

UNITED NATIONS DEVELOPMENT PROGRAMME



## **In situ Conservation of Native Landraces and their Wild Relatives in Vietnam**

Project Number VIE/01/G35

Report of the Final Evaluation Mission

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## 1 Acronyms and Terms

APRI	Asia Pacific Research Institute
CBD	Convention on Biological Diversity
CBO	Community-Based Organisation
CPC	Commune People's Committee
DARD	Department of Agriculture and Rural Development
DOST	Department Of Science and Technology
FAO	Food and Agriculture Organisation
GEF	Global Environment Facility
GIS	Geographical Information System
GMZ	Gene Management Zone
HAU	Hanoi Agricultural University
HYV	High-Yielding Variety
IAG	Institute of Agricultural Genetics
IAP	Institute of Asian and Pacific
IEBR	Institute of Ecology and Biological Resources
IPGRI	International Plant Genetic Resources Institute
MARD	Ministry of Agriculture and Rural Development
MONRE	Ministry of Natural Resources and Environment
PMO	Project Management Office
PGR	Plant Genetic Resources
PGR-IZ	Plant Genetic Resources-Important Zone
PM	Project Manager
PRA	Participatory Rural Appraisal
PSC	Project Steering Committee
TOR	Terms of Reference
TPR	Tri-Partite Report
UNDP	United Nations Development Program
UPOV	International Union for the Protection of New Varieties of Plants
VASI	Vietnam Agricultural Sciences Institute
WTO	World Trade Organisation

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## 2 Executive Summary

Agro-Biodiversity Conservation – like no other subject – bridges between the widest distances of science and society. It links genetics with indigenous knowledge, farmers' participation with national interest in conservation, poverty alleviation with global markets, and it attempts to find local solutions to global threats like the worsening effects of global warming on food security. Hence, it is not surprising that the project under evaluation had struggled through a difficult finding and design phase, and that continued improvements have shaped the outcome. This makes the project an ideal source of lessons learned for efficient conservation of Vietnam's precious agro-biodiversity resources.

Therefore, this report puts emphasize on conclusions and recommendations necessary for a follow-up project or second phase for much needed support to agro-biodiversity conservation and utilization in Vietnam. The final evaluation concludes that this project has served mainly as a finding mechanism for best concepts of conserving agricultural biodiversity, for establishing awareness on the importance of genetic resources for food production, and for establishing a scientific mentoring mechanism, which ensures a process of continued improvement of project design for adaptive management. It also created the necessary sense of urgency for continued and increased efforts to protect species and local varieties, which are facing the real threat of extinction.

In spite of its difficult start and slow initial implementation, the project has evolved into a very meaningful showcase for agro-biodiversity conservation in Asia and merits follow-on phases or projects to ensure the survival of many more species and varieties, to increase the cooperation of relevant institutions towards a common conservation goal, to conceptually widen in-situ conservation strategies in Vietnam, and to pursue the involvement and awareness of a much larger public community.

The mid term evaluation helped to improve the understanding of the project's task and its performance in implementation, but *not all recommendations were followed and there are still scientific inconsistencies in the concept. Much of the vagrancies of the project stem from incomprehensive definitions of "in-situ" conservation, the vague definition of "land races", and their "relatives", and the reduction of protection efforts to species groups of economic importance, neglecting the more immediately crucial context of endangered status, ecosystems diversity, and the essential indigenous knowledge about local crops and their traditional land-use systems.*

Nevertheless the project has made a significant impact on raising awareness about the need for conservation of Vietnam's unique crop species and their locally adapted varieties. This important awareness has reached all strata of involvement and will be a decisive element when consequence of Vietnam's signature of the WTO agreement will require strategic decisions.

The project has walked a path towards achieving sustainability and has best contributed to it in the remote upland rice farming communities, where a more holistic approach is necessary to work with marginal ethnic farming

communities. Involving nature reserves and their buffer zones in the conservation of agricultural biodiversity is sustaining efforts beyond the life span of the project.

*It is recommended that a second phase or project will use the good foundation laid by the concluded project and continue increased cross-institutional efforts with a much wider concept of in-situ conservation of agro-biodiversity. Such improved concept needs to include the entire agricultural biodiversity of Vietnam, particularly the endangered and rare species. It requires an approach, which takes farmers' indigenous knowledge into account, researches habitat requirements and genetic differences, and relates species to traditional land-use forms and natural ecosystems.*

*Strategies to achieve agro-biodiversity conservation need to be diverse, too, so as to not rely on one single path towards success. Novel strategies should include the establishment of agricultural gardens, biodiversity home gardens, the foundation of a private crop-species society, species exchange programs, buffer zone management for crop diversification, foster parenthood for selected species, and the Government's designation of larger public land for the sole purpose of conserving genetic diversity. The definition of "crops" should include all useful species in the sectors of agriculture, horticulture, and medicine. Private companies should be encouraged through special partnership programs to domesticate otherwise endangered species and develop novel products for new markets. Likewise, farmers should be assisted in accessing loans for new product development and processing, and in taking advantage of certification and international registration opportunities.*

Such comprehensive program is best set up in a multi-institutional and multi-donor approach with a strong involvement of the private sector to ensure ownership at all levels of national and international society. With such program in place, the challenges ahead caused by increasing global competition and the necessary migration of species triggered by global warming can be faced without losing biodiversity of national and global importance.

### 3 Project Concept and Design

#### **3a Scientific Background**

Agro-Biodiversity conservation is a novel concept in Vietnam as in most parts of Asia. Consequently, *until today recommendations and lessons learned from former projects are largely missing.* While the protection of natural biodiversity can look back a long history of experience, agricultural biodiversity instead has not been able to improve performance over a necessary time span. In addition, learning from park management and natural biodiversity conservation efforts are not applicable at full scale *because in agriculture the social and economic dimensions are much more important and even crucial due to the intrinsic dependence on farming communities.* This dependency ranges from the farmers as the creators of many an important locally adapted crop variety to their free decision to abandon a crop at any time and for any reason.

It is therefore essential to recognize the farmer's creative and generation spanning input to agro-biodiversity design but work along both strategies: the full involvement of farming communities and at the same time implement farmer-independent forms of conservation of crops and their local varieties.

*This strategy takes into consideration, that farmers – more now than at any time in history – are driven by global markets to economize and compete on national and international scales. Hence, the environmental service they provide by protecting their traditional local agro-biodiversity in many cases no longer pays.*

Faced with the complexity of the task, the project nevertheless started out with a reduced concept of agro-biodiversity conservation, focusing initially only on 6 agricultural crop-groups and their conservation in special genetic conservation zones. *It was half way through the implementation, when more scientific and also more participatory strategies were included by the mentoring team.*

The project meant to focus on “native land races” and their wild relatives. However, it included species and varieties that have been brought into the country during the last centuries, and the taxonomy of the race (sub-species and variety) has ignored migration, as it has been common for people and their crops for millennia. While it is recognized that this is a practical approach to combine farmers' needs with society's interest in the protection of genetic information, *a much-needed second phase or new project needs to be scientifically sharpened. This holds true also for the wild “relatives”, a term that in the context of the project even cuts across genus levels (for example: protection of wild litchi includes the genus Xerospermum noronhianum Blume in the Huu Lien Nature Reserve).*

It will be essential for species survival to widen the understanding of the definition for in-situ conservation to practically all fields and habitats a species or variety can inhabit so as to allow migration and the much-needed adaptations to environmental changes nowadays caused by global warming.

### **3b Project strategy**

#### OBJECTIVE

The rationale of the project recognized *that Agro-Biodiversity is the ‘backbone’ for food security* and formulated the

*Objective: to conserve globally significant agro-biodiversity of 6 important crop groups (rice, taro, litchi-longan, rice bean, citrus, and tea) including native landraces and wild relatives in 3 local eco-geographical areas: the northern mountain, the northern midlands, and the north-west mountains of Vietnam.*

The project limited its efforts to in-situ protection of a selection of 6 species groups and their varieties, all of them economically important crops. This proved to be a valid start as the selected sites have a long record of conservation or in some cases are known for famous crops. The site selection has consequently been taken in favor of reaching these special crops, which contributed to the good social acceptance and technical success of the project.

The aspects of crop diversification and farming systems have initially been eliminated from the project, resulting in achievable outputs for the time and funding given.

At the same time, however, this narrow approach to agro-biodiversity conservation is neglecting the majority of endangered and little known crop species, excludes indigenous knowledge and traditional farming systems, and consequently misses out on non-food species and non-timber products from shifting cultivation areas. In this respect, a good opportunity particularly in the educational aspects of the project has been lost.

#### STRATEGY

The strategy to achieve the objective has been formulated as:

Strategy: *to promote sustainable community-based Gene Management Zones (GMZs) and to provide the enabling conditions for preserving agro-biodiversity.*

#### OVERALL OUTCOME

The overall outcome or main achievements were set to:

*(a) Native landraces and wild relatives are conserved in dynamic agriculture/forest landscapes;*

*(b) Replicable models of community-based GMZ management are established;*

and

*(c) An enabling environment to support conservation of agro-biodiversity is established.*

#### RESULTS

The project worked with 4 components (results to be achieved) to accomplish the overall outcome and contribute to the objective. These are:

Component 1: **Establishment of GMZ's** through the creation of an appropriate enabling environment

Component 2: **Operationalization of GMZ's** through capacity building, training, and removal of barriers

Component 3: Targeted **research**, information management and analysis in support of GMZ establishment and operationalization

Component 4: **Public awareness**, education and information dissemination in support of the replication of the GMZ approach

#### CONSISTENCY AND EFFECTIVENESS OF THE LOGIC

The concentration of the project's efforts on in-situ conservation is a logic consequence of prior analysis of Vietnam's past efforts in ex-situ conservation while neglecting the viability of genetic resources as it can only be maintained in a dynamic environment.

The conclusion, however, that in-situ conservation can only be achieved in special gene management zones (GMZs) is neither socially, nor ecologically, and least of all economically convincing. The concept draws its perceived strength from similar approaches to protect natural biodiversity and from the nature reserves' politically and administratively easier tasks within clearly delineated boundaries.

For the crops, however, which in many cases have undergone dramatic historic migration, and particularly for the farmers, who may in future face new forms of restrictions (policies) within their private property, the still static concept of zones gives little room for the dynamics that is essential for a species to survive changes ranging from farmers' preference to global warming.

Hence, the project has only partly contributed to a comprehensive in-situ conservation strategy as it would be necessary for Vietnam's agro-biodiversity resources.

#### ADAPTIVE MANAGEMENT

To select from the multitude of scientific opinions brought forward during the first technical workshop before the start of the project has been a difficult task and left the overall design in the beginning to a trial concept. However, it has been even more challenging to improve the project design during the course of implementation. Due to the reduced scientific nature of the project concept at the start, the essential development elements such as training, marketing, gender issues, policy generation and assistance to farmers for soil analysis, fertilizing and pest control were brought in at later stages.

