A Vietnamese-Belgian Cooperation Proposal

Contribution to poverty reduction by knowledge-based, balanced development and conservation in mountainous karst areas

I. General

According to the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) (approved by the Prime Minister of Vietnam at Document No. 2685/VPCP-QHQT on 21st May 2002), during the last 15 years, thanks to its continued renovation process, Vietnam has succeeded in achieving high economic growth, while considerably reducing poverty.

Nevertheless, the CPRGS recognizes that poverty remains widespread, especially in rural, mountainous, remote and isolated areas, in areas with unfavorable conditions for making a living, and in areas where ethnic minorities live. Natural resources have not been exploited effectively, economically and sustainably, with continued and remarkable environmental and sanitation degradation (natural forest reduction, improper mineral exploitation, soil erosion and degradation, water shortage and pollution, bio-diversity declination etc.).

The CPRGS also indicates that the Northwest, Northeast and North Central are among the poorest regions of Vietnam (Table 1):

Table 1. Poverty situation in some regions of Vietnam.

	No. of poor households, (thousand)	Per total households in the region (%)	Per total poor households nationwide (%)
Total	**2,800**	**17.2**	**100**
Northwest region	146	33.9	5.2
Northeast region	511	22.3	18.2
North Central region	554	25.6	19.8

The CPRGS sees a number of poverty causes, among which of particular relevance to this proposal are:

- Limited and poor resources;
- Low levels of education;
- High vulnerability to natural disasters;

Therefore, poverty reduction is considered by the Government a cutting-through objective, an integrated part of all the national, sectoral and provincial socio-economic development strategy (2001-2010), and plans (5-year and annual). Economic growth must go hand in hand with social progress and equity and environmental protection. Economic growth generates resources for poverty reduction but at the same time, it must be accompanied by additional measures to create favorable conditions for the poor to make efforts to escape from poverty themselves.

For the period up to 2005 and 2010, the CPRGS sets, besides economic growth, a number of major social and poverty reduction targets, among which, of particular relevance to this proposal are:

- To reduce the percentage of poor households;

- To ensure the provision of essential infrastructure facilities to poor people and poor communities;
- To create more jobs;
- To popularize education and improve education quality;
- To develop culture and information and elevate the spiritual life of the people;
- To improve the cultural life and preserve culture of ethnic minority peoples; and
- To ensure sustainable environment.

II. Problem statement

Surprisingly, the poorest regions mentioned-above are also the major karst regions of Vietnam, which include such provinces as Lai Chau, Son La, Hoa Binh and Ninh Binh (Northwest region), Ha Giang, Cao Bang, Tuyen Quang, Bac Kan, Thai Nguyen, Lang Son and Quang Ninh (Northeast region), Thanh Hoa, Nghe An, Ha Tinh and Quang Binh (North Central region), with the total karst exposure of app. 60,000 km^2, or nearly 20% of the country territory. In particular for the 4 Northeast provinces under this proposal, the karst coverage is as follows (Table 2):

Table 2. Karst coverage in the 4 Northeast provinces under this proposal.

Province	No. of Dist.	No. of Dist. with karst	App. total area (km^2)	App. karst area	
				(km^2)	(%)
Ha Giang	10	**6**, i.e. Dong Van, Meo Vac, Yen Minh, Quan Ba, Vi Xuyen and Bac Quang	7,884.4	3,548	45
Cao Bang	11	**7**, i.e. Ha Lang, Trung Khanh, Quang Hoa, Thach An, Thong Nong, Bao Lac, and Bao Lam	6,690.7	3,345	50
Tuyen Quang	6	**2**, i.e. Chiem Hoa and Yen Son	5,868	1,457	25
Bac Kan	7	**4**, i.e. Ba Be, Cho Don, Bach Thong and Ngan Son	4,857.1	1,225	25

In general, karst regions are characterized by very rugged terrain, extremely difficult access, severe shortage of both land and water (particularly during dry season) for living and development. These regions are mostly inhabited by ethnic minority people, such as Thai, Muong, H'Mong, Dao, Tay, Nung etc., with (supposedly) a generally low level of education and a still mainly self-sufficient and agriculture-based economy.

