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International Fund for Agricultural Development



**Lao People's Democratic Republic  
Bokeo Food Security Project  
Interim Evaluation Report**

**December 2001  
Report No. 1225-LA Rev.1**

Photograph on cover page:

Two farmers grow garlic. One project activity is to encourage crop substitution to opium cultivation.  
[IFAD photo by Jim Holmes]

# Lao People's Democratic Republic

## Bokeo Food Security Project (351-LA)

### Interim Evaluation

### Evaluation Report

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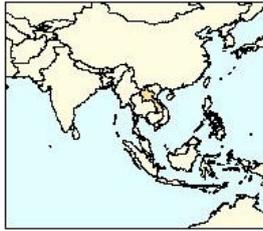
## Abbreviations and Acronyms

AWPB	Annual Work Plan and Budget
CBR	California Bearing Capacity Ratio
CD	Community Development
CISP	Community Initiative Support Project
DAFO	District Agriculture and Forestry Office
DCTPC	Department of Communications, Transport, Post and Construction
DPC	Department of Planning and Cooperation
DSA	Daily Subsistence Allowance
EIA	Environmental Impact Assessment
EIE	Environmental Impact Examination
FAO	Food and Agriculture Organization
GTZ	Gesellschaft für Technische Zusammenarbeit GmbH
IEE	Initial Environment Examination
IFAD	International Fund for Agricultural Development
IFI	International Financial Institution
IMF	International Monetary Fund
IRR	Internal Rate of Return
LAO PDR	Lao People's Democratic Republic
LCRD	Leading Committee for Rural Development
LECS	Laos Expenditure and Consumption Survey
LWU	Lao Women's Union
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MCTPC	Ministry of Communications, Transport, Post and Construction
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health
MTR	Mid-Term Review
NGO	non-governmental organization
NPD	National Project Director
NTFP	non-timber forest products
O&M	Operations and Maintenance
OPEC	Organization of Petroleum Exporting Countries
PAFO	Provincial Agriculture and Forestry Office
PIS	Provincial Irrigation Service
PSC	Provincial Steering Committee
PSO	Project Support Office
PPA	Participatory Poverty Assessment
PRA	Participatory Rural Appraisal
SDR	Special Drawing Right
SPC	State Planning Committee
SPT	Standard Proctor Test
STEA	Science, Technology and Environment Administration

T&V	Training and Visit
TA	Technical Assistance
UNOPS	United Nations Office for Project Services
UCS	Users' Cost Saving
USD	United States Dollar
VDC	Village Development Committee
VEW	Village Extension Water
VRF	Village Revolving Fund
VVW	Village Veterinary Worker
WUA	Water Users' Association
WUG	Water Users' Group

“The designations employed and the presentation of the material in these maps do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitations of the frontiers or boundaries, or the authorities thereof.”





# LAOS

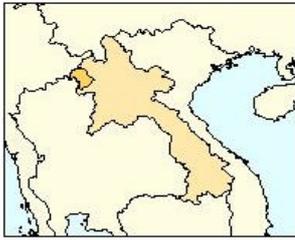
## BOKEO FOOD SECURITY PROJECT

*Interim Evaluation*



Source: IFAD  
*The designations employed and the presentation in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.*



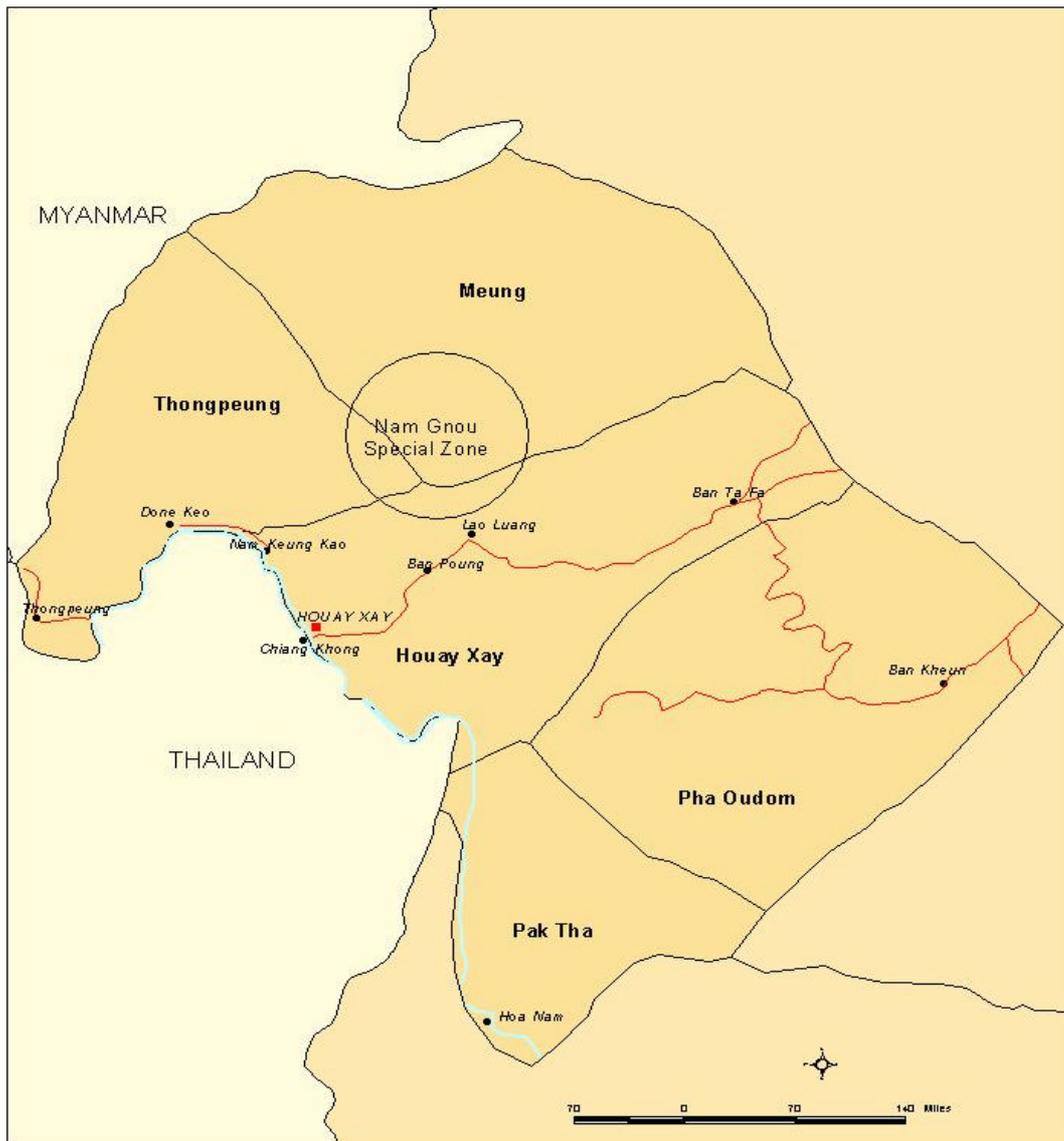


# LAOS

## BOKEO FOOD SECURITY PROJECT

*Interim Evaluation*

Project Area



Source: IFAD  
The designations employed and the presentation in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**AGREEMENT AT COMPLETION POINT**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

### AGREEMENT AT COMPLETION POINT

### RECOMMENDATIONS AND AGREED FOLLOW UP MEASURES

This agreement reflects an understanding among the core partners<sup>1</sup> at completion point of the Bokeo Food Security Project to adopt and use the lessons learned and recommendations formulated in the report.

#### A. Agriculture and Livelihoods Improvement

1. People's food security and their perception of living standards is based primarily on their ability to be self sufficient in rice, other food, and income from non-timber forest products, livestock and other sources. It is therefore very important to support poor families in their effort to improve their livelihoods through improvement of rice cultivation and yields, improvement of non-timber forest product (NTFP) collection, domestication, harvesting and marketing, control of animal diseases and improvement of animal husbandry and generation of income from non-farm sources. This is particularly the case for highland families who are dependent on low yield shifting agriculture.

#### Recommendations

2. Support to sustainable irrigated rice production should be a priority in highland areas where feasible as it is an important means of stabilizing shifting agriculture.

3. The introduction and/or expansion of other high value highland produce, improvement of NTFP collection, domestication, harvesting and marketing of NTFPs, control of animal diseases and improvement of animal husbandry should be strongly encouraged and supported, as they provide important income sources alternative to poppy cultivation.

4. The role of Village Veterinary Workers (VVs) is in the process of being expanded from animal disease treatment and vaccination to basic husbandry improvements (Village Livestock Workers). This process should be strongly supported. The Village Livestock Workers are expected to operate their businesses on a user-pay and self-financing basis.

5. A well-focused extension system with effective participatory and demand driven delivery mechanisms should be established to deliver required services to farmers, particularly in the upland area.

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<sup>1</sup> The Core Learning Partnership (CLP) comprises the Government of the Lao People's Democratic Republic (State Planning Committee, SPC); Ministry of Finance (MOF); Ministry of Agriculture and Forestry (MAF); Ministry of Communications, Transport, Post and Construction (MCTPC); Ministry of Education (MOE); Ministry of Health (MOH); Lao Women's Union (LWU); Provincial Steering Committee (PSC); Department of Planning and Cooperation (DPC); Provincial Agriculture and Forestry Office (PAFO); Provincial Irrigation Service (PIS); District Agriculture and Forestry Office (DAFO); Department of Communications, Transport, Post and Construction (DCTPC); Project Support Office (PSO); GTZ; IFAD, PI (Asian Office); and IFAD, Office of Evaluation and Studies (OE).

### **Agreed Follow-up Measures**

6. The Government and IFAD will focus development investments in highland areas.
7. The Government shall ensure that the development of irrigated rice production with incremental command areas in the highlands is included as the highest priority in future projects.
8. Regarding irrigation, Government and IFAD will target the poorest farmers with no previous access to irrigated land; at least 75 % of the total funding for irrigation should benefit the target group.
9. IFAD will finance the development of improved collection and cultivation techniques and marketing of NTFPs.
10. The Government will take a gradual approach towards stabilization of shifting agriculture, with consideration given to both their policy goal, the process, and the time needed for the successful introduction of alternative livelihoods for the farmers who are affected by this policy. Where necessary, the land allocation programme in the upland project area should be based on the availability of adequate alternative sources of income provided to the upland farmers.
11. In future, IFAD funds will be used for irrigation development only after land certificates have been issued to the beneficiaries. The Interim Evaluation strongly recommends that the CISP should address this issue and support such a process; IFAD resources will only be invested in land allocated to beneficiaries who fit the targeting criteria agreed between the government, IFAD and other partners.
12. Any land certificate process will in future be implemented in a gender sensitive manner, with certificates in the names of both men and women in the case of couples.
13. The concerned agencies of the government will follow a participatory approach and provide intensive community mobilization, organization, training and follow up to the Water Users' Groups (WUGs) during the process of survey, design and construction of the irrigation facilities so that the WUGs will be functional and fully responsible for the operation and maintenance of the completed schemes.
14. The Government, with assistance from IFAD and other partners, will develop programmes to expand the number, capacity and competence of Village Veterinary Workers, ensuring better gender balance of trainees and practitioners.
15. With assistance from interested partners, the Ministry of Agriculture and Forestry should undertake a systematic review of the ongoing experience and practices of VVWs and vaccine supply and pharmaceutical supply in the rural areas of the country in order to formulate policies and legislation on: (i) regulation, licensing and registration of both the VVWs and their associations; and (ii) development and establishment of private vaccine cold chains and pharmaceutical supplies.

### **B. Marketing and Trade**

16. This project has promoted a number of new crops (mainly fruit trees and vegetables) in communities where they are not traditionally part of the farming systems. In some cases this has been done without investigating the marketing potential. As a result farmers complained about the difficulties they experienced in marketing the produce, which discourages them from expanding the production of these crops or trying out other innovations.

### **Recommendation**

17. The presence of a real market demand for produce should be investigated before the introduction and extension of any new crops.

18. The Government trade policies should encourage production of marketable agricultural produce and in particular high value NTFPs.

### **Agreed Follow-up measure**

19. The Government will in future promote new crops after examining their marketing potential.

## **C. Sustainability of Project Investments and Civil Service Reform**

20. Sustainability of project investments depends on:

- the capacity of Government institutions to continue to perform their functions and deliver services to the target group over the long term;
- the Government's capacity to sustain the financing of the investment and recurrent development expenditures of the civil service after project completion; and
- the community's capacity to operate and maintain investments.

21. The first point requires that capacity building (including training in technical and management aspects and in participatory development) be an integral part of the development programme so that the public service providers will be able to sustain the delivery of effective services to the clients in a participatory and demand driven manner. The second requires that civil service staff be paid salaries adequate to maintaining a reasonable standard of living. And the third requires that communities have the necessary competence and commitment, which can be acquired through participatory development, social mobilization, and regular training and follow up.

### **Recommendations**

22. The Government will agree to use highly concessional loans (such as IFAD's) to finance, as necessary, capacity building measures within the scope of rural development and poverty reduction programmes. This includes short- and long-term domestic and overseas training and national, regional and international technical assistance in essential areas.

23. The Government should adjust its staff numbers and their salary scales to ensure that qualified staff are adequately paid and available, particularly at district and provincial level to deliver their services to the clients.

24. The Government and IFAD should identify areas where the private sector can complement activities carried out by civil service staff

25. If appropriate, incentives should be paid to staff posted in remote areas where living conditions are particularly difficult by national standards.

26. The government should formulate enabling legislation on rural user groups established under rural development programmes in the country, such as irrigation and drinking water supply, so that they can possess, operate and maintain the relevant facilities.

### **Agreed Follow-up measures**

27. The Government and IFAD will review staffing plans for the Community Initiatives Support Project (CISP) and redesign them in accordance with the above recommendations as appropriate.

28. The Government will give top priority to civil service reform and revise civil service salaries and structure to ensure that essential staff are retained at reasonable salaries and will divest other activities to the private sector where possible. Regular assessments will be made by the Government to improve efficiency of its civil service staff.

29. The Government will only approve foreign aid supported projects insofar as they are designed to be sustainable beyond project life. Before approving a project, it will ensure that financing of necessary staff is sustainable in the long run.

30. As part of the civil service reform process the Government should constantly seek to improve its capacity to finance incentives, bonuses and staff expenses. Such expenses should be made part of the Government Budget both during this present project and after project completion.

### **D. Decentralization**

31. The process of decentralization is difficult. Although an increased capacity among province and district level staff to manage project activities has been observed, the necessary implementation capability is still far from adequate. This has been illustrated by irregular monitoring and evaluation, and slow loan disbursement. The latter has been a cause for concern for the Evaluation Mission as well as for previous Supervision Missions and the Mid-Term Review. Therefore, further capacity building and extensive training is still needed at provincial, district and community level. As decentralization is a major component of increased beneficiary participation, future projects should take the complexities of the process into consideration with respect to design and implementation.

### **Recommendation**

32. The Government and its development partners should give local government staff the necessary support to enable decentralization to be implemented effectively and to efficiently serve the needs of the rural poor, in particular that:

- training be given to village leaderships, district civil service and, as necessary, provincial civil service staff, in management and technical aspects, as well as participatory approaches and poverty-reducing methodologies;
- qualified and highly competent central and provincial government staff be redeployed to the provinces and districts according to need;
- accountable and financial management systems and procedures be developed to ensure that poverty reduction policies are implemented transparently, and that community members, where possible be involved in decision making processes; and
- project management and implementation procedures should be decentralized to provincial and district levels.