Most scientific and strategic improvements were brought into the project by its Mentoring Team, which became operational only when the project had already completed half of its life span. Nevertheless, the mentoring team was able to introduce crucial changes that were implemented by the management team within relatively short time after approval by the Steering Committee. The entire project management also acted highly responsive and responsible to the farmers' needs and funds were re-allocated from other budget lines like e.g. equipment cost.

Today, the project has evolved into an excellent and much needed corner stone of successful agro-biodiversity conservation. It serves as a rich source for important learning and recommendations for Vietnam and neighboring countries, and it must continue its efforts through a second phase or project to build on its achievements, attain overall sustainability, and ensure the survival of thousands of more unique species and varieties.

## 4 Findings

### ***4a Project formulation and implementation***

The Institute of Agricultural Genetics has managed or prepared all project activities as the main implementing agency. Further involved were Hanoi Agricultural University, the Institute of Ecology and Biological Resources, and the Asian Pacific Research Institute. Their coordination was undertaken by IAG. Other international donors were not directly involved in the project.

Using sub-contracting for project implementation posed a serious obstacle to efficient management. Sub-contracting has to go through a public bidding process, which slows the speed of implementation. As the tasks have often been highly scientific and technical, there were not always enough bidders available. In addition, the sub-contractors did not contribute to sustainability



as their understanding of continuity, ownership, farmers' participation, and the crucial role of local authorities have largely been ignored. In many cases the sub-contractors tasked junior staff with the execution, while senior levels would have been required for the scientific complexity under investigation.

Coordination has not always been to the expectations of all partners, resulting in untimely inputs and even diverse nomenclature between different institutions for the same species flock. Not all institutions performed their responsibilities for the project satisfactorily either, and the senior international and national scientists of related institutes of the Mentoring Team helped out during the second half of the project contributing much to urgently needed changes in design and scientific depth. Opinions vary over the involvement of the above institutions and there is a general feeling that by directly contracting the best national and international scientists a project that is based on natural sciences would benefit more efficiently.

The Steering Committee with its 11 members (7 Province Directors, the Vice Minister of MARD, Ministry of Planning, Ministry of Finance, the National Government, and the Ministry of Foreign Affairs) met once a year and approved the crucial changes necessary in the projects design.

There is a general feeling that a long-term international adviser at least for the first year of implementation would have had a stronger control over the timely inputs of the sub-contracted products, which would have been needed for the formulation of activity plans. It became evident during evaluation that most of the success of the project is owed to the excellent project staff of IAG, who established warm hearted working relationships with the people in the implementation sites.

UNDP has given timely and professional support to the project office, although the frequent changes of UNDP Programme officers (4 officers in 3 years) did consume adjustment time. The present situation, however, is described as excellent.

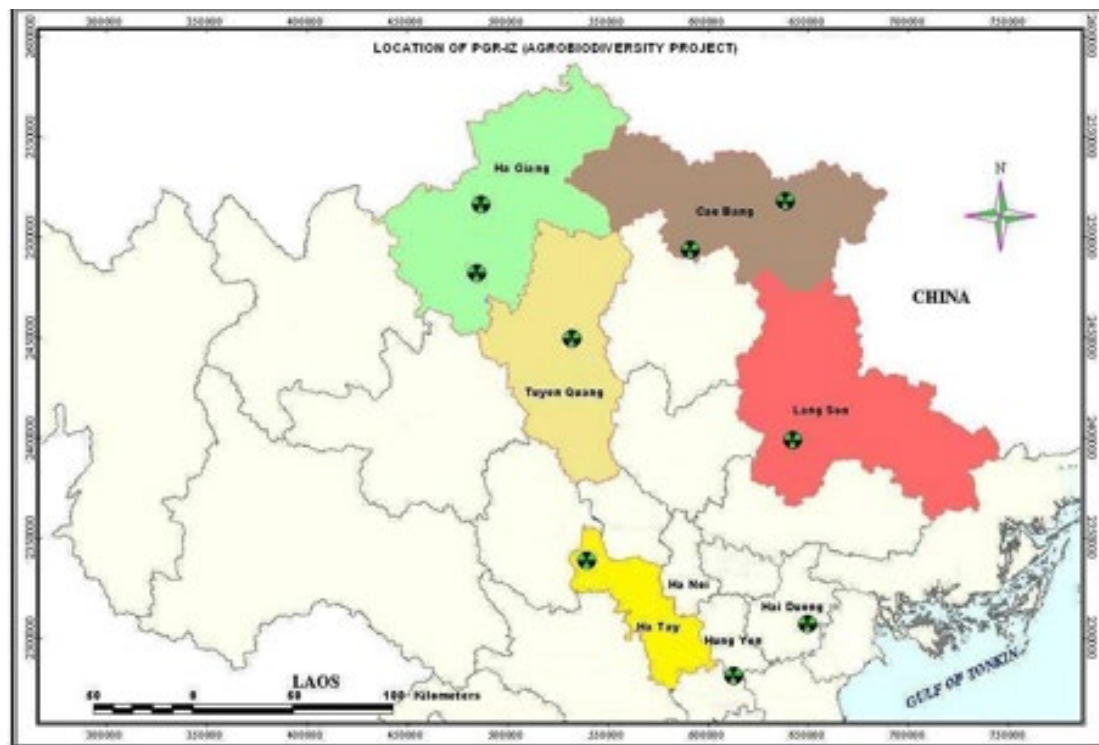
About 5% of the project funds have reached the beneficiaries directly through support in their conservation efforts. Additional 15% reached them indirectly through trainings. The overall impact of the project on the beneficiaries is characterized by a very strong awareness of the importance of agro-biodiversity conservation and a strong motivation to continue working with the project.

Internal Monitoring and Evaluation has not been inbuilt into the project design. However, the adaptations the project went through indicate that continued reflections on improving performance have been done and decisions for improved project design were taken on time. A major role in recommending improvements was taken on by the mentoring team.

#### **4b Project results**

Following initial delays and shortcomings in design of the project the expected results could not be achieved within the envisioned time frame and the project received permission to extend after April 2005 until March 2006. This allowed for an intensification of implementation efforts, and while in December 2004 only 33 out of 159 activities had been completed, by now the project has

almost reached entire completion (see Annex). This good achievement was made possible through the recommendations of the mid term evaluation, and with the active support of the Mentoring Team and the project staff of the IAG.



*Map: Project implementation sites and provinces*

Main achievements are seen in the preparation of the Plant Genetic Resource Important Zones for the protection of the 6 initially proposed crop groups (Longan-Litchi, Citrus, Taro, Rice, Rice-bean, and Tea) comprising many land-races and extending to 7 provinces (see map). Through this the project clearly contributed to the conservation of agro-biodiversity in Vietnam. The project now offers a good scientific basis for the design and management of these special conservation zones.

However, the Conservation Management Plans for the 11 conservation zones lack the scientific depth and necessary implementation modalities for approval by Provincial Authorities and MARD, and the final report, which may give important lessons learned and inputs to the plans, is not yet available. The presently existing plans have severe shortcomings: they are not elaborated together with the local communities, contain no comprehensive understanding of agro-biodiversity conservation, and are not enriched with the inputs of Vietnamese institutions presently involved in plant genetic resources management. The plans seem also not be based on the findings of surveys organized by the project, and it finally requires attention that not all field sites are fully capacitated to implement the plans without further assistance. It is therefore suggested to keep the approval process of the plans on hold until the above pre-requirements are fulfilled.

The surveys feeding into the plans seem not to be done in cooperation with local communities and consequently lack basic data such as the local names of the specie and varieties, necessary as a first indicator for a genetic difference. Only morphological criteria were used for differentiating varieties, which is not sufficient, the more as the laboratories for genetic analysis are existing and could shed much light on the genetic distance between varieties. This would have led to clearer definitions of the terms 'land race', 'relatives', and 'cultivars', which in taxonomy are either natural or man-made varieties hierarchically under the Genus and species level. As a consequence of the limitations of the surveys, the project is left with a collection of names of 'land races' that is markedly different from earlier Vietnamese documents and may cause problems in nomenclature and later utilization for trade marking and registration.

In summary, the project activities have been implemented quantitatively wherever reasonably achievable within the extended project time frame and the overall performance is satisfactory, in some cases, particularly the increased awareness of all involved parties, highly satisfactory especially when considering the adaptive management changes that have been necessary during the course of implementation. A detailed joint evaluation of the achievements is in the Annex. In the following are only the team's major findings on results and project components:

*(a) Native landraces and wild relatives are conserved in dynamic agriculture/forest landscapes*

The collaboration for protecting wild relatives of agricultural crops through the involvement of nature reserves deserves special mention as a most valid component of in-situ conservation. The buffer zones of nature reserves can also be utilized for rare and non-economic crops to be managed by local farmers under the guidance of the reserve and through management or service contracts.

#### RICE

Upland rice grows in remote mountain areas. The project did well in intercropping it with Citrus, such enhancing environmental stability of a crop that often causes severe soil erosion.

As upland rice is traditionally grown in shifting cultivation systems, the project helps to conserve a type of farming practice, which has been made responsible for the loss of forests. However, it has lately been recognized that through outlawing shifting cultivation, we are losing a very high biodiversity of useful species and the traditional knowledge that goes with managing them. As shifting cultivation practices and knowledge vary with changing ecosystems and ethnic communities, they deserve special classification and attention. Upland rice is a good entry point to deepen the understanding and conservation efforts in these disappearing land use forms.

#### TARO

The term taro has initially been used for *Colocasia esculenta*, only. Through involvement of the Mentoring Team, the definition was substantially enlarged to practically all Araceae with edible corms, leaves, or flowers.

This widening of the definition of taro is in line with the use of the term in other countries and societies, and it could in its widest sense comprise 400 taxa for Vietnam alone. Such large scope is essential for a sound scientific approach to species conservation but needs close cooperation with a scientific institution. In Vietnam, the Plant Resources Centre has taken the responsibility for the taxonomic identification of aroids, their germ plasm and life collection, and sustains efforts towards the protection of its resources.

#### LITCHI AND LONGAN

Litchi and longan have been introduced to Vietnam from China many centuries ago. This heritage is respected by local communities until today and Chinese style temples protect mother trees that are up to 400 years old and serve until today as source for cuttings and marked offspring.

The project found a good entry point to species conservation by supporting the communities' compassion for these ancestral trees. With this good start, it will be easy to include further crops into the same concept. The less-economic varieties of litchi and longan, however, may additionally have to be preserved also in special agricultural gardens, which can serve a combination of gene pool conservation and eco-tourism objectives.

However, with the dramatic increase in Litchi production all through the Indochinese region, the market prices of these formerly highly priced fruit fell within 5 years to less than 10% of its former market value. This puts the less-valued local land races to serious threat as farmers can no longer get any income from them.

One option to keep a better income level is to support the communities with locally adapted processing facilities, through which they can offer better quality products to national and international markets.

#### CITRUS

The varieties of taste, shape, size, and colour of Citrus species is enormous. Among them are species with such excellent taste that their entire production is pre-contracted, but it also includes varieties with presently no economic value.