In karst regions it is almost impossible to expand arable land, increase its productivity without serious environmental risks. As a result income generation will always lag behind the fertile plains. There is no doubt that agriculture (except for some specialized crops) in the mountain karst regions is economically not viable, and thus it will not be able to contribute to poverty reduction.

Karst regions are, in some places, rich in mineral resources such as gold, antimony, bauxite etc. The limestone itself is the primary material for the cement industry. However, the above difficult conditions also hamper their exploitation. Furthermore, like most other non-recycled natural resources, an improper exploitation will eventually exhaust these resources, not to mention yet about negative environmental impact during their exploitation.

For other, seemingly recycled types of natural resources, such as forests, constrained by both land and water, they are very difficult to establish. In fact, it is almost impossible to have production forests in karst regions. In other words, once cut or destroyed, karst forests can hardly

recover, and in this sense, karst forests are non-recycled resources. Statistics show that karst forests during the last decades continue to decrease, resulting in severe environmental impacts such as soil loss, desertification etc.

Karst regions are, moreover, very fragile and vulnerable to other types of natural disasters (remarkably geological e.g. flashflood, mudflow, inundation, rockfall, landslide etc.) and technological problems (water loss and leakage from reservoirs, foundation problems, water shortage and pollution etc.). Infrastructure developments are, therefore, in many cases, unsafe and very expensive. Furthermore, not only karst regions are vulnerable to disasters locally. In many cases, their degradation is the cause of other types of disasters, such as floods, siltation, riverbank and coastal erosion etc., even more severe and at a larger scale, in the densely populated downstream floodplains and coastal regions.

These features are the most essential factors that prevent agriculture-based (or agro-forestry-based) karst regions from getting rid of poverty. They seem to be born-to-be-poor and there seems no way for the local people to improve their life.

III. Potential

Fortunately, karst has some unique features that, if well understood and appropriately used, could contribute to poverty reduction in karst regions. They might not be able to improve much an agriculture-based economy, but they could offer alternative way(s) for a balanced development and conservation. So what are these unique features?

- *Cave system and underground water.* The first and foremost unique feature of karst is its cave system, which is, in many cases, very developed and inter-connected, not only above the ground surface but also underground. Therefore karst regions may not have surface water but they usually have plenty of water underground, which can be found out for living and even for production. Although difficult, as it is located not everywhere underground, but there are appropriate and effective methods for the exploration and use of this water.

- *Bio-diversity and conservation.* Karst regions, with their cave systems, have been the habitat of ancient Viets, and continue to be the habitat of many other types of faunas and floras - they have a very unique bio-diversity. Rugged terrain, remote, difficult access, scarcely populated, many karst regions of Vietnam nowadays remain among the world richest bio-diversity areas. One can notice that most of Vietnam's national parks (e.g. Cuc Phuong, Phong Nha-Ke Bang), nature reserves (e.g. Vu Quang, Na Hang-Ba Be, Pu Luong etc.) are located in karst regions, with so many types of rare, endangered, and even unknown-to-man, faunas and floras, not to mention yet about those that live underground. Especially now that nature conservation and environmental protection have become more and more important than just blind economic growth, karst regions offer a very good opportunity, and at the same time, challenge, for a balanced development and conservation.

- *Good soils.* Soils on karst are stable and rich in nutrients and have long supported subsistence farming, but are gradually removed by erosion, leaving vast tracts of lands as bare rock. While at some places these soils will support new cash crops, reforestation and forest management is a more viable option on the rugged land and should be included in sustainable land use.

- *Landscape and tourism.* Karst regions, with their cave systems, rugged terrain, remote and difficult access, bio-diversity, interesting geological history etc. are for long known for so many beautiful, breath-taking landscapes. They have been and are offering vast (mostly untapped) tourist potential, including adventurous exercises such as caving, mountain climbing, horse riding, rafting etc. Many famous tourist areas of Vietnam are karst, e.g. Ha Long Bay, Cuc

Phuong, Phong Nha-Ke Bang, Na Hang-Ba Be etc., quite a few of which have become world nature heritages.