33. Future IFAD-funded projects take into consideration the real speed of implementation and prepare disbursement schedules and total loan sizes accordingly.

### **Agreed Follow-up measures**

34. The Government and IFAD will ensure that the CISP is designed with realistic investments and project period. One purpose of the Appraisal Mission of the CISP should be to ensure that the proposed overall size of the CISP is adjusted to the demonstrated disbursement capacity.

35. In cooperation with relevant project partners the Government will prepare a full staffing schedule and training plan by district in all relevant subjects for existing line agency staff involved in the ongoing and new IFAD financed projects. These schedules will be discussed with IFAD and other agencies in order to design, plan and budget accordingly for the required further training.

36. Training plans need to be aimed at problem solving, focusing on solving the problems of the proposed beneficiaries; they should also be targeted more towards upland operations.

37. The Government will examine staff needs at district and provincial levels and, where possible, re-deploy central and provincial government staff to the district level where they will be most needed.

38. The Government will delegate more authority to the district and village levels in areas of planning, financing and implementation. It will develop more effective procedures and systems of financial reporting, and monitoring and evaluation (M&E) for accountability and transparency. It will establish accountable systems and procedures to implement government policy on decentralization. The village level should be involved in the planning and implementation processes as much as possible.

## **E. Partnerships**

39. Due to weakness in project design, unclearly defined working procedures between the technical assistance (TA) team and its national counterparts, coupled with a lack of coordination by the provincial authorities, cofinancing with GTZ has been a source of problems throughout project implementation with effectively a bi-cephalous situation.

### **Recommendation**

40. In future, measures should be taken from project design onwards throughout to the end of project implementation to ensure that a cofinanced project has only one management to whom all cofinanciers are answerable. All field staff, regardless of by whom they are paid, should answer to the coordinator designated by the government for the project. This coordinator could be the Project Director or the head of a government institution.

41. The advantages and drawbacks as well as the policy of cofinancing should be examined by IFAD. The Government should also examine the comparative benefits of single- and multi-donor project financing in the country and review its policies accordingly.

42. Both the central and provincial Government should take a proactive and lead role in managing and coordinating development partners and the projects they finance in the province. Taking particular care to supervise and coordinate project implementation and take prompt action to resolve any differences that might arise between the different partners, be they national or international.

43. Clear and specific working and reporting procedures for external partners and their national counterparts should be agreed and defined by all parties in the early stage of project design.

### **Agreed Follow-up measures**

44. The Government and all the partners shall design the CISP and future projects in accordance with the above recommendations and take strong measures to ensure that future projects are managed by a single head.

45. To support the government in poverty reduction, cofinancing by GTZ, IFAD and other partners will take place within the framework of a single area-based rural development project in Bokeo. Project coordination should be headed by the Government, with different partners financing different

project activities according to their respective advantages within the same project management structure. All the partners share the same goal, objectives and outputs of the project and the strategy to achieve them. The project will have a common Annual Work Programme and Budget, follow the same institutional and implementation arrangements during implementation and target the same villages and districts.

46. All partners of the project will coordinate with each other and with the national and provincial governments in areas of planning, budgeting, management, operation and implementation of the project. All partners and staff will work under the coordination and leadership of the Government of Lao PDR, the provincial authorities and their designated representatives and organizations in project implementation.

47. The TA Team of GTZ and all other potential cofinanciers in the project will work under the overall leadership and coordination of the Provincial Government, starting from 15 November 2001 when the appraisal mission ends its field work, and will report to the Project Director, concurrently the Deputy Director of the Provincial Department of Planning and Cooperation. The Deputy Director is designated by the Provincial Government to be responsible for project coordination and management in the province. An agreement will be drafted and discussed by all potential external partners to provide for, *inter alia*, the working and reporting procedures for external partners and their national counterparts during project implementation. This arrangement will be reviewed by the Appraisal Mission and the agreement will enter into effect by the date of IFAD loan effectiveness.

48. Both the Central and Provincial Government will take a proactive and lead role in managing and coordinating development partners in project implementation in the province, and will take prompt action to resolve any differences that may arise between the different partners, be they national or international.

## **F. Project Supervision**

49. Different supervision missions have indeed identified some of the major implementation problems of this project, particularly in areas of coordination between different partners, slow implementation, targeting and participatory issues, as well as concerning the irrigation development and agricultural development components. However, supervision has only to a lesser degree succeeded in solving these problems. Large problems persist to this day, especially with regard to project management and project coordination between project partners.

### **Recommendation**

50. In future projects UNOPS should provide more regular and timely implementation support to the project, focusing equally on all aspects of implementation issues and constraints and not just on disbursement and procurement procedures. In particular, supervision should support management and assist it to improve targeting and participation, as well as provide direction and attention to newly arising issues, such as investment in agricultural production, and marketing. It should provide support to staff in monitoring and assessment of impact of project activities on the target group.

### **Agreed Follow-up measure**

51. IFAD and UNOPS should make sure that supervision missions have the right composition, and more importantly that they take place twice annually or at the very least every 9 months. The project Support office (PSO) suggests that supervision missions should take place during AWPB sessions in June/July.

52. IFAD should review its financing of supervision to ensure that it can be increased as required by the specific implementation conditions of each project.

53. The central government and UNOPS should ensure that supervision missions include staff members of the concerned government agency to assist the missions in their work. In addition, the central government should closely supervise and monitor project implementation and provide support to the provincial authorities as necessary.

### **G. Targeting and Participation**

54. As part of the overall project strategy of targeting the poorest, support for ethnic communities has been one of the major achievements of this project. However, even more effort needs to be made in reaching the poorest members of the communities, as these have not benefited from the project as much as they should have done. Women could have benefited more economically from the project if special attention had been paid to their concerns. Although their presence in Village Development Committees has been increased by the project, they may also be losing social status, as they are not included in some of the formal and non-formal institutions supported by the project, like Water Users' Groups.

#### **Recommendations**

55. The Government, IFAD and other partners should pay greater practical attention to gender issues in implementation, both with respect to project beneficiaries and to recruitment of project staff. Clear targets must be set for more equitable gender representation in both these areas.

56. The Government, IFAD and other partners should pay greater attention to the culture of ethnic minorities and try to include project measures that will retain the positive aspects of these cultures without hindering development.

57. Greater efforts should be systematically made in project implementation to ensure that poorer people within the community are given priority for project support.

58. The Government, IFAD and other partners should set up mechanisms to ensure adequate participation of the poor and underprivileged community members in project implementation. These mechanisms should be verifiable and included among the items to be monitored regularly.

#### **Agreed Follow-up measure**

59. The Government, IFAD and other partners will set clear targets for mainstreaming gender at community level, among staff in projects and in the decentralized implementation agencies, in particular:

- land certificates should be written in the names of both husband and wife in the case of couples;
- at least 30% of community investments should be requested by women for activities which are of primary concern to women;
- in communities and at district level, at least 40% of trainees should be women;
- decision-making bodies at community level will include at least 40% women; and
- project staff should include at least 30% women in technical and professional positions.

60. The Government will increase the number of people from ethnic groups among project and civil service staff.

61. The Government will strengthen participation of the poorest in the community, by requiring that they have better access to resources and that they be included in decision-making bodies.

62. The Government will monitor project implementation paying special attention to gender and the poorest within the community, ensuring that both these groups gain from the development process. The monitoring process will involve sex-disaggregated data.

63. Gender awareness training will be included in all training and capacity building programmes. The government should ensure that the LWU play an active role in all poverty alleviation programmes, with all the necessary support.

64. Ethnic minority staff will educate their non-ethnic minority colleagues in the cultural features of their group, to ensure that policies are designed and implemented in a culturally sensitive manner.

65. With assistance from IFAD, the Government will organize and finance training for project staff and local government personnel in participatory mechanisms to enable them to cooperate better with community members.

66. Male and female community members will be given the necessary training to enable them to be assertive and take the lead in their relationships and negotiation with service providers, including Government institutions. Training in participatory mechanisms will be given in all communities where rural development projects operate. IFAD will continue to finance such training in projects.

**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**EXECUTIVE SUMMARY**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

### EXECUTIVE SUMMARY

**Project area:** Northwest Laos

**Type of project:** Irrigation, Rural Development

**Expected number of beneficiaries:** 900 for irrigation development; 12 000 households for livestock vaccination; 430 for watershed management; no numbers stated for health infrastructure, schools and roads.

**Previous IFAD operations in the country:**

Casier Sud Pioneer Agricultural project (22-LA);  
Agricultural Production Project (130-LA);  
Rural Credit Project (207-LA);  
Xieng Khouang Agricultural Development Project (256-LA);  
Northern Sayabouri Rural Development Project (459-LA);  
Xieng Khouang Agricultural Development Project – Phase 2 (491-LA).

**Implementing Agency:** Department of Planning and Cooperation, Bokeo Province

**Cooperating institution:** UNOPS

**Total Project Cost:** USD 15.33 million

*IFAD loan:* USD 4.09 million

*Cofinancing:* OPEC Fund Loan, USD 4.7 million; GTZ grant of USD 5.64 million (+ an additional USD 2.75 million for 1999-2001 not included in above-mentioned total)

*Counterpart contribution of the borrower:* USD 0.67 million

**IFAD loan disbursement:** 61%

**Interim Evaluation:** April-June 2001<sup>1</sup>

<i>Project identification:</i>	1992
<i>Project Appraisal:</i>	1993
<i>Loan Approval:</i>	April 1994
<i>Loan Agreement:</i>	May 1994
<i>Loan effectiveness:</i>	August 1995
<i>Project Start-up:</i>	January 1996
<i>Closing Date:</i>	September 2003
<i>Present Status:</i>	under implementation

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1. The mission visited Bokeo Province from 24 April to 13 May 2001. The team was composed of H. Lackner (Mission Leader, Rural Sociologist), F. Fagotto (Agronomist), M. Juville (Agricultural Economist, Institutions Specialist), M. Madsen (IFAD Associate Evaluation Officer, M&E), and G. Thammachak (Irrigation and Infrastructure Engineer).

## **Background**

1. The Lao People's Democratic Republic is a poor country, with a per caput GDP ranking at 16 out of 206 according to the World Bank Development Indicators, and 140 out of 176 in the UNDP Human Development Index. Ruled after 1975 by a socialist government, the government implemented more liberal policies from the mid-1980s onwards. It is now following development policies supported and agreed with the World Bank and the IMF.

2. In the 1990s, poverty in the country dropped from 58% of the population in 1992-93 to 52% in 1997-98. However, the same studies indicate that the distribution of income has become more skewed in this period. Poverty is concentrated in the mountainous regions and in the ethnic minority communities, which largely overlap each other. In Bokeo, poverty fell from 63% to 37% of the population in this period.

## **Target group, Project Objectives and components**

3. With a total population in the Province estimated at 105 000 in 1993, the project target group is the 70% of rural households in the area without assured food security. No specific target was set for women, and Appraisal merely stated that 'project-supported development interventions in production and social services will pay particular attention to the promotion of women's interests and benefits.' Ethnic minorities and women became explicit target groups at Mid-Term Review (MTR) in 1999.

4. Appraisal defined project objectives as follows:

- improved food security through more reliable and increased paddy production;
- improved animal health leading to better household food security and increased savings;
- more sustainable management and utilization of upland and highland areas;
- improved economic and social infrastructure, as well as improved health and educational standards for children and adults;
- establishment of appropriate beneficiary organizations for defining and executing village- and farm-level development that are as self-reliant and sustainable as possible; and
- improved functioning of government services, particularly in the areas of coordinated development management and administration, and sector-specific technical support to rural people.

5. Excluding the OPEC-financed road, the project had seven components, which were to be cofinanced by IFAD and GTZ, with the following allocations:

- irrigation rehabilitation and development (20%);
- agriculture-related group promotion (3%);
- technology development (7%);
- pilot watershed management (2%);
- livestock development (7%);
- basic social services (3%); and
- institutional support and community development (57%).

6. National and Provincial Steering Committees were included in the design. At village level, Village Development Committees (VDCs) were to be the entry point for the formation of specific interest groups, and selection of villages and schemes was to give priority to the poorest communities.

## **Comments on design**

7. The strengths of project design reside in the details of the participatory approach, conformity with government decentralization policies, and the focus on components addressing poor people's main constraints, namely rural infrastructure, the availability of paddy land, and livestock development.

8. Design weaknesses were its neglect of the problems connected with co-management, the multiplicity of project interventions, particularly in the agricultural sector, and insufficient attention to targeting mechanisms, specifically concerning women.

### **Main achievements**

9. The project has been working in about 76 villages for over 3 years, with a total population of about 26 000 people living in 4 500 households. Thus about 20% of the project area households have directly benefited from the project. In addition, some villages where the project had no other activities have benefited from the improved road network constructed with project funds, in particular the 29 km of asphalt road built between Houay Xai and Nam Keung in Thongpeung district.

10. IFAD funds have been used for the construction of 1 health centre, 4 agricultural promotion centres, offices and staff housing in the provincial capital and one district. To date, 15 primary schools have been built and a further 7 rehabilitated. A further 4 educational buildings are either designed or contracted. The impact of these buildings cannot be measured immediately but is clearly assisting an improvement in school attendance, among girls in particular.

11. In addition to the OPEC-funded 29 km of paved road, a further 38 km of rural roads have been built or upgraded with funds from the IFAD loan, and a further 16 km were under construction. Construction of rural infrastructure plays a significant role in poverty alleviation: road construction has led to more than 50% reduction in transport costs for freight and passengers. It has also increased the village-gate prices of crops (maize prices have risen on average by 27% in the areas reached by project-built roads) and of non-timber forest products (NTFPs) (palm nuts are sold at prices 20% higher in villages along the road, and sandalwood prices are 23% higher).

12. Irrigation development had been completed for a command area of 452 ha on 7 schemes at a reasonable cost; 20 ha of this area was newly irrigated land. A further 199 ha were under contract. To date, 253 families of the 900 intended at appraisal have benefited from this development, with an average holding per family of 1.8 ha. Yields have increased by about 1 ton/ha on upgraded areas. Benefits from irrigation on the land already developed were estimated to be an increase in rice production of 525 tons, valued at USD 66 622.

13. With respect to agriculture, the main success has been the introduction of new rice cultivars, which have been widely adopted. A number of fruit trees have been successfully distributed, but the issues of husbandry and marketing have not been addressed. New crops such as mushrooms and ginger have been tentatively introduced in a number of villages, with varying degrees of success.

14. Targeting has been both a strength and a weakness in this project. The targeting of minority populations and communities has been very successful: 79% of the villages where the project works are populated primarily by minority communities. This success is largely due to the convergence of government and IFAD policies and, insofar as poverty is concentrated in minority communities, has assisted the project in reaching the poor.

15. Community Development activities have been implemented by the Technical Assistance (TA) team and include adult literacy training, village-level hygiene improvements – including the supply of latrines and the impregnation of mosquito nets – as well as the formulation of Village Development Plans.