This again calls for a diversification in conservation strategies as farmers may ultimately give up on low-income crops even if they get rewarded for their maintenance. Any shortage of funding or instability will risk the variety's survival.

The aromatic large Citrus is a special case and it may prove viable to support farmers in locally adapted processing equipment that would allow them to extract the essential oil from the fruit.

#### SHAN TEA

Mountain tea is a natural species originating in the undergrowth of forests above 1000 m altitude along the border areas of Vietnam, China, Laos, Thailand, and Myanmar. It has a long history of use and became internationally famous as Puer Tea when it was traded from China over the tea roads to Tibet and to India, from where it reached England as black tea. This long route on horse back and in boats has been important to create the

processing skills that allowed tea to slowly ferment over such long time and under changing microclimatic conditions.

The recent years saw a revival of this old processing technology as customers became increasingly conscious about pesticides in commercial tea. It also guided their interest in tea back to the Mountain Tea and its places or origin. Along with it goes a steady increase of market value for the nowadays rare crop and for aged teas from the mountains (good tea is processed to reach maturity after 10 to 50 years, some teas that are now 100 years old are weighed in gold).

It is therefore a good idea to include mountain tea into the project from the start. The full potential for working with mountain tea, however, is reached when the protection of the old tea trees above 1000 m asl and the protection of the forest are combined for the benefit of local ethnic mountain communities. Compared with the tea that is produced in lower elevations from the same species, the tea leaves from old trees in the mountain forests fetch a price so many times higher – and increasing – that the protection of old growth *Camellia sinensis* and its enrichment planting in high altitudes could be made into a showcase where protection and production meet. A future project should not let go of this good opportunity.

#### OTHER SPECIES, VARIETIES, AND FARMING SYSTEMS

The majority of endangered and rare crops and useful plants have not been included in the project. Also farming systems and ecosystems, habitat requirements for crops, and the species rich but disappearing forms of shifting cultivation with their multitude in non-timber forest products have not found entry in the project. A new project must steer away from the mere economic crops to the neglected species in order to have a meaningful impact on conservation.

#### *(b) Replicable models of community-based GMZ management are established*

The concept of Gene Management Zones has advantages and disadvantages:

Among the advantages are:

- The zone can be delineated and the boundaries marked.
- Administration political responsibilities, and fund allocations are facilitated.
- Project interventions can draw lessons from conventional regional development projects.

Among the disadvantages are:

- Species are crossing administrative boundaries and the most diverse ecosystems are often at the border between districts, provinces, and countries.
- Initial incentives for farmers may in the course of time translate into policies and regulations depriving farmers from developing their own farming systems on their own land.

While the Gene Management Zones seem to be a good entry point for agro-biodiversity conservation, creating awareness and political responsibility, they should not be viewed as the sole or priority instrument for in-situ conservation.

In the project documents, all the project sites, the landraces and their relatives, and project areas are pre-determined. This caused a lot of difficulties for the project staff during implementation, because often after field surveys, with the new information and data, changes of project sites or change in species selection would have been necessary but became difficult.

*(c) An enabling environment to support conservation of agro-biodiversity is established*

The best achievement of the project is its strong awareness building. The need for and also the potentials of Agro-Biodiversity conservation are now part of the decision taking process from high national authorities to provinces, district to the communities and finally the farmers as the keepers of the genetic resource. During the course of the project, more and more farmers wished to participate and the project responded well in keeping the trainings open to all interested in participating.

Trade marking of local varieties is a valid option but farmers need assistance in the assessment of the marketable potential of their variety, the ownership needs to be cleared, and the registration process as well as the follow-up of the trade of rights needs funding and logistic support. In Vietnam 358 cultivars have been registered until 2004 (Annex) and the registration process is well established. Vietnam will also sign the agreement with the International Union for the Protection of New Varieties of Plants (UPOV), an organization who's goal is to encourage the development of new varieties of plants for the benefit of society. It is perceivable that selected farmers are encouraged to study hybridization of specific crops in order to develop new varieties for global markets. For the task of protecting existing local varieties with their long history of migration and adaptation, and with complex ownership situation, however, UPOV registration will not be an adequate mechanism.

#### **4c Impacts**

The evaluation team recognized a deep impact at all levels of involvement on the awareness of the importance of agro-biodiversity conservation. Through this strong motivational impetus, a good social base and sense of urgency is created for a necessary continuation through a new project or second phase. This is also confirmed by the steady increasing numbers of farmer families, who wished to be included in the project activities and who attended trainings.

It is clear that agro-biodiversity and its importance for the nation has become an integral part of institutions and authorities involved in the project. Its continued support is reaching out to positively impact on farmers and their crops, recognizing the age-old interdependence of both and their contribution to a nation's sustainable growth.

However, there is much to be done to reach the high diversity of Vietnam's agricultural crops and to maximize the impact of future projects towards the

conservation of crops. This project has just been a humble - although important - beginning.

#### **4d Sustainability**

Sustainability as typical long-term philosophy cannot be expected after 3 years of project life span. However, the project has taken initial steps towards sustainable agro-biodiversity conservation, from which lessons can be learned for future efforts.

##### ECOLOGICAL DIMENSION

While the initial selection of crops has been limited to 6 species groups, most of them are trees and their conscious protection and propagation is contributing to stabilize soils and global climate. Even the conservation site for upland rice has been inter-cropped with Citrus varieties so as to stabilize this otherwise very erosion prone farming system.

Farmers in remote marginal areas have refused new hybrid varieties of crops because local varieties are much better adapted to the local conditions and do not require the increased inputs that often go with new hybrids.

As the species are commercial crops, plant protection has been supported by the project, and farmers reported a high use of pest incidences and consequent pesticide use. Alternatives to pesticide use will require more attention in a follow-up project.

Future efforts need to include many more species (see Annex) and also their land-use systems and indigenous knowledge.

##### SOCIAL DIMENSION

The project has evolved into a socially accepted support structure for sometimes remote, local communities. At this moment, no restrictions for farmers are arising from the establishment of the genetic conservation zones; in the contrary, support has been given to a range of farmers' needs beyond species conservation. Consequently, the farmers unanimously expressed their interest in a continuation of project efforts and in including more crops than were selected in this first phase.

The farmers respect of the project was increased when they became active partners in implementation and the project switched from sub-contracting to directly contracting to communities.

While gender concerns were initially not raised during the design process, it became clear during the evaluation that at least half of the farmers actively involved were women. The project did not put extra burden on any gender. Poverty alleviation has not been an integral part of the concept.

The evaluation team also recognizes the importance of the excellent social integration of the project's field staff and the charisma of its leadership as an essential element of project success.

##### ECONOMIC DIMENSION

While some of the local varieties chosen for the project have an excellent marketing value and provide good income to farmers, others do not contribute substantially to the farmer's livelihood. The project has responded well and

adapted different incentives for economic versus non-economic crops, ensuring the conservation also of low income generating varieties such as the aromatic form of Citrus.

In some cases, novel processing technologies for otherwise low income varieties could make the difference towards successful marketing.<sup>1</sup>

Trade-marking and registration of hybrids is offering a potential income for the future. However, both the technical the administrative processes are cumbersome and expensive, and the follow-through on international claims is beyond farmer's ability. For national institutions, however, this can be a source of income generation.

There is a looming conflict arising from compensations that are given to protect individual trees which the local communities had already conserved as cultural heritage as in the case of century old Litchi trees. While these trees have been protected by local communities already before the project's time without financial compensation, now they are rewarded financially. This may lead to abandonment of cultural heritage once funding stops because the monetary value given clashes with the cultural and historic non-monetary value.

#### INSTITUTIONAL ASPECTS

Vietnam's coming 5-years plan foresees a budget of 1.2 Bill US\$ for genetic resources protection. This enables a variety of institutions, of which most are located within MARD, to continue strong efforts towards agro-biodiversity conservation and provide matching funds for future international projects.

Yet, the project can not continue after the present GEF funding. It has to be viewed as a research project, which helped to optimize the country's conservation strategy for agro-biodiversity protection and at the same time it created enough awareness and urgency for the acceptance and formulation of new proposals.

The involved scientific institutions under the Vietnamese Academy of Science have contributed substantially to the project's success and in turn increased their knowledge-base, enriched their collections and acquisitions, and guarantee sustained efforts towards selected species conservation. However, the strategy for continued knowledge transfer is not yet in place and requires substantial input through a follow-up phase or project.

#### INCREASING PROSPECTS FOR SUSTAINABILITY IN THE FUTURE

In contrast to natural biodiversity, which can conveniently be left alone to survive, agricultural biodiversity is defined by its strong management input through farmers. Strategies that lead to increased sustainability of interventions need to take farmers' management and traditional knowledge into consideration but should at the same time also include farmer-independent in-situ conservation mechanisms such as agricultural gardens for tourism and gene conservation, and many more as described later.

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<sup>1</sup> An example is the aromatic form of Citrus, which cannot be eaten but from which the highly valued essential oil could be extracted through on-farm technologies.



With the present threats to agro-biodiversity increasing (global warming, new hybrid varieties, genetically modified crops, soil erosion, land conversion), the conservation of agricultural biodiversity will become an ever more important topic and there is no light in sight at the end of the tunnel. Hence, funding through combined national and international efforts will surely need to continue much beyond the next projects life span.

#### **4e Conclusions**

##### PROJECT DESIGN

- The initial design of the project had shortcomings in its scientific and development approach to agro-biodiversity conservation, with the definition of in-situ conservation and “land races”, and missed out on important development concepts, which are essential for both on-farm protection and a much wider definition of in-situ conservation strategies.
- In-situ conservation does not limit approaches to on-farm conservation but must allow the species and varieties to migrate, interbreed, be subjected to new environments, and also leave the boundaries of farms, provinces and countries.

##### MANAGEMENT

- The establishment of a Mentoring Team was late but nevertheless crucial for the success of the project.
- Sub-contracting for projects with a piloting nature and strong community involvement is to be reduced in favor of direct management of contracts through the project management office.
- Registration of land races for the purpose to generate income is costly and entails ownership disputes. Regulations and prohibitions for trade particularly outside the country on the long run limit the potential for genetic dynamics and ultimately leave the registered gene resource with a lower genetic and economic value.<sup>2</sup>

##### FARMERS' PARTICIPATION

- In-situ conservation cannot remain the responsibility of farmers unless they get sufficiently compensated for their service to society.
- Species can not be seen in isolation of the farming system and habitat they live in. Every species is part of a larger ecosystem and landscape, and it is associated with other plants and large numbers of soil organisms, insects, and larger fauna. It may provide crucial resources for the survival of other species, hence, needs to be treated as a part within a web of interdependencies.

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<sup>2</sup> An example for the ultimate loss of the benefits of a registered variety is the Cavendish banana, a man-made hybrid between *Musa acuminata* x *M. balbesiana*, which is facing economic and consequently genetic collapse due to its non-resistance to *Fusarium*.

