-economic development towards sustainability, the most important of which is Tuyen Quang's Provincial Action Plan to Implement 2030 Agenda for Sustainable Development (2017) with 17 SDG and 115 targets and Master planning for socio-economic development of Tuyen Quang province to 2020, vision to 2025 (2011, 2015). Several 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 Cham Chu Reserve, the total value of ecosystem services (provisioning, regulating, cultural and supporting) for its communes is estimated to decline from 179.05 million USD in 1986 to 173.05 million USD in 2017, respectively 4,427 USD/ha and 4,279 USD /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 Tuyen Quang province is 40.0 % in 2010. In fact, this poverty rate is rather high, in comparison with other economic regions in Vietnam.

According to a case study in Nam Luong village, Phu Luu commune in Cham Chu Reserve for the Thai minority ethnic group, the average total income of a household is about 161 million VND/year (about 13.4 million VND/month/household or 2.700.000 VND/month/person). Because there is a stable source of income from agricultural production, namely the orange and lemon production, people rarely go to the reserve to exploit forest products. In fact, only 15 % of households in this village are insufficient in food for a month and more.

Conservation and sustainable development planning for Cham Chu Reserve (2014) was developed with the objective to promote 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 2018 -2019; 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/51 households) was carried out in Nam Luong village of Phu Luong commune in Cham Chu Reserve in the period 2018-2019 to assess the poverty situation and the dependence of livelihood and income on forest resources of local communities.