16. There have been over 2 400 village-level participants in training activities, including 31% of women, though the total number of trainees is probably about half, as most trainees have been involved in more than one training course. Training has taken place in crop production (horticulture, mushroom cultivation, fruit tree propagation), livestock husbandry, rural credit, non-formal education, community development, and health. A further 423 participants have been government staff trained in rural credit, education, community development, rural infrastructure and institution building activities. In addition, 10 study tours have taken place in Laos and in Thailand for line agency staff and farmers.

17. Overall, USD 2 363 050 of the IFAD loan had been spent or committed for expenditure on civil works at the time of IE, though only USD 1 321 020 had been officially disbursed. In addition, USD 873 514 had been officially disbursed in other categories. Assuming that current commitments were fully disbursed, total currently planned project expenditure would amount to over 80% of the loan.

## **Main weaknesses**

18. The project has been affected by difficulties throughout its implementation. The irrigation component will achieve an acreage substantially below design, amounting to 72% of the total intended area; the number of beneficiaries is likely to be a maximum of 60% of the target.

19. Serious management problems have dogged project implementation, with lack of cooperation and coordination between National Project Management and the TA team; the latter has been involved in activities that were not intended at design, namely investment funding.

20. The agricultural component has achieved little, involving a wide dispersal into trials of new crops without attention to marketing. Minimal attention has been given to the important sector of NTFPs. Farmers introducing new crops, particularly fruit trees, have not been provided with the technical support they needed.

21. No rural credit mechanism was included in design. The revolving fund included at MTR has not been operational due to different views on procedures between project management, the TA team and UNOPS. Among other activities that have suffered from the lack of rural finance, the absence of credit has prevented farmers from clearing new land, and women from setting up better marketing networks for their handicrafts and other produce.

22. The livestock component has been particularly weak. Livestock vaccination was planned to be a major project activity. Although 73 Village Veterinary Workers (VVs) have been trained, few of them are actually working, and there have been serious problems with the vaccination programme. Most recently, in 2001, widespread vaccination of livestock was not carried out, apparently mainly because of differences of opinion about its effectiveness between the TA team and project management.

23. While the project has successfully targeted minority populations, the targeting of women and of poorer people within communities have been neglected. Women's authority in agriculture has been weakened as no women are included in the Water Users' Groups (WUGs) and very few women have been trained, even in subjects which are of prime interest to women, such as livestock. Poorer people have not been given priority for project support within communities.

24. Community Development activities have been operated entirely through the TA team, and implemented by their staff. As a result, local government Rural Development and Women's Union staff have not developed the capacity to assist communities in mobilization and other community development activities, nor have community members developed a capacity for self-management.

25. Most importantly, the participatory measures included at design to ensure sustainability of investments have not been implemented. Hence sustainability of project achievements is likely to be weak, given that inadequate mechanisms have been established for village-level management of the investments:

- the WUGs were not fully operational and have not been given the training needed;
- no road maintenance mechanisms have been established at community level for the roads built;
- VDCs were not sufficiently well trained to implement Village Development Plans; those Plans are not genuinely village-level initiatives;
- the district Lao Women's Union and Rural Development staff were neither trained nor equipped to support village-level sustainable decentralized activities;
- line agency staffing will become an issue as, contrary to the designed 2 incremental staff, according to the MTR a total of 36 additional staff had been hired by the various departments; and
- in addition, after changes decided at MTR, project activities are dependent on loan funds for operational costs, in particular DSA and transport, resulting in further threats to sustainability.

26. The Monitoring and Evaluation (M&E) unit has not used the village profile data collected on the villages at an early stage in the project to consolidate them into an overall baseline study of the project area, nor have these data been updated to reflect change and progress. To the contrary, new

varieties of more sophisticated, complex and wordy versions of the profiles have been developed, which add little information and make identification of progress and change due to the project even more difficult to identify.

27. Finally, project supervision has been inadequate, with insufficient action to solve the project's problems.

### **Lessons learnt**

28. **Project scope.** With a planned duration of 7 years and a loan of just over USD 4 million, the project is having difficulty in disbursing the funds provided. There are many reasons for slow disbursement, including:

- development of decentralization and increased role of local government in implementation;
- involvement of communities in decision-making for project-financed activities;
- natural conditions, which limit civil works during the rainy season; and
- relatively low cost of individual subprojects. Although the demands on management and line agency staff time remain considerable, disbursements are consequently much slower.

29. In view of the increasingly participatory and community-based approach of IFAD projects, a lesson from this project is that size of loans, duration of projects and disbursement schedules need to be adjusted to accommodate the facts that participatory approaches and decentralized mechanisms are slower. However, it should be noted that slower short-term disbursements should be compensated in the long run by improved sustainability of investments.

30. **Decentralization and participation.** These processes are linked, but not identical: government decentralization policies involve increased participation of local government staff and can also increase participation at the community level. Both require more lead-in time. In order to avoid some of the difficulties and problems that have occurred in the past, and to ensure the sustainability of investments, it is important to establish systematic beneficiary consultation and participatory mechanisms, starting with the earliest stages of any activity.

31. **Cofinancing** is often a major source of implementation difficulties. With respect to cofinancing with GTZ, this project is an extreme example of the situation, with what was originally intended to be a TA input having become a separate project (with different accountability structure, its own investment financing, etc.), i.e., parallel financing.

32. **Technical Assistance and co-management issues.** A major lesson of this project is that any TA should be managed within the framework of the investment project, not separately. TA personnel (whether short or long term) should work within the framework of a single project management with a single project manager. Issues related to co-management and technical assistance deserve serious research. In a situation where no improvements can be achieved, structural change should be chosen in preference to 'patching-up' efforts.

33. **Supervision.** The role of supervision is to ensure that projects are implemented according to the Loan Agreements and the Appraisal documentation. This is both a supervisory and a supportive role. Supervision should help project management to deal with constraints and problems and provide the necessary support. Supervision of this project has been inadequate, not providing enough support, especially since 1999.

34. **Rural infrastructure.** Rural infrastructure investments can be a major support to rural development and can assist poverty alleviation. This is the case for roads, schools and also small-scale irrigation systems. If their location is determined with good targeting, these are investments that can help IFAD fulfil its mandate of reaching the rural poor and reducing poverty.

35. **Agricultural development.** Insufficient household rice production is the prime indicator of poverty in Laos. Thus, helping increase rice production is the most effective means of influencing household food security. Project focus on this sector was the correct strategy and should have remained the main project activity; diversification into a variety of other crops and agricultural interventions should have been delayed till the primary – rice production – objective had been

achieved. The main lesson from this experience is that priority should be given to interventions that are known to successfully alleviate poverty effectively, at the expense of innovations whose effectiveness remains to be proven.

36. **Sustainability.** Sustainability is the most fundamental criterion of success of a project, and should be constantly and consistently the focus of project designers and implementers. Insofar as beneficiary participation is the main assurance of sustainability, it is essential that this participation be considered a priority in implementation. No physical works should be implemented without prior establishment of participatory beneficiary institutions (be they formal or informal) to design, construct, manage and maintain them.

## **Recommendations**

### ***Concerning the inclusion of Bokeo Province in the proposed Community Initiatives Support Project***

37. In view of the low absorption capacity of Lao PDR for rural development funding, as demonstrated in the Bokeo Food Security Project, with an average disbursement rate of USD 500 000 per annum, and of the demonstrated difficulties of cofinancing, the Evaluation strongly recommends that the Community Initiatives Support Project (CISP) should:

- adjust its overall size according to proven disbursement capacity; and
- only include Bokeo if, by the end of the Appraisal mission (mid-November 2001), an open and clear agreement has been reached between GTZ, the State Planning Committee (SPC), District Planning Committee (DPC), Project Support Office (PSO) and IFAD concerning the details of the use of GTZ funds in the period 2001-04. The agreement should include details of funds allocated per activity per district per quarter. All parties concerned are to be fully informed of the details of GTZ fund allocations according to a format similar to that used in appraisal cost tables. A new organigram must have been prepared and agreed in which the Provincial Steering Committee (PSC) and DPC play an increased role of supervision and management, and all staff of the GTZ TA Team report to a single person, the National Project Director, who is responsible for coordinating the project implementation on behalf of the DPC, the PSC and the Provincial Government.

38. Only the long-term and general recommendations are included below. A number of immediate recommendations for the design of Phase 2 and for the remaining period of Phase 1 can be found at the end of the Main Report.

## **Strategic to Government**

39. Government should address the issue of its civil service payroll. Government needs to decide which services it is to provide, and make available the funds necessary to pay reasonable salaries to the staff who perform these services. Adequate provision for running costs (transport, DSA, etc.) must be included routinely in annual budgets. Without these, no investment will be sustainable.

40. Decentralization policies are making new demands on local government staff and on community-level leaders. These people have not been trained to fulfil their new tasks. To assist this process, IE recommends that:

- village leaders be given training in social mobilization and participatory development;
- local government staff be trained in the relevant management, participatory and accounting skills so that their way of working and work culture will be changed and re-oriented gradually towards providing services to the clients in a demand-driven and participatory manner;
- an adequate number of qualified staff be re-deployed from the central and provincial level to the appropriate regional and district levels to ensure that the necessary skilled staff are available in the rural areas; and
- to develop accountable systems and procedures to implement the government policy on decentralization, such as contractual arrangements between the provincial governments and the public service providers using public funds for implementation of development project activities.

41. Once trained, district- and village-level staff should be given more responsibility and authority with respect to financial management of Government and Project budgets. These new responsibilities and power need to be accompanied by effective procedures of financial reporting, monitoring and supervision to ensure accountability and transparency. The VDCs should be allocated some budgets, to be used at their discretion.

42. While government policies already favour supporting women, to improve the effectiveness of these policies it is necessary that government implements the following measures, among others:

- (i) systematically issue land and housing titles in the names of wife and husband for couples;
- (ii) promote increased representation of women in key decision-making positions at all levels, and recruit more women in the staff of the project management and line agencies;
- (iii) provide adequate resources to ensure that ethnic women have equal and adequate access to education, family planning and health services;
- (iv) develop procedures to involve women in participatory planning;
- (v) provide gender awareness training for all its staff;
- (vi) give the Lao Women's Union (LWU) a leading role in poverty alleviation programmes; and
- (vii) include gender-disaggregated data in reporting systems of all levels of government institutions.

43. Government would find it beneficial to review the terms of its relationship with GTZ. Regardless of the fact that GTZ provides grant funds, government has the right to demand transparency concerning the use of these funds and take an active role in the distribution and allocation of funds available for the country, as well as the working and reporting procedures between the TA team and the national counterpart.

44. Participatory mechanisms at the local government and community level are essential. They are, in the new century, routinely well designed in development projects. Participation would be strengthened by formulating enabling legislation on rural user groups (irrigation and drinking water, roads, etc.). Similarly, participation for land use activities would be improved through the systematic issue of land certificates for existing farmers, who would benefit from public investment, such as potential irrigation schemes, which should ensure inclusion of women among certificate holders. This would increase the incentive for them to participate effectively in design, construction and operation and maintenance (O&M) of the irrigation schemes and other improvement activities.

45. Government should give more attention to the positive features of minority cultures and livelihood systems and ensure that they are protected in development activities, while involving minorities in economic development.

46. While government policy to reduce shifting agriculture is understandable and reasonable, in practice there are few economically viable alternatives for upland farmers. The stabilization of their agriculture has reduced fallow cycles, no alternative sustainable sources of income have been created, and insufficient lowland irrigated land is available for those who need it. Therefore, Evaluation recommends that the policy towards stabilization of shifting agriculture be implemented more gradually, taking into consideration the availability of alternative sources of livelihood for the farmers.

47. Now that considerable experience has been developed of village-level animal health services, the Ministry of Agriculture and Forestry (MAF) should conduct a study on the field experiences of the pilot programmes of VVWs in the different projects in the country. The study would be designed to issue guidelines for the future development of village-level veterinary services on a user-pays basis in Lao PDR.

### **Strategic to IFAD**

48. IFAD should, through a detailed study, review the advantages and drawbacks of cofinancing, and possibly reconsider its strategy concerning cofinancing. TA is necessary for many projects, and IFAD should develop mechanisms to ensure that it fulfils its role precisely and does not divert the project from its intended course. Using IFAD loans for financing TA should be considered, as well as other sources of TA financing, to ensure that TA fulfils the role defined at design and according to the implementation needs of projects.

49. IFAD should seriously examine its mechanisms for supervision of projects, both with respect to frequency and to content. Supervision must ensure that projects follow the spirit as well as the letter of appraisal documents and should play a more active and forceful role in project implementation. The frequency of supervision missions should be determined by project status and could be as often as three times a year for the more problematic projects, as was the case for most of the time in Bokeo. It should routinely be twice a year (one full supervision and one follow-up mission in countries where the cooperating institution is executing more than one project).

**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**MAIN REPORT**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### MAIN REPORT

#### 1. INTRODUCTION

1. As IFAD and the Lao PDR Government are envisaging a second phase of the project, an Interim Evaluation (IE) is mandatory according to IFAD procedures, and this evaluation was set up in early 2001. The objectives of an evaluation are to:

- assess the achievements of the project and its impact on the target groups by comparison with the original design;
- identify constraints in project implementation, and analyse their causes; and
- draw lessons relevant to the future.

2. The evaluation mission<sup>1</sup> visited Lao PDR in April-May 2001 and was in Bokeo Province from 24 April to 13 May 2001. The mission visited 29 of the 76 villages in which the project is operating, in 4 districts and the Nam Gnou Special Zone. The mission visited 8 irrigation schemes, 8 official buildings, 10 schools, and 11 feeder roads constructed with IFAD funding. Over 250 villagers participated in discussions, including about 95 women, and district-level officials were met and expressed their views in all the administrative units visited. It is worth noting that fieldwork took place just before the rainy season, when most villagers spend their days away from the villages clearing the land for shifting agriculture and otherwise preparing their fields for cultivation. Hence there were few people present in the villages at the time of evaluation mission visits; many farmers were found individually or in very small groups in the fields, or near their irrigation schemes.

3. Evaluation methodology is based on the principle of participation of all the parties concerned by the project. To achieve this, Participatory Rural Appraisal (PRA) approaches were used in the field, including focus group meetings with beneficiaries at the village level, in particular with male and female farmers, youths, and members of Village Development Committees (VDCs). In every district, senior officials, line agency staff and representatives of the Mass Organizations were met, and also in some cases participated in field visits and fieldwork with the relevant team member. In Houay Xai, the provincial capital, senior and operations staff of the line agencies and the Province administration participated actively in the work of the mission. The mission worked closely with the staff of the Project Support Office (PSO), who accompanied the team on the field visits, as well as with the GTZ Technical Assistance (TA) team.

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1. H. Lackner (Mission Leader, Rural Sociologist), 21 April – 8 June;  
F. Fagotto (Agronomist), M. Juville (Agricultural Economist, Institutions specialist), M. Madsen (IFAD Associate Evaluation Officer, M&E), V. Thammachack (Irrigation and Infrastructure Engineer), 21 April – 17 May 2001.

## **2. COUNTRY CHARACTERISTICS**

### **2.1 Generalities**

4. The Lao People's Democratic Republic is landlocked, has an area of 236 800 km<sup>2</sup>, and had a population of just over 5 million in 2001, with a population density of about 20 persons/km<sup>2</sup>; 80% of the population is rural. About 3% of its area is under cultivation, and 80% of the country is mountainous.