## SCIENTIFIC AND TECHNICAL DETAILS

- Species and their varieties are continuously migrated by farmers, such increasing their dynamics for adaptations to new environments. This has become more important through the recent trends in global warming, which will require pro-active migration of crops northward.
- For preserving genetic information in-situ site-specific environmental conditions are of little importance for species that are propagated vegetatively. In addition, migration to different environmental zones is essential to ensure a dynamics of change in the gene-pool.
- Farmers tend to alter crop varieties towards earlier fruiting and larger fruits in order to optimize income. Consequences are that crop varieties are migrating South and that the fruits are losing in taste.

## POLICY RELEVANCE

- The major achievement of the project has clearly been the raising of awareness about the importance of crop varieties at all levels from Government to the farmers. Agricultural biodiversity has such taken its important place in the recognition of Government Institutions including their staff involvement, fund allotment, policy development, and extension activities. This creates a solid base for continued conservation efforts, which are urgently needed.
- It is anticipated that through Vietnam's signing of the WTO agreement, farmers will be even more under pressure to compete economically on a world market. This may on the one side lead to increased monoculture of conventional hybrid crops to respond to the pressure on farm prices, but on the other hand gives new opportunities to indigenous crops with a perfect local adaptation. These opportunities need to be addressed strategically through a new project.

## 5 Recommendations

A follow-up project or second phase to continue and broaden the impacts of the ending project is urgently needed. For such project, we recommend the inclusion of the following design elements:

### RECOMMENDATIONS FOR IMPROVED DESIGN OF A NEW PROJECT OR PHASE

- In-situ conservation needs to be conceptually widened to increase in every scope including more sites, more species, and a higher diversification of conservation strategies.
- Farming systems, including controversial forms of land-use such a shifting cultivation, need to be respected as the enabling environments for the crops' evolution.
- A nation-wide agro-biodiversity survey needs to be conducted. It should be done with the involvement of all institutions specialized on scientific taxa and result in a common data bank, from which all institutions can benefit.

- Future efforts should not only focus on conventional crops but must include also other economically important plant groups such as medicinal and ornamental species.
- One conservation option to explore is the establishment of Agricultural Gardens, which can fulfill a multitude of functions from conservation to education, and which can be designed to attract tourists and traders, hence, generates income.<sup>3</sup>
- Such Agricultural Garden would best be set up as a collaborative effort through multi-donor support in order to cope with the complexity of its tasks and to create interest and ownership across institutions.
- Other in-situ conservation options should explore the creation of biodiversity home gardens, the foundation of private species societies, genetic exchange programs with other countries, buffer zone management for crop diversification, foster parenthood for selected species, and the Government's designation of large areas of public land for the sole purpose of conserving genetic diversity.
- Processing technologies, which meet the market demand in quality products, need to be part of the protection strategies for perishable or otherwise non-marketable goods.
- Pesticide use in and around agro-biodiversity zones should be discouraged and actively be replaced by ecological and organic farming practices so as to not only contribute to the health of farmers but also increase the flora and fauna naturally associated with the selected crops and their farming system.
- Indigenous knowledge about local varieties from growth, daily management, processing, utilization to replacement or crop cycling needs to be collected, validated and included into educational material in order to serve as a tool for efficient maintenance of the land races.
- Private companies should be encouraged through special partnership programs to domesticate otherwise endangered species and develop novel products for new markets.

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<sup>3</sup> A well-designed example of an agricultural garden can be visited on Hainan island. This garden is set up similar to a botanical garden and has out-competed the local botanical garden in numbers of visitors and income generation.

Such gardens require a multifunctional design from the start that includes the planting of species and varieties in groups (not single) and should include habitat modeling or the use of natural micro-habitats to create the niche preference for the taxon. In addition, production and processing techniques can be demonstrated to farmers. Trainings, technical information material and seeds or seedlings should be sold to further distribute the crops and to create income for the agricultural garden.

The minimum size per garden should be 100 ha, and they should be established in every major climatic zone, preferably near a nature protection area. For Vietnam at least 2 such gardens, for the South and the North, would be necessary to meaningfully contribute to agro-biodiversity conservation.

- Farmers should be assisted in accessing loans for new product development and processing, and in taking advantage of certification and registration opportunities with UPOV.
- Media such as TV broadcasts and illustrated guide books should be produced to stimulate public interest and create new markets.
- In tropical areas the distinction between agriculture and forestry is no longer helpful as marginal farmers have traditionally utilized forests for shifting cultivation and today depend more than ever on the few remaining forest resources for food, medicine, construction material and a large variety of marketable products. A new project should consider designing new forest-like farming systems for secondary forest products.
- The early inclusion of private companies with a good reputation for marketing agro-forestry products is essential for the farmers' confidence in a new project and for ensuring its economic sustainability.
- A new project should initially be managed with the help of an experienced international expert to assist in coordinating international and national inputs for a successful start.
- Scientists should be contracted directly rather than involving entire institutions, such allowing the project to draw from the best national and international experts for advise.
- Institutions and farmers should be prepared for the effects of global warming, which will require active migration of crops locally up-mountain and nationally further North.
- As Northern Vietnam is genetically rich in Musaceae and the Vietnam Plant Resources Centre has a large collection of wild species and hybrid edible varieties, collaborative breeding programs, which train and contract farmers to create new edible bananas should be encouraged especially as the Cavendish banana is facing extinction and the world market will look for new breeds and tastes.
- The conservation of Shan Tea in the Northern mountain forests should use the full marketing potential of this rare but highly demanded crop to design a showcase where the production of agro-biodiversity meets the protection of natural biodiversity for the benefit of local ethnic minorities.
- Eco-Tourism can enhance and support efforts for agro-biodiversity protection if designed to fit the needs and interests of tourists.

## 6 Lessons Learned

The project provides important insight into the design and implementation of scientifically and institutionally complex natural resources protection. The main lessons of value to other projects are:

## SCIENTIFIC DESIGN

Species conservation must go hand-in-hand with ecosystem protection, for agricultural biodiversity the farming system is the basis for protection efforts. However, a farmers' land is not a museum, and ownership rights need to be respected. Hence, agro-biodiversity conservation must include a rural development component that respects even controversial forms of farming such as shifting cultivation and sees the farming communities as the owners and managers of the entire traditional knowledge system.

Species and variety names, as well as exact project sites should not be pre-determined in planning documents as in the course of scientific studies changes will be necessary.

Contracting project components and scientific studies to the best national and international experts is more efficient for project management than contracting to entire institutions.

## OWNERSHIP

Agro-Biodiversity, when recognized as a potential source for income, creates ownership more readily than the conventional concepts on natural biodiversity protection. But this entails the risk that presently less economic and therefore endangered species and their varieties are getting ignored and face even faster extinction. Hence, ownership must be created at many levels for different purposes, ranging from the ownership of an important income source of a farmer to the ownership of a rare and presently non-economic species by an institution.

## PARTICIPATION

Involving farmers at an early stage, respecting and appreciating their knowledge and natural resources, and more importantly combining conservation with assistance in processing and marketing motivates farmers to participate.

## ADAPTIVE MANAGEMENT

A combined national and international mentoring team, which is guiding the project towards scientific and technical improvements during implementation, is a very valid conceptual element for adaptive management and should be an integral part of future projects.

## SUSTAINABILITY

Farmers are vital contributors to agro-biodiversity conservation, but they cannot be made responsible to shoulder the maintenance of crops with little or no economic value. Hence, a diversification of conservation strategies and a widening of the definition for in-situ protection are essential for the survival of endangered species and varieties. A diversification of strategies helps in conserving diversity.

Diversification of conservation strategies is minimizing the risks of extinction for agro-biodiversity species.

## REPLICABILITY

Dynamic processes, which lead to continued improvement of projects, can be successfully triggered and replicated through the involvement of mentoring teams. They should become an integral part of innovative projects and be composed of national and international experts.

## KNOWLEDGE TRANSFER

All activities leading to successful knowledge transfer have to be completed before other implementation activities, which rely on them, can start. Too early implementation without a sound knowledge base requires changes, which at a later stage in the project cycle are difficult to manage.

## M & E

No learning.

### ***Acknowledgements***

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## 7 List of Annexes

1. People interviewed
2. Agro-Biodiversity species observed in the field
3. Cultivated plants of Vietnam
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5. Achievements based on log-frame
6. Comments by Stakeholders
7. Contact addresses of evaluation team

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ANNEX 1. PEOPLE CONSULTED DURING FINAL EVALUATION

	<b>Name</b>	<b>Position</b>	<b>Institution</b>	<b>Met on</b>
1	Koos Neefjes	Head of Sustainable Development Cluster	UNDP Vietnam- Hanoi	2/5
2	Dao Xuan Lai	Programme officer	UNDP Vietnam- Hanoi	2/5
3	Le Tuan Nghia	Project Manager	IAG- Hanoi	3/5
4	Pham Thi Viet	Administrative Assistant	IAG- Hanoi	3/5
5	Nguyen Ngoc Hai	Project expert	IAG- Hanoi	3/5
6`	Hoang	Field staff	IAG- Hanoi	3/5
6	Dao Xuan Lai	Programme officer	UNDP Vietnam- Hanoi	2/5
7	Nguyen Quang Dong	Vice Director	Hai Duong DARS	4/5
8	Pham Thi Binh	Vice head of crop section	Hai Duong DARS	4/5
9	Le Dinh Son	Provincial P. field staff	Hai Duong DARS	4/5
10	Do Van Nhat	CPC Chairman	Thanh Son Commune	4/5
11	Tran Duc Loan	Commune Party Secretary	Thanh Son Commune	4/5
12	Do Van Dan	Farmer, Project Participant	Thanh Son Commune	4/5
13	Do Van Dieu	Farmer, Project Participant	Thanh Son Commune	4/5
14	Hoang Van Thu	Farmer, Project Participant	Thanh Son Commune	4/5
15	Ngo Hung Manh	Director	Hung Yen DOST	4/5
16	Le Van Luong	Provincial field officer	Hung Yen DOST	4/5
17	Bui Hong Hoang	CPC Chairman	Nam Hong Commune	4/5
18	Bui Hong Huy	Farmer, Project Participant	Nam Hong Commune	4/5
19	Pham Ngoc Thach	Vice Director	Ha Tay DARD	5/5
20	Duong Van Ninh	Provincial P. field staff	Ha Tay DARS	5/5
21	Ding Cong Su	Commune field staff	Ba TRai Commune	5/5
22	Dinh Cong Dien	Commune field staff	Ba TRai Commune	5/5
23	Dinh Van Thuc	Commune Party Secretary	Ba TRai Commune	5/5
24	Dinh Cong Thanh	Farmer, Project Participant	Ba Trai Commune	5/5
25	Dinh Thi Luyen	Farmer	Ba Vi Commune	5/5
26	Pham Trung Hoa	Vice Director	Tuyen Quang DARD	6/5
27	Nguyen Thi Hoi	Provincial P. field officer	Tuyen Quang DARD	6/5
28	Nguyen Thi Thoa	CPC Chairman	Ngoc Hoi Commune	6/5
29	Luong Thi Thin	Commune field officer	Ngoc Hoi Commune	6/5
30	Tran Dac Thang	Farmer, Project Participant	Ngoc Hoi Commune	6/5
31	Tran Van Thanh	Farmer, Project Participant	Ngoc Hoi Commune	6/5
32	Nguyen Thi Xo	CPC Vice Chairman	Viet Vinh Commune	7/5
33	Nguyen Ngoc Xuyen	CPC Chairman	Viet Vinh Commune	7/5
34	Sung Sao Sinh	Farmer	Viet Vinh Commune	7/5
35	Tran Minh Hoi	Subcontractor	Vice Director of IEBR	11/5
36	Ha Van Tue	Subcontractor	IEBR Staff	11/5
37	Nguyen Van Du	Subcontractor	IEBR Staff	11/5
38	Nguyen Ngoc Hue	Mentoring Team Member	Plant Resources Center	11/5