- *Diversified ethnic cultures.* Karst mountainous regions are home to many ethnic minority people with their unique cultures. Along with all the natural features described above, social and cultural identities bring a lot of surprises and interests to tourists.

All these unique features are, in many cases, not yet there for granted. They must be thoroughly investigated and evaluated before any practical recommendation can be made and any development activity implemented. Karst underground water, for example, must be explored before any decision upon drilling or pumping. Different types of karst soil must be studied before recommending the most suitable type of crop. The landscapes, the caves, the access to them etc. must be evaluated well in advance before any tourist investment etc. Thus, perhaps, nowhere else the concept that research is development, research is a coherent part of development, or conservation is, or equal, development etc., is more correct than for karst regions.

It is therefore, herewith proposed that a Vietnamese-Belgian cooperation project entitled "*Contribution to poverty reduction by knowledge-based, balanced development and conservation in mountainous karst areas*" be implemented first in several provinces of the Northeast karst region, with possible extension into other regions thereafter.

IV. Why a Vietnamese-Belgian cooperation?

Karst regions in Vietnam, therefore, deserve more and more attention, not only from policy makers and developers, but also from social and natural scientists, conservationists and environmentalists.

However, it can be noticed that investigations of karst in Vietnam are still recent, unsystematic, and in many cases, without economic development as a consequence. For the last about 10 years since early 1990s, a number of cave expeditions have been carried out by speleologists from UK, Australia, Italy, Spain and France but most of them remain pure caving (tourist and sport) exercises.

Perhaps the only caving activities that also try to address problems of finding water, rural development and conservation are those carried out by Belgian scientists and speleologists in cooperation with Vietnamese scientists from the Research Institute of Geology and Mineral Resources (RIGMR, Ministry of Natural Resources and Environment). Thanks to this cooperation, an inter-disciplinary and participatory approach has been tried successfully in a project on rural development in karst areas of Northwest Vietnam (VIBEKAP), where research results have been materialized (with support from UNICEF) in 2 water supply systems for the local people in Son La province. Also thanks to this cooperation, a Karst Research Center has been established at RIGMR, and an international conference on conservation and development of karst regions is scheduled to be held in September 2004 in Vietnam (TRANSKARST 2004).

It is, therefore, believed that a Vietnamese-Belgian cooperation project would be most suitable.

V. Project area

The project area includes the 4 provinces mentioned in Table 2, i.e. Ha Giang, Cao Bang, Tuyen Quang and Bac Kan, of the Northeast karst region, with possible extension into other regions thereafter.

VI. Project duration

It is proposed that the project be implemented in 3-5 years, starting from 2004.

VII. Project objective

As clearly meant by its title, the project overall objective is to contribute to poverty reduction in karst areas of those provinces by knowledge-based, balanced development and conservation of nature, with two interactive axes i.e. (1) ecological management of natural resources; and (2) social learning and facilitating balanced conservation and development.

VIII. Project content

It is proposed that the project consist of 4 work packages (WPs) as follows (Table 3):

- WP1 – Understanding natural conditions;
- WP2 – Understanding social conditions;
- WP3 – Training and education; and
- WP4 – Development.

WP1 consists of activities aiming at understanding the natural conditions (e.g. access, landscape, topography, water, cave, soil, land cover and land use etc.) of where local people live, under which development is possible or not possible, or on which it will depend. WP1 includes 8 sub-work packages as detailed in Table 3.

In WP2 social scientists will try to understand the local ethnic cultures and traditions related to conservation and development in karst areas. Using the participatory approach, they will try to involve local people and to facilitate a negotiation process for finding local alternative way(s) for development and conservation. Social scientists will also act as the mediators between local people and natural scientists, i.e. they will try to reflect local people's likes, needs or understanding to the natural scientists, and in return, to introduce findings brought about by the latters and/or alternative way(s) for development and conservation from the latters' point of view.

WP3 focuses mostly on training and education at two levels, for researchers and for local staffs and people. Training and education will take various forms, either in-situ, at work, short-term or long-term etc. Training and education will focus on methods/technologies of understanding nature, its rational use and protection, unique ethnic cultures related to conservation and development, initiation of a participatory social learning process etc.