5. From 1975, for about 10 years, the country was ruled within a socialist framework which, after the 1986 New Economic Mechanism was introduced, gave way to a more liberal structure, with support from the IMF and World Bank. The country ranks among the Least Developed Countries (LDCs). Due to the rapid devaluation of the currency, fluctuations in per caput income over the 1990s may not be as significant as they appear, with USD 210 in 1990, rising to USD 380 in 1995, before dropping to USD 350 in 2000.

6. However, the country benefits from a high rate of official per caput assistance, with USD 56.6 per caput in 1998, amounting to 22% of GNP in the same year. With a population growth rate of 2.4% per annum, it still has a high total fertility rate of 5.8 children per woman, and low contraceptive prevalence rate. In the past 5 years, economic growth averaged 6.2% per year, despite the country being affected by the South East Asian Economic Crisis in the late 1990s.

### **2.2 Poverty**

7. Recent poverty data in Lao PDR come from the following sources: the Lao Expenditure and Consumption Survey (LECS) of 1997-8, which had been preceded by a similar exercise in 1992, and the Participatory Poverty Assessment (PPA) carried out in 2000. Much of those data are summarized in the Interim Poverty Reduction Strategy Paper issued by the government in March 2001.

8. Despite its policies favouring equity, distribution of income has remained very skewed, and even worsened in the period between the two surveys. The share of consumption of the 20% of the population with the lowest income dropped from 9% to 8% in this period, while that of the richest 20% rose from 38% to 44%.

9. The level of poverty is higher in the northern region where, overall, poverty remained at 52.5% of the population in 1997-98, having dropped from 58.4% in 1992-93. The two poorest provinces are Oudomxay, where poverty increased from 51% to 73% between the two LECS, and Houa Phan, where it decreased from 78 to 75% during the same period. Bokeo, where 63.5% of the population was poor in 1992-93, showed a marked decrease in poverty, with only 37.4% poor in 1997-98. Overall in the northern region, there are 10% more poor people in rural than in urban areas. No specific data are available to explain the remarkable improvement in Bokeo over the period, though it is likely that improved communications and the opening for trade and tourism with Thailand have played a role in this very significant change.

10. The PPA confirms that the main determinant of poverty is the degree of rice self-sufficiency, and the primary indicator of wealth is livestock ownership. Lack of land, and in particular paddy land, is a major condition as well as cause of poverty. Shortage of cash for investment in land improvements is another major cause of poverty.

### **3. PROJECT DESIGN AND OBJECTIVES**

#### **3.1 Project history**

11. The project was originally identified during an IFAD General Identification mission in 1992. This was followed by a Beneficiary Needs Assessment Study in early 1993, and IFAD Preparation and Appraisal missions in the course of 1993 (both of which included GTZ personnel). The project was approved by the IFAD Executive Board in April 1994 and became effective in August 1995. UNOPS was appointed as the Cooperating Institution responsible for loan administration.

12. Total project cost at design was estimated at USD 15.33 million, including an IFAD loan equivalent to USD 4.09 million (27%); a loan from the OPEC Fund of USD 4.7 million (31%); a grant from the German Government of USD 5.64 million<sup>2</sup> (37%); a government contribution of USD 0.67 million (4%); and beneficiary contribution of USD 0.22 million (1%). Due to the delay in start-up and the implementation period of 7 years, the current completion date is 30 September 2002, with a loan closing date a year later; the change from the original dates took place after the Mid-Term Review (MTR) of June 1999.

#### **3.2 Target group**

13. According to the Appraisal Report,

‘the prime focus of the project will be on all households that do not have an assured food security. Those households practising short-cycle shifting rotations and or on marginal lowland paddy holdings or cultivating a combination of the two, are the ones most at risk and most vulnerable to food deficits. This group is estimated to represent 70% of rural households in the project area.’

14. Appraisal also stated that this targeting would not be exclusive, as the project intended to support development of the Province as a whole, and also proposed to target ‘on the basis of response to farmer initiatives.’ Implementation would be through participatory processes involving beneficiary mobilization and organization. This would both be determined by the financial and manpower constraints of government as well as by the social cohesion existing within villages and communities.

15. With respect to women, no specific target was set and Appraisal merely stated that ‘project-supported development interventions in production and social services will pay particular attention to the promotion of women’s interests and benefits.’

#### **3.3 Objectives and components**

16. Appraisal defined project objectives as follows:

- improved food security through more reliable and increased paddy production;
- improved animal health leading to better household food security and increased savings;
- more sustainable management and utilization of upland and highland areas;
- improved economic and social infrastructure;
- better general health and particularly the reduction of child mortality through lowering the morbidity rate of endemic diseases, immunizing all children under one year old and increasing household access to safe drinking water;
- improved levels of primary and non-formal education and literacy related to development activities and with special reference to ethnic minorities and women;
- establishment of appropriate beneficiary organizations that are as self-reliant and sustainable as possible for defining and executing village- and farm-level development; and

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2. This amount was allocated for the first 52 months. A further USD 2.75 million was allocated for 1999-2001; this is not included in the abovementioned total cost.

- improved functioning of government services, particularly in the areas of coordinated development management and administration and sector-specific technical support to rural people.

17. The project initially had seven components, with proposed funding (excluding the OPEC-financed road) as follows:

- Irrigation Rehabilitation and Development (20%), including upgrading of 480 ha, rehabilitation of 270 ha and new development of 150 ha; under this component, financing for 25 km of feeder roads was included, as well as training and management.
- Agriculture-related Group Promotion (3%). Two TA Community Development (CD) team members were expected to set up the activities of mobilization and organization.
- Technology Development (7%), including observation trials, district demonstration farms, seed exchange scheme and issuing of mini-kits for technology promotion to farmers benefiting from irrigation improvements.
- Pilot Watershed Management (2%), to include village water supply, reforestation, the introduction of pasture cover, fodder and nitrogen-fixing tree crops.
- Livestock Development (7%), including the construction or upgrading of livestock offices in all five districts, with solar refrigerators for vaccines, portable coolboxes and veterinary equipment, as well as the construction of two animal sale yards; seed money for vaccines, training and equipment for Village Veterinary Workers (VVs) (portable coolbox, rucksack, sterilizing tray, syringes, needles and a bicycle), vehicles and technical assistance.
- Basic Social Services (3%). Most health activities were to be financed by GTZ, and IFAD was to finance some equipment and construction, up to USD 21 000. IFAD was to finance USD 289 500 for the construction of 32 schools and one vocational teachers' school.
- Institutional Support and Community Development (57%). Appraisal foresaw that management would be by the line ministries and decentralized; project support was to include TA, construction of offices and housing, as well as vehicles and equipment.

18. National and Provincial Steering Committees were included in the design. At village level, VDCs were to be the entry point for the formation of specific interest groups, and selection of villages and schemes was to give priority to the poorest communities.

### **3.4 Expected effects and assumptions**

19. Assuming that each farm was 1 ha and 900 farm households (or 5 100 household members) would benefit, Appraisal estimated that irrigation improvements would result in annual incremental benefit per households of USD 1 290 for rehabilitated farms, USD 1 260 for upgraded farms and USD 1 370 for new farms. Livestock vaccination was expected to provide incremental returns per vaccinated breeding female of USD 30 for buffaloes, USD 50 for cattle and USD 130 for pigs, and the programme was expected to reach 36 000 large ruminants and 58 000 pigs by year 7 of the project. Impact of vaccination and improved husbandry on non-breeding animals was estimated to produce 20% increment in liveweight.

20. Overall, 900 households were expected to benefit from irrigation, 430 from pilot watershed management, and 12 000 households from livestock vaccination. Most others were expected to benefit from roads, health and education.

21. The project was expected to:

- assure self-sufficiency in rice for the households benefiting directly from the irrigation component;
- be sustainable, as only staff positions would be added to the government payroll in the long run; Village Veterinary Workers (VVs) were expected to be self-financing within four years;
- have agricultural programmes that would be replicable elsewhere;

- reduce poverty in marginal rice production households and increase cash incomes for livestock holders, providing insurance against disasters;
  - provide benefits to women through the veterinary support programme, the health programme and education;
  - increase efficiency of family labour;
  - be environmentally friendly; and
  - in the long term, reduce opium production through the introduction of suitable substitute highland production systems.
22. The main risks envisaged at appraisal were:
- institutional weakness and the ability to set up appropriate institutions able to sustain benefits after the project period; to be addressed through substantial technical assistance;
  - government services constraints of staffing and finance; to be offset by the development of beneficiaries capacity for self-organization and self-management;
  - the impact of the ongoing re-organization in Lao PDR and its institutional implications in finance and economics; and
  - government capacity to cover incremental recurrent costs in the post-project period, particularly with respect to road maintenance.

## **4. EVALUATION**

### **4.1 Comments on design**

23. In retrospect, the main strengths of the design are its participatory approach and in particular its conformity with government decentralization policies and its implementation mechanisms through line agencies, thus avoiding the problem of creating parallel institutions. This means that what the project achieves should be sustainable, something which can only be verified well after project completion.

24. Another strength of this project's design is its focus on interventions that would effectively address the most important productive constraints of the population, namely irrigation and livestock. Development of small-scale irrigation is the one intervention that can allow shifting cultivation farmers to abandon slash-and-burn, as well as increase their yields substantially and achieve household food security. Vaccination of livestock is a major intervention to protect household animals and allow families to retain them for food, labour and also as a savings mechanism to have access to cash when needed. Hence, had the project successfully focused on these two activities, it could have achieved a far higher impact on food security.

25. Project design had the following main weaknesses:

- the multiplicity of agricultural activities, in particular the experimentation and testing of a wide variety of activities. Rather than concentrate on rice irrigation, livestock vaccination and improvements in highland cropping or forest harvesting, the project became involved in large numbers of tests and trials (mushrooms, and other new crops, including fruit trees) which could not be carried out effectively and should have been done by research institutions. This has taken up a lot of staff time and energy, and is unlikely to produce any serious results;
- insufficient attention given to the gender context of project activities, which has meant that few activities were aimed at supporting women's specific economic activities, and also that possible negative effects of development interventions were not addressed;
- the speed of implementation and the implications of decentralization on efficiency of disbursements were not fully taken into consideration; and

- the CD component was designed and implemented as a parallel and independent component, without close linkage and integration with the rest of the project activities. In fact, the component has been implemented by the TA staff, with little involvement of the government staff. Instead, the CD component and its social mobilization and participatory development, implemented by the government staff with technical support and advice from the TA team, should be the entry point and provide linkages for all other project interventions.

#### 4.2 Implementation context

26. The project has been implemented at a time when government liberalization policies continued steadily. The main factor that influenced developments in the country during this period was the South East Asian Economic crisis of 1997, which caused the local currency to depreciate suddenly and considerably. This was a further factor in implementation delays, as mechanisms had to be approved and implemented to protect the project from losing funds as a result of depreciation.

27. No changes in Government policy affected implementation, which developed as designed in line with the major policies: decentralization, focus on poverty alleviation and in particular on minority communities, and improved food security through the development of small-scale irrigation and improved infrastructure.

28. Overall, the project has been implemented in four Districts and one Special Zone of Bokeo Province, which had a total population of 125 160 in 2000. The Lao Loum, or lowland ‘majority’ population, form only 34% of the Province’s population, while the Lao Theung form 42% and the Lao Soung form 24%. The Province’s area is 6 558 km<sup>2</sup>, so the average population density is 19 persons/km<sup>2</sup>, ranging from a high of 32 in Thongpeung to a low of 7 in the Nam Gnou Special Zone. There are a total of about 23 000 households distributed in 373 villages. Average lowland rice yields in the Province are 3.48 ton/ha, and highland rice yields are 1.85 ton/ha. Total rice production was 73 200 ton in 2000, while that of tuber crops was 1 735 ton and that of maize, 2 151 ton.

29. There have been few measured changes in the basic living conditions and population composition of the Province during project implementation. The main change noted by the mission has been the increase in population of the Nam Gnou Special Zone, where new villages were created in the late 1990s, composed of populations returning from abroad, as well as others who moved into the area from neighbouring districts or provinces. The mission also noted that there was in-migration of individual families from outside the project area, mostly in anticipation of the development of additional paddy fields; however, precise figures on the number of in-migrating households were not available.

#### 4.3 Project achievements

30. **Summary of achievements.** The project has been working in about 76 villages for over three years, with a total population of about 26 000 people living in 4500 households. Thus about 20% of the project area households were benefiting from the project directly. In addition, some villages where the project had no other activities have benefited from the improved road network constructed through the project, in particular the 29 km of asphalted road built between Houay Xai and Nam Keung in Thongpeung district.

31. With respect to agriculture, the main success has been the introduction of new rice cultivars, which have been widely adopted. A number of fruit trees have been successfully distributed, but the issues of husbandry and marketing have not been addressed. New crops, such as mushrooms and ginger, have been tentatively introduced in a number of villages, with varying degrees of success.

32. Livestock vaccination was intended to be a major project activity, but this has not been very effective. Although 73 VVWs have been trained, few of them are actually working, and there have been serious problems with the vaccination programme. Most recently, in 2000-2001, widespread vaccination of livestock was not included in the AWPB, apparently mainly because of differences of opinion about its effectiveness between the TA team and project management.

**Table 1.** Summary of Project Achievements

<b>Activity</b>	<b>Target</b>	<b>Achieved (as of May 2001)</b>
Number of villages reached	No specific target	The project has worked in 76 villages
Irrigation	Command area of	
Upgraded schemes	480 ha	432 ha
New schemes	150 ha	20 ha
Feeder roads	25 km	38 km completed 16 km under construction
Highway (OPEC Fund)	78 km	29 km completed
Agricultural Promotion Centres	No specific target	4
Schools	32	15 primary schools built 7 primary schools rehabilitated 6 new schools under contract 1 vocational centre under contract
<b>Health Centres</b>	No specific target	1
<b>Livestock</b>		
Sale yards	4	0
Livestock vaccination	Meant to benefit 12 000 households	Data not available
Training of VVWs	No specific target	73 (incl. 2 women)
<b>Agriculture</b>		
Rice	No specific target	Successful introduction of cultivars TDK1 and TDK3 (potentially increasing yield by >1 t/ha)
Trials and demonstrations of vegetables, mushrooms, non-timber forest products and fish ponds	No specific target	Limited results
Fruit trees	No specific target	A number of varieties distributed – general lack of husbandry [see paras 42-43]
<b>Training</b>	No specific target	2 400 village-level participants [but see also para. 36]

33. CD activities have been implemented by the TA team, and include adult literacy training, village-level hygiene improvements – including the supply of latrines and the impregnation of mosquito nets – as well as the formulation of Village Development Plans.

34. IFAD funds have been used for the construction of one health centre, four agricultural promotion centres, offices and staff housing in the Provincial capital and one district. To date, 15 primary schools have been built and a further 7 rehabilitated. A further four educational buildings are either designed or contracted. In addition to the OPEC-funded 29 km of paved road, a further 38 km of rural roads have been built or upgraded with funds from the IFAD loan; a further 16.2 km were under construction.