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ANNEX 2: CULTIVATED PLANTS OF VIETNAM

There are 16 groups of cultivated plants with more than 800 main species and thousands of different varieties in Vietnam

<b>Nr</b>	<b>Cultivated Plant Group</b>	<b>Number of species</b>
1	main food plants	41
2	minor food plants	95
3	Fruit plants	105
4	Vegetables	55
5	Spices	46
6	Plants for drinking	14
7	Fibrous plants	16
8	Fodder	14
9	Plant for Fat oil	45
10	Essential oil	20
11	Soil improvement Plants	28
12	Medicinal Plants	181
13	Ornamental Plants	62
14	Shade trees	7
15	Industrial Plants	24
16	Trees for timber	49
	<b>Total</b>	<b>802</b>

Source: Agriculture and Rural Development Sciences and Technique, 20 years Renovation. MARD 2005 (from Report : National environment Status – Biodiversity - case study, First Draft, 22/8/2005)



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**ANNEX 3: USEFUL SPECIES AND VARIETIES OBSERVED IN THE PROJECT SITES**  
 (Not including timber trees and medicinal plants)

This rapid agro-biodiversity assessment at the visited project sites was conducted to demonstrate the need for a wider conservation concept and include a much larger number of species and local varieties into future conservation efforts.

Nr.	Family	Species name	Variety name	Local name	Locations
1	Anacardiaceae	<i>Dracontomelum duperrianum</i>		Sau	1,2
2		<i>Mangifera indica</i>		Xoai	1, 2 et all
3		<i>M. duperreana</i>		Muom	6
4		<i>M. rebra</i>		Queo	6
5	Araceae	<i>Alocasia macrorrhiza</i>		Ráy nhà	8(a), 8(b) /
6		<i>Colocasia esculenta</i>		Dọc mùng xanh	8(a), 8(b) /
7		<i>Colocasia esculenta</i> var. <i>antiquorum</i>		Khoai sọ dọc trắng	8(a), 8(b) /
8		<i>Colocasia esculenta</i> var. <i>antiquorum</i>		Khoai sọ dọc tía	8(a), 8(b) / 2
9		<i>Colocasia esculenta</i> var. <i>antiquorum</i>		Khoai sọ địa phương	8(a), 8(b)
10		<i>Colocasia esculenta</i> var. <i>antiquorum</i>		Khoai nước xanh	8(a), 8(b) / 3(a)
11		<i>Colocasia esculenta</i> var. <i>antiquorum</i>		Khoai nước tía	8(a), 8(b) /
12		<i>Colocasia gigantea</i>		Mùng trắng (Bạc hà)	8(a), 8(b) / 2
13		<i>Colocasia gigantea</i>		Mùng tía	/ 2
14		<i>Colocasia indiva</i>		Khoai môn đỏ	8(a), 8(b) /
15		<i>Homalonema occulta</i>			3,6
16		<i>Xanthosoma sagittifolium</i>		Khoai Tam đảo	8(a), 8(b) /
17		<i>Xanthosoma violaceum</i>		Khoai mùng tía	8(a), 8(b) / 2
18	Asteraceae	<i>Blumea balsamifera</i>		Dai bi	3(a,b,c)
19		<i>Lactuca indica</i>		Bo cong Anh	3(a,b,c)
20	Cannaceae	<i>Canna edulis</i>		Dong rieng	1,2
21	Caricaceae	<i>Carica papaya</i>		DDu ddur	1,2 et all
22	Cucurbitaceae	<i>Luffa spp</i>		Muop	1,2 et all
23		<i>Benincasia hispida</i>		Bi dao	1,2 et all
24		<i>Cucurbita pepo</i>		Bi ngo	1,2 et all

25		Cucumis sativus		Dua chuột	1,2,6
26		Momordica cochinchinensis		Gac	1,2
27	Ebenaceae	Diospyros decandra		Thi	1
28		D. kaki		Hong	1,2,3
29	Lamiaceae	Ocimum basilicum		Hung que	1,2
30		O. gratissimum		Huong nhu trang	1,2, 6
31		Perilla frutescens var. crispa		Tia To	1,2 et all
32	Maranthaceae	Marantha arundinaceae		Cu dong	1,2
33		Phrynium dispernum		La dong	1,2 et all
34	Moraceae	Artocarpus integra		Mit	1,2, 3(a).(b)(c) ,6
35		A. parva		Chay	3(c)
36		Ficus auriculata		Va	3(c)
37		F. benamina		Sanh	3(c)
38		F. cunia		Co not	3(b)
39	Myrtaceae	Cleitocalyx retinervius		voi	6
40		Psidium guava		oi	2
41		Syzygium jambos		Roi	1,2
42	Palmae	Areca catechu		Cau	1,2,3 et all
43		Livistona chinensis		Co xe	1,2, 3et all
44		L. saribus		Co bau	1,2,3 et all
45	Piperaceae	Piper lolot		la lot	
46		P. betle		Trau khong	1,2,3 et all
47	Solanaceae	Solanum undatum		Ca phao	1,2 et all
48		Capsicum frutescens, var - fasciculatum - longum - microcarpum		Ot chi thien	1,2 et all
49	Sapotaceae	Chrysophyllum cainito		Vu sua	1,2 et all
50		Pouteria zapota		Trung ga	1,2,
51		Manilkara achras		Hong Xiem	1,2,6,7
52	Theaceae	Camelia sinensis var. assamica		Chè shan tuyết lá dày	5, 3(b) / 7,3(a)
53		Camelia sinensis var. assamica		Chè shan lá mỏng	5 /
54	Rutaceae	Citrus grandis		Bưởi	7 /
55		Citrus grandis		Bưởi Cuba	7 /
56		Citrus grandis		Bưởi đường	7 / 2
57				Bưởi dây	3(c) /
58				Bòng	/ 2
59				Bưởi diển	/ 1
60		Citrus grandis		Bòng tía	/ 2
61		Citrus limonia		Chanh ta	7 / 3(c),

62		Citrus medica		Phật thủ	7/
63		Citrus medica		Thanh yên	7 /
64		Citrus medica		Bưởi sần, bưởi dây	3(c) / 3(a),
65		Citrus nobilis		Cam sành	6, / 2
66		Citrus nobilis		Cam chum	7 /
67		Citrus sinensis		Cam chua, Cam chanh	7 / 2
68				Cam đường canh	7 / 2, 1
69				Cam giấy	/ 2
70		Citrus reticulata		Quýt bộp	7, 6 /
71		Citrus reticulata		Quýt chum	7, 6 /
72		Citrus reticulata		Quýt đại	7 /
73		Citrus reticulata		Quýt đường (Quýt Ngọc Hội)	7, 6 /
74		Citrus reticulata		Quýt giấy	7, 6 /
75		Citrus reticulata		Quýt hôi	7, 6 /
76		Citrus reticulata		Quýt vỏ đỏ	7, 6 /
77		Citrus reticulata		Quýt vỏ giòn	7, 6 /
78	Leguminosae- Papilionoideae	Vigna umbellata	7 land races	Đậu nho nhe	4(b) /
79	Sapindaceae	Dimocarpus longan		Nhãn lồng	1 / 2, 3(c),
80				Nhãn hương chi	1 /
81				Nhãn đường	/ 2
82				Nhãn nước	/ 2
83				Nhãn thóc	/ 2
84		Dimocarpus fumatus (?)		Nhãn đại	8(a), 8(b) /
85		Litchi chinensis		Vải thiều	2 / 3(c),
86				Vải chua	2 / 3(c), 3(a),
87				Vải u trứng	2 /
88				Vải u thâm	2 /
89				Vải u hồng	2 /
90				Vải tàu lai	2 /
91				Vải lạng xuyên	2 /
92		Xerospermum		Vải đại	8(b) /

		noronhianum			
93		Nephelium lappaceum (?)		Vải dại	8(b) /
94	Gramineae 53 upland rice varieties	Oryza sativa		Khau nua mong	4(a) /
95		Oryza sativa		Khau chamvai	4(a) /
96		Oryza sativa		Mo khau	4(a) /
97		Oryza sativa		Mo ta	4(a) /
98		Oryza sativa		Mum deng	4(a) /
99		Oryza minuta		?	4(a) /
100		Oryza officinalis		?	4(a) /
101		Oryza nivara		?	4(a) /
102	Zingiberaceae	Alpinia officinarum		Rieng	1,2, 3(a,b,c)
103		Curcuma longa		NGhe	1,2, 3(a,b,c)
104		Zingiber officinale		Gung	1,2 et all

**Site numbering:**

1. Hong Nam - Hung Yen; 20°38.353' N / 108°03.614'
2. Thanh Son - Hai Duong; 20°52.614' N / 106°26.861'
- 3(a). Ba Vi National Park – Ha Tay; 21°01.000' N / 105°18.000 – 105° 25.000', 1000m a.s.l
- 3(b). Ba Vi National Park – Ha Tay; 21°05.409' / 105°22.745', 400m a.s.l.
- 3(c). Ba Trai – Ha Tay; 21°06.962' / 105°22.745', 40m a.s.l.
- 4(a). Thanh Cong – Cao Bang; 22°35' / 105°50', 654 – 965m a.s.l.
- 4(b). Quoc Dan – Cao Bang; 22°42' N / 106°22'
5. Thuong Son – Ha Giang; 22°44.950' N / 104°54.703', 320m a.s.l.
6. Viet Vinh – Ha Giang; 22°26.331' N / 104°51.167', 70m a.s.l.
7. Ngoc Hoi – Tuyen Quang; 22°28.316' N / 105°22.703', 72m a.s.l.
- 8(a). Huu Lien – Lang Son; 21°39.809' N / 106°21.927', 208m a.s.l.
- 8(b). Huu Lien Nature Reserve; 21°39.012' N / 106°21.622', 208m a.s.l.