WP4 is a very important part of the project where research, training and education results would be applied in practice. It will consist of concrete development and conservation activities, including, for example, help to set up water supply systems at selected location(s) for meeting local people's need, tourism activities and tourist infrastructure as well as purpose-oriented educational programs etc.

Table 3. Work packages and content.

No.	Work package	Sub-Work package	Content
1	WP1 – Understanding natural conditions	WP1.1 – General geology	To understand the general geological framework of karst areas
		WP1.2 – Hydrogeology	To understand karst hydrological features

		WP1.3 – Pedology	To understand soil types and present land use in karst areas
		WP1.4 – Speleology	To understand underground cave system
		WP1.5 – Geomorphology	To understand karst landforms and landscapes
		WP1.6. – Biology	To understand karst bio-diversity
		WP1.7. – Mineral resources	To understand mineral resources potential in karst areas
		WP1.8. – Natural hazards	To understand and forecast natural hazards in karst areas
2	WP2 – Understanding social conditions	WP2.1 – Ethnic cultures and traditions	To understand ethnic cultures and traditions related to conservation and development in karst areas
		WP2.2 – Facilitating negotiation	To facilitate negotiation process using participatory approach for finding local alternative way(s) for development and conservation
		WP2.3 – Introducing alternative way(s) for living	To introduce findings of natural scientists and alternative way(s) for development and conservation from their point of view
3	WP3 – Training and education	WP3.1 – Training for researchers	To provide in-situ, at work and other types of training for natural and social scientists
		WP3.2 – Training and education for local staff and local people	To provide different types of training and education for local staff and local people, to initiate a participatory social learning process etc.
4	WP4 - Development	WP4.1 – Providing clean water	To provide clean water for living (and production) at selected site(s)
		WP4.2 – Promoting tourism	To prepare bases for promoting different types of tourism (guide book, tours etc.)
		WP4.3 – Promoting conservation and sustainable land use	To prepare bases for setting up nature reserve(s), geopark(s) etc. (FS and investment plans etc.)

IX. Project cost and preliminary breakdown

The project cost is anticipated to be app. 1,000,000 Euro. A preliminary breakdown is given in Table 4 below:

Table 4. Project cost and preliminary breakdown.

No.	Work package	Sub-Work package	Amount (€)	Per total cost (%)
1	WP1 – Understanding natural conditions	WP1.1 – General geology	30,000	3
		WP1.2 – Hydrogeology	30,000	3
		WP1.3 – Pedology	30,000	3
		WP1.4 – Speleology	30,000	3
		WP1.5 – Geomorphology	30,000	3
		WP1.6. – Biology	30,000	3

		WP1.7. – Mineral resources	30,000	3
		WP1.8. – Natural hazards	30,000	3
	Sub-total WP1		**240,000**	**24**
2	WP2 – Understanding social conditions	WP2.1 – Ethnic cultures and traditions	40,000	4
		WP2.2 – Facilitating negotiation	40,000	4
		WP2.3 – Introducing alternative way(s) for living	40,000	4
	Sub-total WP2		**120,000**	**12**
3	WP3 – Training and education	WP3.1 – Training for researchers	60,000	6
		WP3.2 – Training and education for local staff and local people	80,000	8
	Sub-total WP3		**140,000**	**14**
4	WP4 - Development	WP4.1 – Providing clean water	200,000	20
		WP4.2 – Promoting tourism	50,000	5
		WP4.3 – Promoting conservation and sustainable land use	50,000	5
	Sub-total WP4		**300,000**	**30**
5	International consultant(s)/coordinator(s)		**200,000**	**20**
6	***Total***		**1,000,000**	**100**

X. Implementing agency

It is proposed that the project be implemented by the Karst Research Center of the Research Institute of Geology and Mineral Resources (Ministry of Natural Resources and Environment) in cooperation with the Institute of Ethnology (National Center for Social Sciences and Humanity) and other interested Belgian partners.

Note: The text goes together with 2 sketch-maps of karst regions in Vietnam and of 4 provinces of the project area.