35. Irrigation development had been completed for 452 ha on 7 schemes at a reasonable cost; 20 ha were newly irrigated land. A further 199 ha were under contract. To date, 253 families of the 900 intended at appraisal have benefited from this development, with an average holding per family of 1.8 ha. Yields have increased by about 1 ton/ha on upgraded areas. Benefits from irrigation on the land already developed are estimated to be an increase in rice production of 525 tons, valued at USD 66 622.

36. There have been over 2 400 village-level participants in training activities, including 31% of women, though the total number of trainees is probably about half this figure, as most trainees have been involved in more than one training course. Training has taken place in crop production (horticulture, mushroom cultivation, fruit tree propagation), livestock husbandry (fish production and breeding, chicken production, vaccination), rural credit, non-formal education, community development, and health. A further 423 participants in training have been from government staff at all

levels, being involved in training in rural credit, education, community development, rural infrastructure and institution building activities. In addition, 10 study tours have been implemented within Laos and in Thailand for line agency staff and farmers.

37. Overall, USD 2 363 050 of the IFAD loan has been spent or is committed for expenditure on civil works at the time of IE, though only USD 1 321 020 had been officially disbursed. In addition, USD 873 514 had been officially disbursed in other categories. Assuming that the current commitments were fully disbursed, the total currently planned project expenditure would amount to over 80% of the loan.

38. **Project disbursement.** Most IFAD funds have been spent on civil works; after MTR this was as intended, as funds were re-allocated to increase the civil works component. Since funds were available from the GTZ grant for most 'software' and even some 'hardware' activities, the government and project management have, unsurprisingly, used these in preference to using loan funds. This has been one reason for the low disbursement rate of the project.

39. The major investments completed with IFAD funding by April 2001, i.e., over 5.5 years after project effectiveness, are summarized in Table 2.

**Table 2.** Major investments completed with IFAD funding (April 2001)

<b>Project element</b>	<b>Value</b>	
Buildings for project offices and line agencies, as well as staff housing and facilities	USD	448 700
School buildings and rehabilitation	USD	157 250
Feeder road construction (24.6 km)	USD	480 000
Irrigation systems (452 ha)	USD	238 325
<b>Total actual IFAD funds spent on construction</b>	<b>USD</b>	<b>1 324 275</b>

NOTE: Figures have been rounded up. In addition it is to be noted that in some cases slightly different amounts were reported to the mission for the same contracts, most likely due to exchange rate fluctuations; all these figures should be considered to be indicative.

40. While the construction of offices, housing, etc., had been completed and none was still under design or contract, work was proceeding on a number of contracts and others had been signed with respect to the other three items (Table 3).

**Table 3.** Activities under contract at time of IE mission (April 2001)

<b>Activity</b>	<b>Contract value</b>	
Schools	USD	88 343
Roads (29.55 km)	USD	517 533
Irrigation Schemes (199 ha)	USD	420 720
Water projects (3 schemes)	USD	12 175
<b>Total IFAD contribution contracted</b>	<b>USD</b>	<b>1 038 775</b>

41. Between the funds already spent on infrastructure and those committed, the total amounted to USD 2 363 050, or approximately SDR 1 750 000.

#### **4.4 Agriculture and livestock**

42. Agricultural production is the main part of the project and the yardstick of its success or failure, as it is the means whereby the target group could achieve improved incomes and get out of poverty. The development of small-scale irrigation schemes is discussed below. At the MTR, it was agreed that GTZ would finance development of new technologies and trials, and IFAD funds would be used for mainstream extension. This division of responsibilities has not been implemented.

43. **Agricultural development.** With the exception of the introduction of new cultivars of rice (mostly TDK 1, TDK 3 and 'Phon Ngam'), this component has been weak. The mission did not observe anything new in terms of technology, techniques or diversification. Trials and demonstrations of vegetables throughout the project area have shown limited or unsatisfactory results. A variety of fruit trees have been introduced throughout the project area, with both GTZ and IFAD funding. The mission observed scattered small plantations of fruit trees in most of the villages visited; the main species are mango, litchi, guava, lemon and others. However, husbandry of these trees appeared to be absent.

Small nurseries have been established selling seedlings of fruit trees. This is a clear sign of progress. However, good extension assistance still has to be developed, for example with pest and disease control.

[IFAD photo by Jim Holmes]



44. There are a number of reasons for these weaknesses, including:

- neglect of the marketing dimensions for new products meant that those new crops cultivated, such as fruit, had no certain market, and farmers were discouraged from increasing their cultivation; and
- the absence of technical assistance to farmers on their own fields.

45. **Livestock and fodder production.** Most activities in this field to date have been undertaken by GTZ, and the mission met farmers who had received buffaloes, cattle, pigs, chicken, ducks and sometimes goats from the project. In addition, there has been animal vaccination and the development of a modest technological package, including test extension services. Only pigs and poultry included new breeds. Some new dairy cattle have also been introduced, but the mission was unable to see them.

46. With respect to fodder plants, the mission observed small plots of land with new varieties, both arboreal (for lopping) and herbaceous. There was no evidence of satisfactory results from this activity. This apparent failure was probably due, in part at least, to the lack of field technical assistance and support for the extension workers and farmers testing these varieties.

47. **Livestock vaccination programme.** A total of 73 VVWs, including two women, have been trained under project auspices. In some villages, animal owners expressed full satisfaction with the vaccination programme and complained at its absence this year. In others, the programme was considered weak or non-existent. In 2001, no vaccination programme was carried out.

48. Livestock vaccination was intended to be an important project activity to improve the food security of 12 000 households. Figures were not available on the number of households who effectively benefited from this activity, but on the basis of the difficulties encountered, it appeared to be very low. The main problems which have affected this sub-component are:

- inadequate cold chain for vaccines (the planned livestock offices equipped with a refrigerator and coolboxes have not been set up, and, in addition, the VVWs have not been equipped with portable coolboxes);
- absence of a reliable source of good quality vaccines;

- absence of incentives for the VVWs, either for their work or transport;
- debates concerning whether to purchase vaccines from within the country or from Thailand; and
- disagreements between the TA team and project management on the effectiveness of locally produced vaccines.



A number of farmers have received buffaloes, cattle and pigs from the project. Livestock vaccination, intended to be an important project activity, has however been less successful, mainly due to lack of proper cold chain and poor quality vaccine. [IFAD photo by Jim Holmes]

49. **Fisheries.** In practice this activity has consisted of the distribution of fingerlings and a modest technical package to farmers who own or dig ponds (of 100-200 m<sup>2</sup>). No significant results have been achieved. The mission found that many ponds had too little water or were dry. Further development of this component would demand improved site selection for the ponds, ensuring maximum water runoff from rains, as well as better calculations of pond depths to prevent overheating, as well as technical field assistance. However, a fish breeding station was established in 1999, which has sold 700 000 fingerlings throughout the province.

50. **Staff training.** Extension workers and other staff have attended a wide range of courses financed by both IFAD and GTZ in subjects covering livestock, vegetable production, crop diversification, fisheries, soils, fruit growing, etc. Close investigations and interviews of trainees have indicated that this component appeared to have been adequately carried out.

51. **Extension.** In the project area, there were 10 extension agents, as well as volunteer extension workers at the village level. The Mission assessed their activities through numerous interviews with extension agents, volunteers and farmers. On the basis of field findings, this component required improvements: in particular, technical advice should address real farmer needs, and specifically support new activities introduced by the project. IE considers that the use of centres for the promotion of extension is not the most effective approach to the delivery of services to farmers. Using the private sector, and in particular the emerging border trade associations, could be a more effective mechanism.

52. **Livestock and Agricultural Promotion Centres.** Project funds have been used to build four centres as bases for extension work, as well as housing; currently they were not fully operational due to lack of equipment. Each of them has been allocated cultivable land ranging from 2.5 to 6 ha. These centres could be useful as showcases for innovations and new technologies introduced by private and public institutions, as an outlet for saplings, the sale of vaccines and other animal health services. However they need to be self-sustaining and raise the income necessary to finance their operations. It is also important to note that they are not ideal for demonstrations, as conditions in their fields are better than those prevailing in small-scale farmers' fields.

53. **Rural credit.** No rural credit was included in project design. During MTR, SDR 70 000 was re-allocated for the establishment of a Village Revolving Fund (VRF), which was to operate in 40 villages populated by minorities and to be used for agricultural investments. This fund has not been used, as different proposals have emerged from project management, the TA team and the supervision missions. There had been, to date, no agreement on a satisfactory mechanism for the disbursement of these funds. Given the short time remaining for the project, it is too late to start a micro-credit operation, as such operations need long-term backup and support.

54. The lack of credit has had a negative impact on agricultural development, and in particular for those farmers developing new irrigated lands, as the cost of land clearing is high and they have no resources to finance this. It could have been useful to help VVWs finance the purchase of vaccines. Women have no source of credit to solve the marketing problems for their handicrafts. Other activities could also have benefited from a credit line.

#### 4.5 Infrastructure

55. **Highway.** Most of the project funds allocated to road building were the OPEC Fund loan of USD 4.7 million. Originally intended as a road from Houay Xai to the port of Muang Mom on the Mekong and to be part of the main communication system between China and Thailand, the specifications of the road were upgraded to the extent that the funds originally intended for a 78 km road were finally fully used up in design of the complete road and construction of the first 29 km from Houay Xai to Nam Keung Kao in Thongpeung district. The rest of the road is currently no more than a mere track, which seriously reduces the benefits of the asphalt road, which will only be economically justifiable once it has been completed to the port. Currently no funds are available or foreseen for this.

56. **Feeder and irrigation roads.** As discussed above, most IFAD funds have been used for the development of infrastructure. At the time of IE Mission, 38.4 km had been completed and 16.2 km were currently being built. Thus, altogether 54.6 km would be built. All these were gravel-paved roads at a cost ranging from USD 7 200/km to USD 35 600/km. These costs can be considered reasonable, as the government standard for such roads ranges from USD 30 000 to USD 35 000/km; only one road built by the project was outside that range, while the majority were significantly below (see Annex 6, table A6-2). The feeder roads built by the project have an Internal Rate of Return (IRR) of over 12%, and their average cost was well below the threshold to achieve this level of return.

57. Overall, construction quality was satisfactory, though evaluation noted a few weaknesses. In particular, insufficient protection against erosion and low quality of surfacing in some cases. Moreover, basic design documents were not available in the offices of the line agency responsible for these works.

58. All this construction has taken place through contractors, without community participation or contribution. The absence of participation in design is noticeable in that community members have already cut channels into the roads to ensure irrigation of their fields when the road prevented water from reaching them. In addition, no arrangements have been made for community or any other maintenance, and those roads that were, at the time of writing, experiencing their third rainy season already showed the consequences of lack of maintenance.

59. **Irrigation schemes.** At the time of IE, seven schemes had been completed, with a command area of 452 ha, and a further 199 ha were under contract on a further two schemes, though project programmes state that a further 105 ha would be irrigated on one scheme<sup>3</sup>. It is to be noted that the completed schemes included only 20 ha of new land.

60. Overall the cost of these schemes has been reasonable and even low, with an average of USD 917.6/ha, and the highest only USD 2 233/ha. However, the quality of the design is considered

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3. This is doubtful. When visited, villagers concerned with this scheme were concerned with the insufficiency of water and the fact that the command area on the other side of the weir (developed with other funding) was already suffering insufficient irrigation water. There are clearly some major technical and social issues concerning the Houay Lieng Scheme that should be urgently addressed by Project Management and TA.

on the borderline of acceptability, as can be noted from the outcome, with some complaints, mainly related to water distribution.

61. Contract management was also noted to be weak, particularly with respect to the two new schemes, which had been under contract for over two years and yet were nowhere near completion, regardless of the technical and social problems that appeared to exist concerning one of them at least.

62. **Other infrastructure.** The social infrastructure is discussed below, but, from a technical point of view, the ten schools visited were considered to be of good quality and their cost extremely reasonable at USD 85/m<sup>2</sup>. With respect to office buildings and houses, the mission considered their quality and speed of implementation to be good, but the cost was very high for three of the eight structures concerned.

#### 4.6 Social sector investments

63. **Health.** IFAD funds have only been used to a very small extent to support the health sector, with only USD 21 000 allocated. Most activities in this field have been supported by GTZ, including village hygiene promotion, the distribution of latrines, training of Traditional Birth Attendants and village health workers, etc.

64. IFAD funds were used for the construction and equipment of the dispensary at Nam Keung. Further funds have been allocated and committed for the installation of domestic water supply. While MTR projected the construction of 20 schemes (gravity and wells), only 5 had been undertaken, though at least one of these was on a larger scale and at higher cost than had been envisaged, as it was supposed to supply three villages.

65. **Education.** Appraisal envisaged the construction of 32 schools and a vocational training school; MTR reduced this to 13 schools and one vocational training centre. Total IFAD allocation for this component remained at USD 208 000. With the completion of 15 new buildings and the rehabilitation of five, the project has contributed substantially to educational infrastructure in the Province, and particularly in the remoter areas. A further six schools and one Vocational Training Centre had been contracted.

#### 4.7 Targeting

66. According to the Appraisal Report, the project target group was the 70% of rural households who did not have assured food security; targeting was to be responsive to farmer initiatives, i.e. the poor were to be given priority in answer to requests. It also stated that project interventions would pay particular attention to the promotion of women's interests and benefits. MTR confirmed that "the strategy of targeting the poor and ethnic minorities and women is still valid."

67. The project had reached 20% of provincial households through direct interventions, with many more benefiting from use of the main and rural roads built. In the early years of the project, work concentrated on Thongpeung district, mostly among lowland communities, who are comparatively less poor but who have the advantage of being more easily accessible. From 1998 onwards, project priorities were redirected towards ethnic minorities in remote and isolated areas. There is no doubt that after the initial concentration on lowland areas, the project has been successful in targeting remote communities populated by ethnic minorities, and most of the communities where work has started after 1999 are of that type. This is largely due to the convergence of IFAD and government policies, which have provided the necessary backing for this focus. Of the 77 villages in which the project was working, 61 (79%) were populated primarily by minorities.

68. Targeting the poor within communities was given less emphasis in design, and the project has encountered some difficulties in reaching the poorest segments. While most irrigation schemes have been upgraded and therefore did not involve any selection of beneficiaries, some schemes at least have been improved for communities who appear to be relatively comfortable, rather than among the poorest. With respect to demonstrations for crop and livestock activities and the selection of villagers for training, it appears that most of those selected have been among the leaders of the communities and the less poor, despite TA efforts to actively target the poorest. This was found throughout fieldwork and confirms the findings of recent Supervision missions. Greater efforts could have been made to give priority to poorer households in selection for various activities and investments.



A Water user group meets with the irrigation specialist. The members discuss how to maintain the scheme and how to make best use of their resources. [IFAD photo by Jim Holmes]

69. Targeting of women has failed on more than one count. This is largely a design fault. Nothing was done to ensure that women would be included in the Water Users' Associations (WUAs) and Water Users' Groups (WUGs), though it was known that many women were landholders and that women inherit land. This despite the fact that it is common knowledge in development that in most places the formalization of institutions tends to favour men, and often transfers control and power from women to men. This appears to be happening here, both with respect to irrigation water management and to titling, which is a side product of land allocation. The project could have intervened to assist women in ensuring that their rights are not lost by helping them register land in their names and by ensuring that they were included in the management of WUGs and WUAs.