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ANNEX 4: CULTIVARS OF VIETNAM

List of cultivars officially approved from 1997 to 2004

<b>Nr</b>	<b>Cultivated species</b>	<b>Cultivars</b>	<b>Nr</b>	<b>Cultivated species</b>	<b>Cultivars</b>
1	Rice	156	19	Chilly Pepper	1
2	Maize	47	20	Mango	5
3	Sweet potato	9	21	Durio	5
4	Potatao	8	22	Durian	5
5	Taro	1	23	Longan	5
6	Manihot	2	24	Citrus	2
7	Soya bean	22	25	Pomelo	4
8	Pea nut	14	26	Pine apple	2
9	Green bean	7	27	Guyava	1
10	Sesamum	1	28	Cotton	9
11	Tomato	14	29	Rubber	14
12	Cabbage	3	30	Coffee	14
13	Cai (tea)	2	31	Tea	1
14	Cai cu (bitter tea)	2	32	Morus alba	1
15	Water melon	3	33	Sugar cane	2
16	Dua chuot	3	34	Flowers	2
17	Rice bean	1	35	Congot	1
<b>Total</b>					<b>358</b>

Source: Agriculture and Rural Development Sciences and technique, 20 years Renovation. MARD 2005 (from Report: National environment Status – Biodiversity - case study, First Draft, 22/8/2005)

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### ANNEX 5: LOG-FRAME EVALUATION BASED ON VALIDATED SELF-EVALUATION

Activities	Indicators	Milestones	Final evaluation May 2006
<b>Component 1- Establishment of PGR IZs through the creation of an appropriate environment</b>	<p>1a- Eight GMZs established and management plans implemented.</p> <p>1b- Official designation of the GMZs secured and enabling legislation for institutional support adopted.</p> <p>1c- Financial sustainability secured through increased governmental funding, together with mechanisms whereby benefits from the commercialization of plant genetic resources (including, for example, through improved marketing) are returned to appropriate conservation-oriented communities and organizations.</p> <p>1d- For GMZ's in natural ecosystems, special status for GMZ's identified in management plans</p>	<p><b>PGR-IZs criteria reviewed and management plan outlined by Dec. 2004.</b></p> <p><b>Official designation in accordance to this new criteria drafted by Dec. 2004.</b></p> <p><b>Special legislation to allow proper operationalization of PGR-IZs drafted by march 2005 (including funds for conservation, incentives, financial sustainability etc.).</b></p> <p><b>Special status identified in management plan by March 2005</b></p>	<p>- 9 PGR – IZ criteria reviewed and adopted in five – year management plans.</p> <p>- Satisfactory/completed</p> <p>- Only recommended and included in Five – year management plans for the project sites.</p> <p>- Satisfactory/completed</p>
1.1. Secure official recognition of the 8 PGR IZs. For PGR IZs in natural ecosystems, the establishment of special status within existing protected areas will be secured.	8 IZs officially recognized.		9 IZs officially recognized (Satisfactory)
1.1.1. Refine criteria of IZ study zones and management zones	New criteria refined and presented to MARD	Criteria to be proposed to MARD by October 2004	Satisfactory/completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
1.1.2. See how a IZ would fit in provincial/local land use plan	Comparison of IZ concept and management guidelines and actual MP	All provincial/local plans available and reviewed in the office by Dec. 2004	Satisfactory/completed
1.1.2.1. Review existing management plans natural area and semi-natural land management use plan	Management plan acquired and reviewed.		Satisfactory: Management plans formulated and discussed from communal to provincial level and finalized in workshop.
1.1.2.2. At household level - regulations/laws - to management different land use types	Regulation and laws are reviewed and reports produced		Regulation and laws are reviewed with recommendations in laws and policy reports.
1.1.3. Develop guidelines for management of IZ	Guidelines are produced and submitted to MARD	Guidelines are produced and submitted to MARD by Oct. 2004	Satisfactory/completed
1.1.4. Impact of IZ on local economy	An economic report on potential impact of IZ is produced	The report is produced by Dec. 2004	Economic report on potential impact of IZ is available (Satisfactory)
1.1.4.1. Calculate potential cost and benefit to farmers after IZ is established	An economic report on cost/benefit in IZ is produced	The report is produced by Dec. 2004	See economic report (Satisfactory)
1.1.5. Present results in policy friendly land use	Appropriate law is put in place	Appropriate law is put in place by July 2005	This activity is cancelled (1) Because it is not realistic for the project life.
1.1.5.1. Lobbying	Appropriate law is put in place	Appropriate law is put in place by July 2005	A1 above
1.2. Implement viable political- juridical modalities to secure intellectual property rights and benefit sharing in relation to crop genetic resources	Political – juridical modalities to secure IPRs are proposed to MARD for implementation	Proposal to be done by march 2005 A draft law is put in place by july 2005	(1) cancelled (not realistic)
1.2.1. Create community biodiversity registry to registry by farmers	Existence of registry for all PGR-IZs including at least the target crops	The registry should be produced by October 2004.	CBR available (Satisfactory)
1.2.2. Inform communities/local authorities on how to registry varieties	A document to be presented to LA is produced, minutes of presentation meetings	Relevant documentation is acquired by October 2004 Local authorities are informed by Dec. 2004	Satisfactory/completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
1.2.3. Cooperation between different government agencies for developing policy implications and securing sustainable conservation;	Meeting organized between agencies when detailed information are provided by NC (see 1.3.1)	Stakeholder meeting is organized by march 2005	Stakeholder meeting organized in September 2005 with recommendations only
1.2.4. Contact MARD project BUCAP for methods	MARD documentation has been made available	To be completed by July 2004	Satisfactory/completed
1.2.5. Review of a range of options in VN	List of contacted projects with strength and weaknesses is made available	Projects are contacted and reviewed by August 2004	(1) not realistic because in situ agrobiodiversity conservation is a pilot project.
1.2.5.1. Decide range of options for each site	Decision is taken and documented	Implementation is done by March 2005	Included in PGR-IZ management plan
1.3. Implement incentives of agrobiodiversity conservation, including modification to existing policies (This activity can be combined with activity 1.2)	Laws are reviewed and proposal made to MARD and DARD	Laws are drafted by July 2005	Laws/policies reviewed and recommended only. Special laws/policies will depend on the government later.
1.3.1. Situation analysis of laws/policies institutions that affect maintenance of NLWR in project site	Report is produced by NC and SC	Report to be produced by Dec. 2004	Satisfactory/completed
1.3.1.1. Society affect of laws and policies in project sites on farmers maintenance of diversity	Report is produced by NC and SC	Report to be produced by Dec. 2004	Satisfactory/completed
1.3.1.2. Evaluation the effectiveness of laws and policies in project sites	Report is produced by NC and SC	Report to be produced by Dec. 2004	Satisfactory/completed
1.3.1.3. Evaluate different institution and agencies who make and/or implement laws/policies	Report is produced by NC and SC	Report to be produced by Dec. 2004	Satisfactory/completed
1.3.2. Determine the costs and benefit to farmers to maintain/manage NLWR - market value and non-market value- environment, culture, health	Detailed reports on cost and benefit to be produced by NC and SC	Reports to be produced by Dec. 2004	Satisfactory/completed
1.3.3. Identify existing disincentive and suggest policy to remove	Policy recommendations are produced and distributed to local authorities and MARD	Policy recommendation to be done by March 2005	Satisfactory/completed



<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
1.3.4. Suggest policy modification at local level	Policy recommendations are produced and distributed to local authorities	Policy recommendation to be completed by March 2005	Satisfactory/completed
1.3.5. More diversity less tax	Policy recommendations are produced and distributed to local authorities	Policy recommendation to be completed by March 2005	Satisfactory/completed
1.4. Implement mechanisms to reinvest benefits generated from introducing products based on traditional varieties into markets to PGR IZs and participating communities and organizations			(1) cancelled because it is ambitious.
1.4.1. Investigate traditional varieties, their use and marketing potential - nutrition, cultural value, reduced inputs			Satisfactory/completed
1.4.2. Review community forest Vietnam projects	Report on projects in Vietnam is available	A report is produced to describe community forest projects in Vietnam by Oct. 2004	Community forest projects are referred only.
1.4.2.1. Identify community forestry best practices in Vietnam	Report on projects in Vietnam is available	A report is produced to describe community forest projects in Vietnam by Oct. 2004	(1) cancelled
1.4.2.2. Apply these best practices to natural sites in the project for WR	Best practices are included in the Management plan	Management plan to be produced by the end of the project	Satisfactory/completed
1.4.3. Reinvestment planning with communities and organizations;	Reinvestment planning are to be produced by CBO	Reinvestment planning approved by CBO and LA by march 2005	(1) Cancelled
1.4.4. Expand small credit mechanism to include NLWR diversity	Reinvestment planning are to be produced by CBO		(1) Cancelled
1.4.4.1. Create revolving fund - small credit mechanism, e.g. local or nursery seeds	Revolving funds established by the project	Revolving funds established from march 2005	Included in piloting activities.
1.4.5. Ecotourism funds go back to the community, tour for traditional knowledge/traditional varieties	Links with travel companies established	Itinerary to visit the sites in place by march 2005	(1) Cancelled

Activities	Indicators	Milestones	Final evaluation May 2006
<b>Component 2: Operationalization of IZs through capacity building, training, and removal of barriers</b>	<p>2a- Increased knowledge of traditional varieties achieved through on-site training.</p> <p>2b- Community based groups in GMZ's (farmers) trained in cultivation of traditional varieties, methods for introducing products to the market, the production cycle, product certifications, etc.</p> <p>2c- Improved capacity among farmers and others to implement effective <i>in situ</i> conservation within agroecosystems.</p> <p>2d- New market opportunities established and market prices for traditional varieties increase.</p> <p>2e- For GMZ's in natural ecosystems: protected area staff trained in conservation</p>	<p><b>Farmers trained by July 2005;</b></p> <p><b>Knowledge increased through training by 2005</b></p> <p><b>New market opportunities existing by July 2005;</b></p> <p><b>Staff in protected areas trained by March 2005.</b></p>	<b>Satisfactory</b>
2.1. Consolidate conservation- oriented organizations within target sites.			Satisfactory/completed
2.1.1. Identify organizations already existed on the site;	List of existing CBO available for each site	List available by August 2004	Satisfactory/completed
2.1.1.1. Identify/contact nodal farmers	Nodal farmers identified and contacted. Reports available	Reports available by October 2004	Satisfactory/completed
2.1.2. Select representative members willing to participate actively in agro biodiversity conservation;	Selection completed at each site and reports available	Reports available by October 2004	Satisfactory/completed
2.1.3. Discuss with them on planning and decision-making during the project life and modeling.	Round tables and focus groups reports available about decision-making	Reports available by October 2004	Satisfactory/completed
2.2. Implement on-farm training programs with extension services and NGOs providing technical advice and support			<p>40 training courses on traditional varieties knowledge.</p> <p>18 training courses on techniques.</p>
2.2.1. Current status assessment;	Report on current status available	Report available by October 2004	Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
2.2.1.1. Contact BUCAP - MARD Plant Protect. Program - for already trained farmers and trainers	List of farmers trained and trainers available	List available by July 2004	Completed
2.2.2. Discuss with local community on the site to identify training needed;	Meetings are organized and report available	Reports available by Dec. 2004	Completed
2.2.3. Detailed training programs planned and allocated, based on the reality of the site;	Training program available	Program available by Dec. 2004	Completed
2.2.4. Resource persons and key farmers identification with focus on local staff and experienced farmers.	Resource persons contacted	List of persons available by Oct. 2004	Completed
2.2.5. Identify key farmers to train others	Key farmers identified	List of key farmers available by Oct. 2004	Completed
2.2.6. Workshop preparation			Main national workshops held according to the program
2.2.6.1. Identify participant: gender equity, ethnic group	List of participants available	List of participants available by Oct. 2004	Completed
2.2.6.2. Workshop agenda: prepare with key farmers, project staff, technical experts	Workshop agenda available	Agenda available by Oct. 2004	Completed
2.2.7. Agenda to include use of NLWR: IPM, marketing, nutrition based on farmers ....	Workshop agenda available	Agenda available by Oct. 2004	Completed
2.3. Conduct training workshops to familiarize <b>communities</b> with issues relevant to introducing products into the market such as joint ventures, production cycle, product certification.			Completed: see 2.2
2.3.1. Training in Participation Approaches: project team, field staff	Training is conducted. Training report available	Training is completed by August 2004	Completed (see training report)
2.3.2. Workshop -1 for communities/farmers to improve farmers/CBO abilities to market/use local varieties	Workshop report completed	Workshop to be completed by March 2005	Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
2.3.2.1. Workshop to include methods for benefit sharing, introducing political-juridical modalities, market analysis for native crop projects, marketing concepts of NLWR	Workshop report completed	Workshop to be completed by March 2005	Completed: see policy and marketing reports
2.3.2.2. Discuss with farmers, CBO, NGOs advantages and gaps in cultivation of traditional varieties;	Round table and focus groups organized by SC and NC before the WS	Discussion to be completed by Dec. 2004	Completed: see marketing report.
2.3.2.3. Discuss with farmers, NGOs the ways to introduce effectively products into the market;	Round table and focus groups organized by SC and NC before the WS	Discussion to be completed by Dec. 2004	see marketing report
2.3.3. Workshop - 2 for provincial, communal level: value of NLWR - market and non-market	WS report available	Report available by March 2005	see marketing report
2.3.4. WS on GIS database	WS report available	WS done by October 2004	Completed: see MIS report
2.3.5. Presentation for manager	Minutes of meetings with manager	Meetings organized by July 2005	As above
2.4. Implement a plant inventory monitoring program (this activity will be combined with 3.4)			Completed
2.4.1. Criteria for monitoring, mapping, supervising, evaluating and training for field staff	Criteria defined and made available to all stakeholders	Criteria defined by Oct. 2004	Completed
2.4.2. Monitoring plan based on data base linked to MIS (3.3)	Monitoring plan based on dbase available	Monitoring plan based on dbase available by Dec. 2004	Completed
2.4.3. Farmers' trained in assessment and monitoring techniques	Training completed and field reports available	Training completed by march 2004	Completed
2.4.4. Conservation measures monitoring	Conservation measures monitoring as part of MP	MP prepared by march 2005	Included in MP (Completed)
2.4.5. Reporting systems	Reporting system as part of MP	MP prepared by march 2005	Completed
2.5. Introduce viable technologies for pest and disease reduction where gaps in current practices have been identified.			To be continued and assessed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
2.5.1. Survey on pest and disease currently occurring on the site;	Survey on pest included in the report by SC	Report produced by Sept. 2004	Completed by subcontractors
2.5.2. Identify together with farmers and researchers (pathologists/entomologists), breeders NLWR that can be used to manage pest and diseases both on farm and for breeding, including NLWR that can be used as plant insecticides	Second report available	Second report available by Dec 2004	Completed (1)
2.5.3. Identify current Pest and Disease management practice on-farm and breed where NLWR can be used	Survey on pest included in the report by SC	Report produced by Sept. 2004	Completed by subcontractors
2.5.4. Relevant techniques selection (including farming diversification).	Second report available	Second report available by Dec 2004	Completed by subcontractors
2.5.5. Technological application;	Training on planting, grafting etc, provided	Some training provided by October 2004	Completed
2.5.6. Result assessment and report;	Report on results assessment	First assessment by Dec. 2004	Completed
2.5.7. Experience sharing.	Experience sharing documented	Experience sharing to be completed by July 2005	Completed through exchange visit
2.5.8. Workshop - 3: specific workshop depending on farmer needs			Completed through piloting activities
2.6. Remove barriers to traditional seed routes, based on assessment of their current use status, for seed exchange among agricultural communities.			Cancelled (1)
2.6.1. Identification/Barrier assessment for traditional seed routes from farmers;	Reports from NC and SC	Reports produced by Dec. 2004	Completed
2.6.1.1. Seed companies - barrier - WTO - systems UPOV. Extension workers knowledge of subsidies against local seed	Reports from NC and SC	Reports produced by Dec. 2004	Cancelled (1)
2.6.1.2. Not introduction of modern varieties into conservation sites	Reports from NC and SC	Reports produced by Dec. 2004	Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
2.6.1.3. Not supply/support of native landraces	Reports from NC and SC	Reports produced by Dec. 2004	Completed
2.6.1.4. Strengthen awareness on native varieties to improve their efficiency	Reports from NC and SC	Reports produced by Dec. 2004	Completed
2.6.2. Propagandize the validity of traditional varieties;	Reports from NC and SC	Reports produced by Dec. 2004	Completed through diversity fairs, VTV etc....
2.6.3. Recommend policy subsidy	Reports from NC and SC	Reports produced by Dec. 2004	Completed
2.6.4. Policy recommendation to make it legal the informal system - may not be possible	Reports from NC and SC	Reports produced by Dec. 2004	Completed
2.7. Organize a series of communal diversity seed fairs to promote the exchange of genetic material and the knowledge of cultivating different native varieties. <i>(the purpose is to improve access and use of genetic diversity materials and knowledge about the materials for farmers and other stakeholders)</i>			4 diversity seed fairs held
2.7.1. Diversity fair to find out farmers diversity	Reports from diversity fair	Diversity fairs completed by July 2005	As above
2.7.1.1. Determine appropriate prizes for most diversity, most knowledge of diversity for male/female, specific knowledge of diversity (nutritional value, or for children on locating wild relatives in natural areas)	Reports from diversity fair	Diversity fairs completed by July 2005	Completed
2.7.1.2. Together with farmer community, choose favorable site, prepare for diversity fair, decide on appropriate timing	Reports from diversity fair	Diversity fairs completed by July 2005	Completed
2.7.1.3 Organize diversity fair	Reports from diversity fair	Diversity fairs completed by July 2005	Completed
2.7.1.4. Remaining PGR IZs can participate in bringing specific products with them through a study tour to exchange knowledge and experience;			Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
2.7.2. Site exchange visits	Exchange visits report	To be completed by July 2005	Completed
2.7.3. A form of agro-product exhibition in Hanoi, would be considered for all IZs.			Completed (1)
<b>Component 3: Targeted research, information management and analysis in support of IZ establishment and operationalization</b>	3a- Surveys of areas of high agrobiodiversity within the project areas completed. 3b- Quantification of genetic resources in GMZ's undertaken. 3c- Management information system operational. 3d- Market analyses completed. 3e- International information exchange increased.	<b>Surveys completed by Dec 2004</b>  <b>Genetic resources quantified by Dec. 2004;</b>  <b>Information system operational by Dec 2004</b>  <b>Market analysis completed by march 2005</b>	<b>Satisfactory/ Completed</b>
3.1. Extend biological survey undertaken in the target areas with PDF resources, using traditional inventory methods linked to geographical information systems and from this data formalize the boundaries of the gene management Zones (PGR IZs). This activity will be linked to 3.4	Reports available for all crops	Reports produced by Dec. 2004	Completed
3.1.1. Biological surveys in detail;	Same as above	Same as above	Completed
3.1.2. Inventories;	Same as above	Same as above	Completed
3.1.3. Data collection and analysis;	Same as above	Same as above	Completed
3.1.4. Define boundaries of population distribution	Same as above	Same as above	Completed
3.1.5. Report 1			
3.2. Document the taxonomy and polymorphism, environment, ecosystem, and exploitation of the target species and their relatives in each PGR IZ.	Reports available for all crops	Reports produced by Dec. 2004	Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
3.2.1. Genetic diversity assessment/ quantification.	Same as above	Same as above	Completed
3.2.1.1. List of farmers traits to describe each of the target taxa	Same as above	Same as above	Completed
3.2.1.2. Combine scientific and traditional knowledge	Same as above	Same as above	Completed
3.2.1.3. Consensus or contradiction based on local variety unit	Same as above	Same as above	Completed
3.2.2. Sampling;	Same as above	Same as above	Completed
3.2.2.1. Farmer knowledge of diversity documentation - use/taxonomy	Same as above	Same as above	Completed: see also project proceedings.
3.2.3. Bioindexing at different levels; data analysis;	Same as above	Same as above	Completed
3.2.4. Document Farmer management practices- including seed supply network	Same as above	Same as above	Completed
3.2.5. Taxonomy/ classification - traditional taxonomy	Same as above	Same as above	Completed
3.2.6. Identify key knowledgeable farmers in the community.	Same as above	Same as above	Completed
3.2.7. Identify key custodians of diversity	Same as above	Same as above	Completed
3.2.8. Conservation assessment and suggestion;			Completed
3.2.9. Prepare reports 2 and 3			Completed
3.3. Building on the activities of 3.1 and 3.2. create a management information system			Completed
3.3.1. Review existing database from IPGRI CWANA In situ/On Farm conservation of Temperate Fruit Trees in Central Asia and UNEP/GEF Crop Wild Relatives Project Information Management Systems	Reports produced	Reports available by Dec. 2004	Completed



<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
3.3.2. Purchase information equipment for PGR IZs;	Equipment purchased		Completed
3.3.3. Information manager at commune/district level will be trained on basic informatics and the use of equipment;	Training provided	Training provided by Sept. 2004	Completed with 2 training courses
3.3.4. Data base input in relation to information requirement	Dbase developed and made available	Dbase available by Dec. 2004	Completed
3.3.5. Information useful to policy makers, researcher and farmers - linked to community biodiversity registry			Completed
3.3.5.1. Include information use protocols for project partners			Completed
3.3.6. List of variable (ecological, farmer genetic) to be collected for input into database	List of variables available	Variables available by Jul. 2004	Completed
3.4. Create map based inventories with local farmers depicting the wild relatives and local varieties of native crops.			Completed
3.4.1 .Transect map	Maps produced	Maps produced by Dec. 2004	Completed
3.4.2. Spatial mapping	Maps produced	Maps produced by Dec. 2004	Completed
3.4.3. Temporal mapping	Maps produced	Maps produced by Dec. 2004	Completed
3.5. Conduct a market analysis regarding the potential of native crop varieties and their products in national and international markets. This activity will be undertaken in support of activities 1.4 and 2.3	Reports available from NC and SC	Reports available by March 2005	Completed
3.5.1. Call for proposals - develop TOR - done	TORs developed	Reports available by March 2005	Completed