70. Other women's concerns have only been addressed indirectly, through the construction of schools and the GTZ-operated community development activities. This is largely a design weakness insofar as insufficient funds and activities were planned to address women's greatest problems, such as water collection and the sale of their handicraft products. The weakness of the livestock programme has also resulted in reduced benefits for women.

71. An important social issue, which has not been addressed by the project, concerns work with minorities. While the project is actively trying to integrate minorities into mainstream Lao society, it is not giving any attention to the maintenance and protection of their culture. It is building schools and roads. The development of irrigation schemes and other agricultural interventions could help the minorities to abandon shifting cultivation while increasing their incomes, provided that these interventions be implemented where shifting agriculture is concentrated, that is in the uplands and hilly locations where infrastructure is costly. These are all positive changes. In implementation, project policy seems to equate economic development with cultural assimilation. Project staff often refer to the minorities as being 'difficult', lacking Lao language, etc. Since there are members of minority communities among project staff, their knowledge of language and culture could have been used to develop a more culturally sensitive approach to work with the minority communities. The variety of cultures which exist in Lao PDR is one of its major national assets and should be built upon, rather than allowed to weaken and eventually disappear; its loss would be a loss for humanity, not just the country. It should be noted however, that TA financed and organized training courses for teachers in ethnic minority villages, providing training in music and other cultural activities.

## 4.8 Participation

72. This was intended to be a fundamental implementation mechanism of the project. Design intended it to be far more than the mere contribution of unskilled labour and local raw materials to construction efforts. The VDCs were expected to play an overseeing role for all development interventions. At the level of each activity, special-interest groups were to participate actively in design, and later in all aspects of construction and operation and maintenance (O&M).

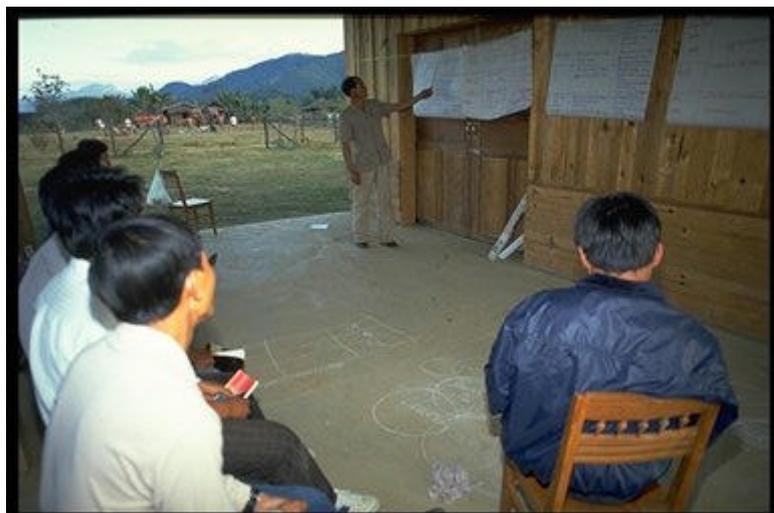
73. In practice, project interventions have effectively strengthened VDCs through changes in their membership and training. In contrast, the only interest groups that have been formed as designed have been the WUGs; while formal WUGs and WUAs are weak, beneficiaries of irrigation schemes have largely adapted their earlier informal types of cooperation to the new situation and this should be effective.

74. Other groups that had been designed have not been created. Instead a number of 'virtual' groups have been formed, mainly for the use of the revolving fund, which was as yet non-operational except for GTZ-financed pilot schemes in two villages. While project staff claimed that these groups operated for extension services, field visits indicated that in the majority of cases, they simply did not exist or, at least, the villagers did not perceive them to exist.

75. Participation, or rather community contribution, has been effective in school construction: indeed, some communities have contributed far more than expected towards school construction. Landholders on the improved irrigation schemes have participated in land clearance and the supply of materials. There has been no community participation in road building. Despite requests from the district authorities, there has been no project support for the establishment of village road maintenance groups, which is likely to have a negative effect on maintenance and therefore the sustainability of this investment.

76. Overall, participation has not lived up to the ambitions of design. The low level of participation is partly due to the differences of views between the GTZ TA team and the PSO. The former, equating participation with contribution, considered that the communities were too poor to contribute to sub-project implementation. The latter was trying to implement IFAD policies in the belief that beneficiary participation in implementation is an indication of community commitment, ownership and a major contribution towards long-term sustainability of investments. The difference in understanding of the issue can be seen in the implementation of 'community development' as discussed below.

77. **Community Development.** This activity has been ongoing from the earliest stages of the project and been almost exclusively implemented by technical assistance staff on the GTZ payroll. The Community Development (CD) workers have carried out valuable work in training community members in the development of village development plans, VDC members in community mobilization processes, in supporting the health and hygiene programmes through the distribution of latrines, etc. They prepared guidelines on village planning, and on community development, which are useful and could be taken up by other projects.



Villagers discuss the village plan. The Community Development (CD) workers have carried out valuable work in training community members in designing village development plans. [IFAD photo by Jim Homes]

78. However, this is not sustainable and goes against the principles of TA to support local institutions and develop their capacities. Although the CD workers do have some contact with the Lao Women's Union (LWU) and with the local Rural Development Committee staff, they do not primarily train them. Instead, they carry out the work at the village level themselves. This point was taken up as early as the first Supervision Mission, in 1996, with strong recommendations that the focus of the CD team should shift from implementation to training of local administration staff and village-level staff. This recommendation has been ignored and, at the time of IE mission visits, the CD staff was still involved in direct implementation. Local government staff has not been supported with appropriate skills to take over the responsibilities of mobilization and training.

79. In practice, communities have only slightly increased their involvement and initiative in the management of their own affairs. VDC members and other villagers have not been encouraged or given the opportunity to actually manage village affairs directly. District Rural Development Committee staff and LWU cadres have not been trained to train villagers. However, LWU, RD and VDC members have received some very short training courses in community management and participatory methodologies. Despite this, it is likely that the activities of the CD component would almost certainly come to a standstill were TA staff to be removed.

#### **4.9 Monitoring and Evaluation**

80. Details of the project Monitoring and Evaluation (M&E) system were to be finalized at a workshop early in the project. Staff was to be hired from project start-up. Neither of these happened and for the first three years, supervision missions repeatedly pressed project management to start the M&E activities.

81. From 1999 onwards, a system was operating with staff seconded from the Department of Planning and Cooperation (DPC). Data were collected by the implementing line agencies at district and provincial levels. Data on project progress implementation are then integrated into the AWPBs, which were designed with a special column in which all activities are graded: A (done on time), B (done late), C (postponed), and D (cancelled). A small space is left for remarks, where line agencies should explain the gradings.

82. Data are collected and good working relations exist between PSO M&E staff and the line agencies, who provide a regular flow of data; quarterly meetings take place between them. The system is simple to execute and has not required new computer software. M&E staff has received some training in very short courses, as well as some short training in impact assessment through their participation in the assessment of a neighbouring project.

83. However, the M&E unit has not used the village profile data collected on the villages early on to consolidate them into an overall baseline study of the project area, nor are these data updated to reflect change and progress. On the contrary, new varieties of more sophisticated, complex and wordy versions of the profiles have been developed, which add little baseline data and make identification of progress and change due to the project even more difficult to identify.

84. While producing data on physical output, the system is unable to explain the reasons for successes or failures of activities. No evaluation has been carried out of completed activities, which could have been done in the case of roads and schools, if not irrigation systems (as the latter have only been operating for two rainy seasons at most). To date, no impact assessments or case studies on project effects have been carried out. Hence the project only had vague ideas of its actual impact on target groups. For example, the M&E system has not generated any ethnic or gender disaggregated data, and it will be difficult to measure how women, in particular, have benefited from project interventions.

85. Training, although it has taken place, has been insufficient to enable M&E personnel to effectively carry out impact monitoring studies. There is need for much more training, particularly in participatory approaches to M&E.

86. The PSO M&E unit has no overview of GTZ activities and does not monitor these. Only a superficial dialogue exists between the TA office and PSO in this area. This is a weakness of M&E and a major problem for project implementation. For example, the M&E Unit staff were not aware of the fact that the village-level baseline studies collected by the TA team could be useful to their work.

**4.10 Management**

87. The IFAD-funded part of the project has been managed from its own offices, with 15 staff, including the National Project Director (NPD), two deputies, and four accounting and bookkeeping staff. As stated in the early Supervision Reports and the MTR, achievements and field implementation were very slow in the early years.

88. **Mid-Term Review.** Due to very limited disbursement and activities in the early years, a number of changes were made at MTR. The MTR report showed the level of dissatisfaction with implementation by strongly recommending early closure of the project should a number of agreed changes not be implemented within a few months. The follow up to the MTR was done in November 1999.

89. The main changes to the project introduced by MTR were:
- use of loan funds was authorized for the payment of DSA and travel costs; one of the constraints identified had been the slow availability of operating costs from government funds; this despite the fact that funds in the Operational Costs category were drastically reduced;
  - the Department of Planning and Cooperation (DPC) located in Houay Xai was, among other responsibilities, to coordinate the activities of implementing agencies, PSO and TA, and effectively act as Project Head; this was intended to address the problems between project management and the TA team;
  - the replacement of the National Steering Committee by a Provincial Steering Committee responsible for providing guidance to all concerned parties, approving the AWPB, supervising and monitoring overall progress; this was a result of decentralization and to allow Provincial authorities to effectively support and supervise project implementation; and
  - to reach an agreement concerning the relationship between TA and other project staff. This is discussed below.

90. Funds were re-allocated as shown in Table 4.

**Table 4.** Re-allocation of funds following the Mid-Term Review (in SDR)

Category	Loan Agreement	Amended amounts
1. Civil works, etc.	1 070 000	1 920 000
2. Vehicles, equipment, etc.	540 000	420 000
3. Studies, training, etc.	80 000	40 000
4. Operating costs, etc..	900 000	170 000
5. Unallocated	360 000	330 000
6. Village Revolving Fund	none	70 000
<b>TOTAL</b>	<b>2 950 000</b>	<b>2 950 000</b>

NOTE: Elsewhere, the current USD equivalents are used, so, as the exchange rate between SDR and USD fluctuates, totals do not always add up exactly.

91. **Decentralization.** Decentralization and implementation of project activities through line agencies was one of the project’s main achievements. As a result, the chances for long-term sustainability were greater and local capacity strengthened, improving development prospects. The establishment of parallel temporary structures has been avoided.

92. However, the use of loan funds for the payment of operational costs, which was authorized after MTR, is likely to cause problems after the project and reduce the sustainability of project interventions insofar as government staff activities will have to continue. The fact that this change was necessary indicates government difficulties in financing its staff adequately through their salaries; it is a major

issue for the future of activities once the project is closed. Moreover, the fact that many additional staff has been hired, contrary to what had been planned at design, was also likely to cause further problems with respect to sustainability. The issue of development financing is a major one and cannot be discussed in detail, but needs addressing.

93. **Cofinancing and Technical Assistance – The ‘two-project syndrome’.** Cofinancing, while popular for financiers, is often the source of difficulties for those implementing projects. While there were no difficulties with the OPEC Fund loan, as it was managed by UNOPS alongside the IFAD loan, the relationship with GTZ was very different. The situation in this project is an example of cofinancing and co-management problems. In fact, this is much more a case of parallel financing, as GTZ and IFAD funds have been managed separately by different agencies. The Appraisal Report stated that “notwithstanding the size of the TA provision, it will be transient and supportive of the development of local capabilities and in no way will a situation be allowed to arise where TA acts as either a parallel or substitute implementing structure.” (par. 144). The evidence of five years of implementation, regardless of the multiplicity of agreements to the contrary, is that TA has indeed done precisely that: namely, develop as a parallel and substitute implementing structure.

94. The main characteristics of the problem in this project have been the following:

- a technical assistance team which is not answerable to the project director;
- in practice, parallel rather than cofinancing;
- a very large TA team, which has been active in direct implementation of activities rather than acting as a training and support team for government staff;
- the availability of TA funds for investment; this has allowed the TA team to act as an independent and separate project, financing its own investments; by November 2000, GTZ had funded USD 164 000 of investment costs;
- lack of coordination between the two teams, with the major GTZ initial planning workshops not attended by IFAD or UNOPS staff; and
- insufficient financial transparency with respect to grant funds; the different line agencies were not informed of the details of the GTZ budget in advance, nor given sufficient opportunity to participate in budgetary allocation.

95. Such a situation was inevitable given the structural context: GTZ operated according to its own agreements with the government, with specific objectives and principles determined by GTZ overall policy and separate supervision mechanisms. GTZ operates on the basis of 3-year project cycles, the second of which was close to completion (Phase 1, 1995-1998; Phase 2, 1999-2001). The third phase, to cover Aug 2001 to July 2004, was apparently being designed without reference to IFAD.

96. GTZ priorities are indicated by its vision of the future:

“within the coming years, RDP Bokeo will become a strong part of the renewed efforts to strengthen collaboration and coordination among all GTZ-supported projects operating in the rural areas of Lao PDR. Eventually these projects shall be combined under the newly created ‘Rural Development Program for Mountainous Areas in Lao PDR’” (Draft Concept and Strategy paper on Community Development, Phase 3 of RDP Bokeo, Feb 2001, p 2).

It thus appears that the TA team in Bokeo was intending to achieve greater integration with GTZ projects elsewhere in the country rather than within its own project.

97. Throughout project implementation, agreements have been reached aimed at solving the difficulties encountered by this bi-cephalous situation. Not one of the agreements has been implemented. It would be illusory to think that yet another agreement would succeed. The situation cannot change as long as the GTZ component remains a separate entity with a separate agreement between GTZ and the government. Only if the GTZ component became purely a technical assistance contribution to the project, clearly under government control, could the project function as a single entity with a single management to whom all staff and advisers would be answerable. This would require a complete review of the nature of agreements between GTZ and government at the level of Central Government.

98. **The role of Bokeo Department of Planning and Cooperation.** Throughout project implementation, and in particular with reference to the difficult relationship between the GTZ component and the PSO, the Department of Planning and Cooperation (DPC) of Bokeo Province has been given the responsibility of overseeing the project. At MTR, it was effectively appointed ‘project manager,’ to whom both GTZ Senior Adviser and NPD were to answer.

99. Evaluation found that the DPC role in project management and guidance has been weak. Aside from failing to direct the project and enforce its position as ‘manager’ after MTR, DPC has not been active in monitoring project activities or in guiding the project towards the most useful activities for the development of the Province. For example, it has allowed the continuation of the multiple agricultural crops testing without giving them any direction or ensuring the marketability of the crops tested.

#### 4.11 Role of supervision

100. UNOPS, based in Kuala Lumpur, is the cooperating institution appointed by IFAD to supervise and administer the loan on its behalf. UNOPS teams have supervised the project on five occasions, and one joint MTR with IFAD since it started, as follows:

First Mission, August 1996	one year after effectiveness;
Second Mission, March 1997	7 month interval;
Third Mission, split, June and August 1998	15 month interval;
Fourth Mission, Joint MTR mission, June 1999	10 month interval
Fifth Mission (follow-up), November 1999	5 month interval
Sixth Mission, November 2000	12 month interval

101. With the exception of the first mission, which rated the project as having major problems, subsequent missions systematically rated it as having minor problems, which, given financial disbursements, the problems with TA and the overall lack of progress, seems to have been somewhat unrealistic.