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
3.5.2. Assess the potential of native crop varieties and their products; both for market and non-market values (breeding, cultural values, research, public awareness, nutritional)	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3 Marketing analysis for traditional varieties; workshop on market analysis	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.1. Basic survey	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.2. Identify gaps and solutions;	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.3. Advise product certification procedures	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.4. Documentation and report- Workshop.	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.5. Develop new market opportunities	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.6. New market price recommendation	Reports from NC and SC	Reports available by March 2005	Completed
3.5.3.7. Investigate different/new market, tourism/hotels	Reports from NC and SC	Reports available by March 2005	Completed
3.5.4. Assessment on the status of current use of traditional varieties;	Reports from NC and SC	Reports available by March 2005	Completed
3.6. Establish links with regional, national and international research programs for mutual exchange of information			
3.6.1. IPGRI support			Completed
3.6.2. website of project	Website designer to be contacted		Not yet Completed
3.6.3. links to other project in VN and region			Completed
3.6.4. quarterly bulletin	Bulletins produced		Completed with 9 issues
3.6.5. workshop/conference			Completed
3.6.6. site exchange visits			Completed

Activities	Indicators	Milestones	Final evaluation May 2006
<b>Component 4: Public awareness, education and information dissemination in support of the replication of the IZ approach.</b>	4a- Publications of traditional knowledge developed for use by community-based organizations with a focus on agrobiodiversity conservation. 4b- Policy makers aware of issues associated with conservation of traditional varieties. 4c- Integration of agrobiodiversity conservation into curricula of universities and schools 4d- Additional PGR-IZs established in cultivated and natural ecosystems outside project areas.	<b>Publication on traditional knowledge published by 2005</b> <b>Policy makers aware by July 2005;</b> <b>Integration of agrobiodiversity integrated into curricula of universities and schools, after July 2005;</b> <b>Additional PGR-IZs established after the end of the project</b>	
4.1. Create information materials for dissemination to the general public on traditional varieties, their use and benefits.	Material produced and available	Ongoing process throughout the project	Completed with Agrobiodiversity bulletins, Project proceedings, popularized book for pest prevention
4.1.1. Communication strategy/plan, e.g. target: communities	Strategy plan available	Plans prepared by March 2005	Included in MP
4.1.2. Summarized issues and contents will be identified and reflected in the bulletins with focus on learning and doing experience (through training courses, lessons learnt in the workshop, suggestions and recommendations...)	Bulletins are published	Quarterly produced bulletins	Completed
4.1.3. Short/leaflets/brief notes or poster, calendar, etc.	Production of extra material		Completed
4.2. Undertake awareness building among policy makers to build support for increasing budgets allocated to genetic resources and conservation of local varieties and wild relatives.			Only with recommendations
4.2.1. Conservation manual-markers/provincial authorities	Manuals are made available		1 manual for pest prevention concerning project crops

<b>Activities</b>	<b>Indicators</b>	<b>Milestones</b>	<b>Final evaluation May 2006</b>
4.2.2. Invite policy makers for field visit together with press	Reports of field visit with policy makers are made available		Completed through diversity fairs
4.2.3. National/Provincial diversity competition seed fair. Have policy makers judge competition	List of participants of seed fair		Completed
4.2.4. Cooking and competition of best taste of different varieties			Completed
4.3. Integrate ABC into the curricula of universities; primary, and secondary schools modules and/or courses on the value of Vietnam's agrobiodiversity and in situ conservation of native varieties and wild relatives and Research Institute			Cancelled (1)
4.3.1. Seminar organization at Universities			Completed with one seminar
4.3.2. Optional course at universities/ booklet			Cancelled (1)
4.3.3. Training visit for school pupils			Not yet Completed
4.4. Promote education, awareness building, and information dissemination to assist in replication of approaches to agrobiodiversity conservation in other parts of the country and internationally			Not yet Completed
4.4.1. Through trainings and workshops;			Completed
4.4.2. Through multimedia: TV/ bulletin, magazine, etc.			Completed
4.4.3. Through study tours and experience exchange.			Completed with 2 study tours abroad.

Activities	Indicators	Milestones	Final evaluation May 2006
4.5. Increase the participation of national programs in international and regional flora to address genetic resources conservation issues			To be continued and extended
4.5.1. International Workshop			Completed
4.5.2. National Workshop			Completed
4.5.3. Share experience decisions with other projects			Completed
4.5.4. Documentations of project output			Completed
4.5.5. Disseminate			Completed

(1) Note: According to the technical report from IPGRI consultant during the first TPR period (7/2002 – 2/2003), some project outputs are too ambitious (activity 1.3; 4.3; 4.4...) and difficult.

Based on the recommendations the first MTE (November 2004) and the second TPR (February 2005) the log – frame should be revised to cancel sub – activities that cannot be implemented because they are not realistic and beyond project capacity; this was reflected in the annual work plan for 2005.

**Comment and replies on draft of the Final Evaluation Report  
VIE/01/G35 Agro-biodiversity Project – Viet Nam**

1. Impact and outcomes of the project document (Medium Size Project – MSP)

It has been a general consensus that the Final Evaluation (FEV) should have a forward looking dimension, proposing future follow-up actions upon completion of the current project or MSP, however, the FEV should attempt to quantify impacts (this is defined in the TOR for the FEV).

In the context of a biodiversity (BD) conservation project, measuring the impact means changes in the status of BD, or at least change in status of threats to BD. Impact in terms of increased awareness is a contributing factor, but is not an adequate assessment. Acknowledging that data on measures of changes in the status of crop genetic resources (and the targeted wild species) were likely not available, the report should reflect some measure of impacts, for example in the report already mentioned but not emphasis strong enough, attitudes among farmers to conservation of traditional varieties.

*Reply:* The team has looked into impacts systematically. Impacts are measurable effects on social, ecological, economic, and institutional parameters. They are measured against a baseline of data that would have been assessed before or during the start of the project.

In the light our evaluation could shed on impacts, the only recognisable impact of the project was on various stake-holders' awareness on the importance of agricultural biodiversity - or rather on the species and varieties the various people were familiar with - for the survival of the species/variety in spite of them making little or no contribution to farmers' livelihood.

There is no recognisable impact on peoples' economy other than some were funded by the project (which may weigh against sustainability criteria), no recognisable impact on ecology (particularly as the selected species are not rare, endangered or threatened in the first place, and pesticides were used all over), none on sociology, and no institutional aspects the more as the people involved had taken on new assignments after the project's closure.

2. Scope and the design of the MSP

The report of FEV presented extensively on the agro-biodiversity concept that agro-biodiversity is a broad concept, and that levels of agro-biodiversity in are correspondingly high. This is obviously true. However, it is important have appropriate understanding and appreciation of the context when the

MSP was prepared. At that time, there was also none initiatives/ activities relating to biodiversity conservation, so the MSP was the first ever initiative to attempt raising awareness and focus on some target species. The domesticated animals were deliberately excluded because at the time there was such a similar MSP in the UNDP/GEF/VN pipeline. Regrettably it never happened.

Thus, the MSP did not pretend to be attempting to conserve all agroBD in Vietnam. The MSP document clearly identified specific elements to address in what was also clearly a pilot project. The FEV report suggests that elements of agrobiodiversity were ignored. This is not fully correct – elements for inclusion in the MSP were consciously selected. For only \$1 million of GEF funds for an MSP with a timeframe of 3 years, a broader scope would have condemned itself to failure. Even with such a focus design, an extension of 6 months was required to conclude some activities.

*(referring to point 6. lesson learned in the FEV report):* The MSP was designed with the Project Development Funds (PDF-A) from GEF, therefore it had sufficient information/ consultations to determine the project focus. Species and variety names were specified/ pre-determined on the MSP. This is correct. But the exact project sites had not been pre-determined in the MSP. The only geographical areas were defined (northern mountain, the northern midland, and the northwest mountains of Vietnam). The scientific studies during the first few months of MSP implementation were used to define the project sites. It should be suggested that the project need a longer inception phase/ or an activation phase to have enough time for scientific studies and consultations to determine project sites and other preparation activities.

*Reply:* The designer of the project acknowledges that the scope and design of the project could not address the real pressing issues of the endangered species and varieties. We take his statement as is and suggest his response to be annexed to the report as it proves our point.

### 3. Mentoring Team/ project results

It is encouraging to note that the FEV team felt that the Mentoring Team played a positive role in the project. Yes, we agreed that the Mentoring Team had a lot of contributions and advices. The 10-month Hanoi-based advisor had help project team in planning and implementation, especially in guiding and facilitating performance of sub-contractors. This Hanoi-based advisor was recruited and started at the second half of the project implementation.

However, the assessment of the impact/contribution by the Mentoring Team in refining criteria for identification of high conservation value sites, and broadening the scope of the project by introducing a wider definition of

target taxa., seems too scientifically oriented. The fact that these really not happened until the project had gone half way through the project is no doubt a mitigating factor relating to adaptive management. In addition, this is a technical assistant so capacity building element deserve more attention and emphasis in connection with adaptive management.

The adaptive management by reducing sub-contract for piloting activities, implementing directly by the project management unite and transferring funds directly to the farmers/ households/ beneficiaries deserve more emphasis.

*Reply:* Again the reaction proofs our point. We do not agree that "farmers receiving direct funding from the project deserves more emphasis" as we state that this may as well endanger the species/varieties when the funding stops, hence, is on the negative side when deliberating sustainability criteria.

#### 4. Project Strategy and Project results (refers to Overall Outcome assessment – consistency and effectiveness of the logic)

The FEV reports points out that the in-situ conservation through establishment of the GMZs is either socially or ecologically convincing. It is not a full correct assessment, despite our agreement with the fact that crops will continue to undergo migration and may limit room for dynamics. Basing on scientific study, local experiences, technical advices and recommendations from MT as some successful models in Nepal and Malaysia and taking into account the necessary of the keeping momentum and mobilizing political support, the project and its National Steering Committee decided to establish GMZs. The GMZs are defined basing on administrative boundaries with characteristics of the biodiversity, habitats, climates, and other relevant factors. With official recognition of GMZs in provinces, it provides legal basis for provincial and district authorities to allocate resources for continuation of conservation efforts and it also enables communities to mobilize additional supports for conservation.

For component 1:

- It is not fully correct stating “the Conservation Management Plans for the 11 GMZs are not elaborated together with the local communities and contain no understanding of agro-biodiversity conservation, and are not enriched with the inputs of Vietnamese institutions....” These are general or summary plan for 5 years, there is a need to elaborate annual plan for implementation by local authorities/ communities. The plans were developed basing in consultations with local communities and full participations from Vietnamese institutions. Yes, it may correct that all possible contributions have been obtained and incorporated.



For component 3:

- The same comments for Component 1 above. Yes, agreed that more details, efforts relating local names of species and varieties should be obtained and included.

Reply: The evaluation team – all of us experienced in biodiversity protection - sincerely believe that GMZs - while they have administrative advantages - can not contribute sustainably to the survival of agricultural species and varieties particularly in times of change.

#### ANNEX 7 - CONTACT ADDRESSES OF EVALUATION TEAM MEMBERS

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