102. The first three supervision reports identified some significant problems of implementation, which basically did not change over time:

- inadequate training and support to line agency implementation staff;
- need to transfer health and education components entirely to the relevant line agencies;
- need to restrict GTZ role to TA and training;
- lack of establishment of effective M&E system;
- absence of real and integrated AWPB conforming with UNOPS standards;
- need for rationalization of patterns of project expenditure
- need to speed up pace of physical and financial implementation, particularly in civil works; and
- recommended increased role for steering committees.

103. The 1999 follow-up mission to the MTR (of which the IE mission was only given the Aide-Memoire) reviewed all the points of the MTR and concluded that the project partners had largely conformed to the performance and timing of the activities outlined under the Implementation Action Plan. It further concluded that, since June 1999, a number of institutional and personnel changes had been made, a joint work plan had been established and required equipment and material had been purchased, all in line with the MTR. The follow-up mission emphasized an overall perception of improvement, but at the same time also pointed out that fundamental questions, raised by the MTR, remained to be dealt with. Although the 2000 mission had a far more positive view of the project, a closer analysis of its recommendations indicates the continued absence of significant improvements in project performance: it noted that of 37 major points of recommendations and action suggested by MTR, only 11 were being fully complied with. Of the remaining 26, most were either partially implemented or not at all. Moreover, it gave no grounds for optimism with respect to future improved disbursement rate or more rapid implementation of the contracts signed.

104. While supervision missions identified many problems correctly and made good suggestions, the outcome of supervision was not significant improvement in project performance, and some notable failures have taken place, in particular:

- allowing far too long gaps to occur between missions;
- insufficient follow-up on the MTR recommendations at a time when the MTR had set certain targets to be achieved within three months; in case of failure, project life was to be curtailed;
- failure to solve the problems between project management and GTZ or, at any rate, to propose more effective measures to address them;
- absence of improvements in contract management; and
- lack of intervention to ensure that the Revolving Fund became operational.

105. With respect to loan administration, replenishment of the Special Account has sometimes been delayed, and the Ministry of Finance (MOF) was not clear as to whether this was a problem in UNOPS or in IFAD HQ.

#### **4.12 Project impact**

106. Despite the many difficulties encountered, the project has had an overall positive impact on the populations, in particular those living near the project investments.

107. **Impact of roads.** Most completed road development has taken place in the northern part of the project area, between Houay Xai and Thongpeung district. There, overall reduction of passenger transport costs has been 52%, while that for freight has been 64% between the villages where a project road has been built and the provincial capital.

108. Thanks to the new roads, “village-gate” prices have improved as producers now have the possibility of selling to either the Chinese market or to the broader Lao market. They have been freed from dependence on the Thai market, which was previously their only outlet for maize and most crops except rice. The evaluation mission studied this in detail, with respect to maize, and found an average increase of 27% in the village-gate price of maize in 2001. This increase ranges from 50% in villages well located on the road network, and dropped to 4% for the villages that had the least improvement in communications. The mission also found significant differential in prices for NTFPs. Palm nuts fetched a price 20% higher in villages along the road than in remote villages, while the increase for sandalwood was 23%.

109. The average annual economic benefit of road development is estimated at between USD 38 and USD 58 per household in Thongpeung district, corresponding to an increase of USD 6 to 10 per caput. Having estimated that 4 500 households in the district are benefiting from the roads, the total annual economic benefit of road investment is in the range of USD 170 000 to USD 263 000, depending on the level of use by households. However, given that these calculations are based on use and given the assumption that the wealthier households make more use of the road, the less poor are estimated to have had a higher benefit from the road.

110. **Impact of the irrigation schemes.** On the 452 ha developed, 253 families (out of the 900 intended at appraisal) were now benefiting from improved and reliable water supply for their paddy rice fields, including 20 ha of newly developed paddy land, which was to be cultivated for the first time in 2001. Average holding per family was 1.8 ha of paddy land; although these were comparatively large holdings, the project had no say in land allocation as, with the exception of the 20 ha of new land, the land was already held by the families concerned.

111. On the upgraded schemes, incremental yield has been between 0.5 and 1.5 t/ha, from an average of 2.9 to 3.9 t/ha. The value of production has increased by about 45%, from USD 205 to USD 297/ha. On new fields it is expected to rise by over 150%. Returns to labour have risen to USD 2/day, compared to USD 1.4/day for traditionally irrigated land and USD 0.60/day for slash-and-burn cultivation. For a total cropped area of 447 ha, yields are expected to increase by 525 t, valued at USD 66 622, with a value added of USD 46 111 for the whole area developed to date. Increased household income was estimated by the mission at USD 175/year on average, or USD 29 per caput.

112. The construction cost of irrigation schemes has been very reasonable. To achieve an IRR of 12%, maximum investment cost should range between USD 1 250 for former slash-and-burn fields, to USD 5 000 if there is to be double cropping with a high-value dry-season crop such as beans. Actual cost of project developments has been an average of USD 917/ha, with the highest – on a new scheme currently under construction at Nam Gnou Special Zone – of USD 2 233/ha.



Typical headworks of a project irrigation scheme, built using local materials where possible. A number of families now benefit from improved and reliable water supply for their paddy rice fields. [Photograph: Ms Helen Lackner]

#### 4.13 Effects assessment and sustainability

113. Positive effects shown by this project are:

- that rural road construction has a significant positive impact on living standards of the poor and in particular allows them to increase the income from their cash crops by giving them better access to markets;
- small-scale irrigation development is the one intervention which can allow farmers to give up slash-and-burn agriculture and improve their living standards significantly by increasing their rice production to self-sufficiency, even though slash-and-burn cultivation is concentrated in the uplands, where irrigation schemes are costly;
- both road construction and small-scale irrigation development can be done cost effectively, particularly given the increased returns;
- targeting of minority populations can be successfully done; and
- targeting needs to be carefully designed and implemented if all intended target groups are to be reached; this must take place at the general level of community characterization as well as that of types of households within a community.

114. Most of the risks identified at appraisal have materialized. Unfortunately, the few proposed offsetting measures have either been unfeasible or ineffective.

- The issue of road maintenance is already emerging and no arrangements have been made either for maintenance of the OPEC road, or for the feeder roads built with IFAD funding.

- Staffing will become an issue as, contrary to the designed 2 incremental line agency staff, according to the MTR a total of 36 additional staff had been hired by the various departments and MTR recommended the employment of a further 8; so sustainability of their employment is questionable.
- In addition, project activities are now dependent on loan funds for operational costs, in particular DSA and transport, a change that had to be made at MTR, resulting in further dangers to sustainability.
- While the issues associated with decentralization were hinted upon, they were not detailed and have certainly slowed down the implementation process.
- Finally, self-organization and management at the community level were not likely to emerge due the weak participatory mechanisms. Even with detailed participation mechanisms at design, it is important to supervise this aspect of implementation with great care or it will be neglected, as it has been in this case.

115. Most important, although suggested in the text, the major risk of problems between national project implementation and TA was not listed. This has certainly slowed down and almost paralysed the project throughout its implementation.

116. Sustainability of project achievements is doubtful given that inadequate mechanisms have been established for village-level management of the investments:

- the WUGs are not fully operational and have not been given the training needed;
- no road maintenance mechanisms have been established for the roads built;
- VDCs are not sufficiently well trained to develop and implement village development plans; and
- the district-level LWU and Rural Development staff are neither trained nor equipped to support village-level sustainable decentralized activities.

## **5. CONCLUSION: INCLUSION OF BOKEO IN CISP**

117. Overall, in the Province, poverty decreased considerably in the 1990s. This was mainly in the districts with easy and direct access to Thailand and to commercial routes. These are also the districts where the Project has operated for the longest period (Houay Xai and Thongpeung). Other districts have been identified as very poor by the recent Participatory Poverty Assessment and project activities there have been more recently introduced (Pha Oudom, Pak Tha, Nam Gnou Special Zone) or have not started at all (Meung).

118. Project implementation has been slow. It is clear from this experience and others that absorptive capacity for development investment in Lao PDR is low. The project is unlikely to use the full loan of USD 4.1 million within 7 years from the beginning of implementation: it is barely managing to use USD 500 000 per annum of loan funds. Although the major investment in irrigation is likely to reach barely two-thirds of the intended beneficiaries, road construction has reached more people and the project is having a positive overall impact on the target group's living standards. The construction of infrastructure is the most positive and successful part of this project. Agricultural development interventions have been far less effective and the only major success in this field, the introduction and widespread adoption of new rice cultivars, can be expected to continue and increase without project or government sponsorship.

119. Implementation difficulties in the project have had two major causes, the process of decentralization and the problems related to the cofinancing of the project.

120. Difficulties related to decentralization must be described as part of the normal process of changing from a top-down to a more participatory approach and are in the process of being solved and improved through time. New procedures have been established and local administration staff members are gradually learning to process financing requests according to the format acceptable for project funding. Staff has been trained and they have benefited from the experience they have gained

in recent years and will be better able to work more effectively in the future. However, despite this progress, it would be unrealistic to expect government (local or central) to be able to disburse amounts significantly larger than those allocated for this project on rural development activities in remote areas, even if road construction takes priority over irrigation schemes. The proposal from the Formulation Mission on the new CISP project is substantially above this amount and is considered to be above the absorption capacity of Lao PDR. Therefore the Interim Evaluation strongly recommends that Appraisal reviews project design and future allocation according to proven disbursement capacity.

121. The problems connected with cofinancing have shown no sign of solution despite over five years of negotiations and formal agreements reached with supervision missions, the MTR, and, most recently, the formulation team for the new project. They cannot be solved at the project level and are inherent in the structure of the different agreements between government and GTZ and IFAD.

122. While recognizing the need for further development investment, particularly in the poorest districts of the Province, the Interim Evaluation has very strong reservations about continuing work in Bokeo under the CISP. This is mainly because of the abovementioned problems, in particular the fact that all previous agreements have failed to solve problems between the GTZ financed and the Government/IFAD financed teams. Further similar agreements are pointless. Moreover the availability of investment funds from GTZ amounting to an average of USD 500 000 per annum should be sufficient to continue activities at the level compatible with local absorption capacity.

123. Bokeo should only be included in the CISP if the following activities have been implemented by the time of the arrival of the Appraisal mission in October 2001:

- DPC and PSO senior staff have been given the opportunity to participate actively in the selection of activities and allocation of GTZ funds to different project activities alongside GTZ HQ; and
- a draft binding agreement has been reached between GTZ, SPC, DPC and PSO for the allocation of funds and the activities to be implemented for the coming 3-year phase of GTZ funding.

124. These details should be provided sub-component by sub-component, on a quarterly basis, with the following information on proposed allocation of funds:

- investment funds available by activity and district;
- running costs funds available for local line agency staff;
- funds available for experiments and purchases of materials (for example, vaccines, trees); and
- other funds sought or agreed from additional German or international agencies (e.g., KfW).

125. If all of the above has not been achieved, Evaluation recommends that Bokeo not be included in the CISP and the Appraisal mission should adjust its workplan accordingly.

126. If all the above has been achieved by the time of the arrival of the Appraisal Mission, final negotiations will take place between all the concerned parties on the activities in Bokeo under the CISP. If Bokeo is to be included, Interim Evaluation makes the following additional recommendations for implementation and design:

- SPC and DPC must take far greater responsibility and role in coordination and control of use of donor funds;
- the role of GTZ and IFAD under the new project should be clearly defined and made fully complementary; and
- project hierarchy should be clear, with all staff and advisers of the TA Team reporting to the NPD, who is responsible for coordinating project implementation on behalf of the DPC and the PSC and the Provincial Government, regardless of the origin of the source of funding. In order to pave the way for the implementation of the new project, the above recommendation should be agreed and implemented as of 1 October 2001, with detailed working and reporting procedures to be developed by the Provincial Government in consultation with the GTZ TA Team and the PSO to reflect the above.

127. In view of past history, implementation of these criteria and other structural aspects of the new CISP would be reviewed one year after project start-up. The review team would have authority to take fundamental decisions on the future of the project, including that of excluding Bokeo Province at that stage, if the management mechanisms were not fully operational.

## 6. LESSONS LEARNT AND RECOMMENDATIONS

### 6.1 Lessons learnt

128. **Project scope.** With a planned duration of 7 years and a loan of just over USD 4 million, the project is having difficulty in using up the funds provided. There are many reasons for this, including the following:

- development of decentralization and increased role of local government in implementation;
- involvement of communities in the decision-making process concerning project-financed activities;
- natural conditions, which limit civil works during the rainy season; and
- the relatively low cost of individual subprojects. While the demands on management and line agency staff time remain considerable, disbursements are much slower.

129. In view of the increasingly participatory and community-based approach of IFAD projects, a lesson from this project is that size of loans, duration of projects and disbursement schedules need to be adjusted to take into consideration the fact that participatory approaches and decentralized mechanisms are slower. However, it should be noted that the slower short-term disbursements would be compensated in the long run by improved sustainability of investments.

130. **Decentralization and participation.** These processes are linked but not identical: government decentralization policies involve increased participation of local government staff and can also increase participation at the community level. Both require more lead-in time. While this may initially slow down disbursements, it is beneficial in the long run as far greater sustainability is ensured by a participatory approach. In order to avoid some of the difficulties and problems that have occurred in the past and to ensure the sustainability of investments, it is important to always ensure that systematic beneficiary consultation and participatory mechanisms be set up and implemented from the earliest stages of any activity.

131. **Cofinancing.** This is often a major source of implementation difficulties. With respect to cofinancing with GTZ, this project is an extreme example of the situation, with what was originally intended to be a TA input having become a separate project (with different accountability structure, its own investment financing, etc.), i.e., parallel financing.

132. **Technical Assistance and co-management issues.** A major lesson of this project is that any TA should be managed within the framework of the investment project, not separately. Technical assistance personnel (whether short or long-term) should work within the framework of a single project management with a single project manager. Issues related to co-management and TA deserve serious research.

133. **Supervision.** The role of supervision is to ensure that projects are implemented according to the Loan Agreements and the Appraisal documentation. This is both a supervisory and a supportive role. Supervision should help project management to deal with constraints and problems and provide the necessary support. Supervision of this project has been inadequate, providing insufficient support. The frequency, duration and composition of supervision missions should be determined by the needs of the project, not by a blanket financial allocation.

134. **Rural infrastructure.** Rural infrastructure investments can be a major support to rural development and can assist poverty alleviation. This is the case for roads, schools and also small-scale irrigation systems. If their location is determined with good targeting, these are investments that can help IFAD fulfil its mandate of reaching the rural poor and reducing poverty.

135. **Agricultural development.** Insufficient household rice production is the prime indicator of poverty in Laos. Thus, helping increase this production is the most effective means of reaching household food security. Project focus on this sector was the correct strategy and should have remained the main project activity; diversification into a variety of other crops and agricultural interventions should have been delayed till this objective had been reached. The main lesson from this experience is that priority should be given to interventions that are known to successfully alleviate poverty effectively, at the expense of innovations whose effectiveness remains to be proven.

136. **Community Development component.** The CD component and its social mobilization and participatory development approaches should receive technical support and advice from the TA team, but should be managed and operated by local government staff; its role should be to coordinate all project interventions in the village.

137. **Sustainability.** Sustainability is the prime criterion of success of a project, and should be constantly and consistently the focus of project designers and implementers. Insofar as beneficiary participation is the main assurance of sustainability, it is essential that this participation be considered a priority in implementation. No physical works should be implemented without prior establishment of participatory beneficiary institutions (be they formal or informal) to design, manage and maintain them.

## **6.2 Recommendations**

### **6.2.1 Strategic to Government**

138. Government should address the issue of its civil service payroll. Government needs to decide which services it is to provide and make available the funds necessary to pay reasonable salaries to the staff who perform these services. Adequate provision for running costs (transport, DSA, etc.) must be included routinely in annual budgets. Without these, no investment will be sustainable.

139. Decentralization policies are making new demands on local government staff and on community-level leaders. These people have not been trained to fulfil their new tasks. To assist this process, the IE recommends that:

- village leaders be given training of sufficient duration and intensity to make a significant difference in their capacity to carry out their social mobilization and participatory development responsibilities;
- local government staff be trained in the relevant management, participatory and accounting skills so that their way of working and work culture will be changed and re-oriented gradually towards providing services to the clients in a demand-driven and participatory manner;
- an adequate number of qualified staff be re-deployed from the central and provincial level to the appropriate regional and district levels to ensure that the necessary skilled staff are available in the rural areas; and
- accountable systems and procedures be developed to implement the government policy on decentralization, such as contractual arrangements between the provincial governments and the public service providers using public funds for implementation of development project activities.

140. Once trained, district- and village-level staff should be given more responsibility and authority with respect to financial management of government and project budgets. To ensure accountability and transparency, these new responsibilities and power need to be accompanied by effective procedures of financial reporting, monitoring and supervision. The VDCs should be allocated budgets to be used at their discretion.

141. While government policies already favour supporting women, to improve effectiveness of these policies it is necessary that government implements the following measures, among others:

- (i) systematically issue land and housing certificates in the names of wife and husband for couples;

- (ii) promote increased representation of women in key decision-making positions at all levels and recruit more women in the staff of the project management and line agencies;
- (iii) provide adequate resources to ensure that women have equal and adequate access to education, family planning and health services;
- (iv) develop procedures to involve women in participatory planning;
- (v) provide gender awareness training for all staff;
- (vi) give the LWU a leading role in poverty alleviation programmes; and
- (vii) include gender-disaggregated data in reporting systems of all levels of government institutions.

142. Government would find it beneficial to review the terms of its relationship with GTZ, regardless of the fact that GTZ provides grant funds. Government has the right to demand transparency in the use of these funds, and to take an active role in the distribution and allocation of funds available for the country, as well as the working and reporting procedures between the TA team and the national counterpart.

143. Participatory mechanisms at the local government and community level are essential. They are, in the new century, routinely well designed in development projects. Participation will be strengthened by formulating enabling legislation on rural user groups (irrigation and drinking water, roads, etc.). Similarly, participation for land use activities would be improved through systematic land titling for existing farmers (which should ensure inclusion of women among titleholders). This would increase the incentive for them to participate effectively in design, construction and operation and maintenance (O&M) of the irrigation schemes and other improvement activities.

144. Government should give more attention to the positive features of minority cultures and livelihood systems and ensure that they are protected in development activities while involving minorities in economic development.

145. While government policy to reduce shifting agriculture is understandable and reasonable, in practice there are few economically viable alternatives for upland farmers. The stabilization of their agriculture has reduced fallow cycles, no alternative sustainable sources of income have been created, and insufficient lowland irrigated land is available for those who need it. Therefore the IE recommends that the policy towards stabilization of shifting agriculture be implemented more gradually, taking into consideration the availability of alternative sources of livelihood for the farmers.

146. Now that considerable experience has been developed of village level animal health services, the Ministry of Agriculture and Forestry (MAF) should conduct a study on the field experiences of the pilot programmes of VVWs in the different projects in the country. The study would be designed to issue guidelines for the future development of village level veterinary services on a user-pays basis in Lao PDR.

### **6.2.2 Strategic to IFAD**

147. IFAD should, through a detailed study, review the advantages and drawbacks of cofinancing, and possibly reconsider its strategy concerning cofinancing.

148. As TA is necessary for many projects, IFAD should develop mechanisms to ensure that roles and responsibilities between organizations delivering TA and IFAD are clearly and precisely agreed upon from project outset. Using IFAD loans for financing TA should be considered, as well as other sources of TA financing to ensure that TA fulfils the role defined at design and according to the implementation needs of projects.

149. IFAD should seriously examine its mechanisms for supervision of projects, both with respect to frequency and to content. Supervision must ensure that projects follow the spirit as well as the letter of appraisal and loan documents, and should play a more active and forceful role in project implementation support. The frequency of supervision missions should be determined by project status and could be as often as three times a year for the more problematic projects. It should routinely be twice a year (one full supervision and one follow-up mission). IFAD should review its financing of supervision to enable it to effectively support project implementation. This would, in the long run, be very cost-effective, even if apparently involving additional expenditure.

### **6.2.3 Recommendations to Government and IFAD for the design and implementation of the proposed new project**

150. **Loan size and project duration.** As the Bokeo project will have disbursed barely USD 4 million in 7 years, future loans should either be very small or be implemented over a much longer period. The new project should have more realistic disbursement and implementation schedules, which take into consideration the speed of implementation mechanisms, and the delays that result from participatory processes and from natural conditions.

151. **Cofinancing.** Design should take into consideration the fact that cofinancing will produce problems in management and hence delays in implementation.

152. If the new project is to include TA, government at the highest level should take into consideration the issues raised by this project and ensure that in future the following principles are made explicit in all financing and project documents and applied:

- A clear hierarchy with a single head in overall charge (the NPD).
- The TA Team Leader will report to the project director (NPD), who is responsible for coordinating the project implementation on behalf of the DPC, the PSC and the Provincial Government, for all day-to-day operational matters of the project, including project planning, budgeting, financing, staffing, implementation, M&E and progress reporting. The TA Team Leader will manage and coordinate the work of the staff of the TA team working for the project and report to GTZ Headquarters for administrative purposes. In order to pave the way for the implementation of the new project, the above recommendation should be agreed and implemented as of 15 November 2001, when the Appraisal Mission ends its fieldwork, with detailed working and reporting procedures to be developed by the Provincial Government in consultation with the GTZ TA Team and the PSO to reflect the above.
- The role of the GTZ TA team will be to provide training and technical advice and support to the farmers, local communities and the staff of government implementing agencies and the project management for the purpose of capacity building and institutional development. The local communities and the staff of the government implementing agencies will implement the project activities under the technical advice and support from the GTZ TA team, and the TA Team will not engage in direct implementation of project activities.
- Financial transparency of loan and grant funds will be maintained for all agencies concerned, including line agencies at the Province and District levels.
- Clear demarcation of responsibilities.
- Detailed and explicit coordination mechanisms throughout implementation to ensure that activities are brought to a satisfactory conclusion; in the case of trials, each step from experiment to field extension must be clearly detailed, and responsibility as well as the handover process to field extension must be clearly attributed.

153. **Initial environmental examinations.** Such assessments, including socio-economic impact assessment, should be carried out in future prior to construction of roads and irrigation schemes, following government directives. In the case of schemes expected to have a significant environmental impact, a full Environmental Impact Assessment should be carried out.

154. **Social services.** Investment in social services is both popular and a very effective means for long-term poverty alleviation. Forthcoming IFAD projects in Lao PDR should include such investments as appropriate and necessary.

155. **Targeting.** Project targeting strategy must be designed with sufficient detail to address known problems and to ensure that simple mechanisms are established for the implementation of targeting in all relevant fields, including the selection of locations for irrigation schemes.

156. **Participation.** All participatory aspects should be given the utmost attention as participation is the only assurance of sustainability. No activity should be undertaken unless appropriate mechanisms are in place. The following specific actions should be taken:

- Loan covenants should specify participatory mechanisms for subprojects, including design, and O&M after construction.
- Sufficient detail provision to ensure that road maintenance at the community level is effectively implemented, including training and the supply of necessary equipment.
- Supervision should systematically support and verify the level of participation for all sub-projects.
- If no long-term technical assistance is foreseen to ensure participatory mechanisms, regular short-term consultancies should be included in project design.

157. **Community Development.** The CD component and its social mobilization and participatory development, implemented by the government staff with technical support and advice from the TA team, should be the entry point and provide linkages for all other project interventions.

158. **Gender issues.** Phase two should make provision for women's role in agriculture to be fully recognized, in particular to ensure that there is female membership of WUGs and WUAs, as well as provide support for women to register land in their own names;

159. **Agricultural activities.** The next phase should reduce the complexity and number of agricultural activities of the project and focus on those proven to have rapid and real impact on the poor. In particular, it should focus on rice production and the exploitation of NTFPs, as well as their domestication. Existence and access to markets for the produce should be part of any investigations prior to agricultural interventions.

160. **Irrigation service.** Government needs to provide assurances to IFAD that the Provincial Irrigation Service will have sufficient qualified staff to design and supervise the implementation of small-scale irrigation schemes to the extent foreseen by investment.

161. **Animal health activities.** The issue of VVWs and their ability to become self-financing should be addressed adequately. Design of this component should give as much attention to the economic as to the technical aspects of this component. Unless such workers can earn a meaningful income from their work, they will not provide services to their co-villagers on a long-term, user-pays basis. A proper cool chain must be established in the project area and the possibility of buying vaccines and medicine from Thailand should be allowed, combined with a more efficient provision of high quality vaccines and medicine from Vientiane or from places nearer.

162. **Monitoring and Evaluation.** The M&E system for the new project should be designed with care, giving most emphasis and focus on approaches able to analyse and assess project impact. Participatory and qualitative methods are particularly suited to the understanding of concepts such as livelihood strategies among target groups and complex relationships between project activities, outcomes and impact.

163. **Supervision.** IFAD should make sure through its contract with the cooperating institution that supervision plays a positive role of support and direction and effectively addresses newly emerging issues, particularly with respect to targeting and participation. Sufficient funds should be made available.

#### **6.2.4 Short-term to Project and all concerned with project implementation**

- There is still time to improve the situation with respect to road maintenance. Community O&M committees should be formed for each road, given responsibility for their maintenance and given appropriate training as well as the necessary equipment.
- Design documents prepared by technical assistance staff should be translated into Lao by the TA team and transferred to the appropriate line agency departments, where they should be made available for reference as necessary.
- The PIS should recruit additional experienced staff as necessary to ensure that its implementation capacity is up to requirement.
- Contract management should be far more detailed and close to ensure speedier implementation of the currently outstanding road and irrigation contracts.

- TA staff should, for the remaining period of the project, concentrate their efforts on supporting and building capacity of local institutions and line agency staff, particularly with respect to community development. The CD staff should be primarily concerned with strengthening the capacity of the Rural Development Committee, LWU and other relevant personnel at district and provincial levels. The responsibilities for the implementation of the CD component activities should be transferred from the GTZ TA staff to the provincial government, with the GTZ TA team continuing to provide technical assistance and advice. The TA CD team will be phased out gradually. The phasing out will be completed by 30 September 2002, with the process starting 1 October 2001.
- The project should improve its extension component, and in particular ensure that adequate extension is provided during the remaining project period for the new activities it has introduced, especially fruit trees.
- The project should address the problems that have arisen concerning the vaccination programme to ensure that the largest possible number of animals are vaccinated in the remaining project period.
- The fisheries programme should be strengthened through: (i) improved site selection for ponds, ensuring water runoff from rains; (ii) adequate pond depths to ensure water even during the dry season; and (iii) improved technical assistance.
- In order to improve the present M&E system, training should be given to local staff at district and provincial level for them to be able to manage data on activity progress in a more comprehensive manner. The aim would be to focus more on why activities were successful or less so, and to report on impact.
- IE recommends that staff members responsible for future impact assessments in the field should be given more training in participatory impact assessment to enable them to carry out such tasks properly. It is recommended that concentrated support in this area be given by the TA team and others as appropriate during the remaining time of the project. Furthermore, it is recommended that external assistance should be attached to any larger field-studies.
- The re-establishment of an M&E Unit in DPC is important. It should be responsible for monitoring both GTZ- and IFAD-financed activities, as well all the development programmes in the province, and be adequately staffed. It should be in daily contact with project management.

## **7. PERSONS MET**

Ms Khempeng Pholsena, Vice Minister, Prime Minister's Office, Committee for International Cooperation, Vientiane

Mr Boua Lane, Governor, Bokeo Province

Mr Bounkong Lasoukanh, Vice Governor, Bokeo Province

### ***Vientiane***

Mr Sivixai Xaisanavongphet, Deputy Director, Office of International Cooperation,

Ms Viengthong Siphandone, Director General, External Financial Department, Ministry of Finance

Mr Eric Duflos, Consultant, World Bank

Mr Soulivanh Pattivong, OIC

Mr Soulichanh Phonekeo, OIC

Mr Rithikone Phoummasack, Ministry of Finance

Ms Vilaythong Sounnalath, Treasury, Ministry of Finance,

Ms Keophothone Inthavone, Treasury, Ministry of Finance,

Mr Phouthanouphet Saisombat, Treasury, Ministry of Finance

Mr Phan Phouthavong, Deputy, Department of Communications, MCTPC

### ***Houay Xai***

Mr Nouchanh, Deputy Director, Department of Health, Bokeo

Mr Thongtheng, Chief, Technical Office, Provincial Department of Health, Bokeo

Dr Phengsy Director of Public Health Office, Bokeo

Dr Phisit Phoutsavath, Director Provincial Hospital, Bokeo

Mr Sengpeth Satee, Director, PAFO

Mr Among, Project Coordinator, PAFO,

Mr Khampheng, Crop Department, PAFO,

Mr Khomsouk, Livestock Department, PAFO,

Mr Souksavanh, Head of Irrigation Service (PIS)

Mr Intha Keomoukda, PRDO, Bokeo

Mr Somphone, Head, Agriculture and Forestry Office,

Ms Thatsadaphone Norsing, District Lao Women's Union, Bokeo

Dr Phyengsy Vieng Savanh, Director, Public Health Department, Houay Xai, Bokeo

Mr Khomxone Veepaseuth, PAFO, Houay Xai, Bokeo

Mr Lothouheuane Thonekhasen, Deputy, DCTPC, Houay Xai, Bokeo

Mr Chom Saysongkham, Director, CPC Houay Xai Bokeo

Mr Khamking, Director, Department of Finance, Houay Xai, Bokeo

Mr Thavone Volabouth, Head of Communications Office, DCTPC, Houay Xai, Bokeo

Mr Khamseuane Sisaded, Deputy Director, Education Office, Bokeo

Mr Douangphet Suthfaeng, Education Office, Bokeo

Mr Boonpheng Sengbandid, Head of Non Formal Education, Bokeo

Mr Lars Duerkop, Coordinator, DED

Mr Peter Sommer, Ingenieur, KfW

Ms Arlina Tarigan-Sibero, KfW

### ***Houay Xai, Bokeo Food Security Project Staff and Rural Development Project in Bokeo***

Mr Bounthavy Chaleunphonh, National Project Direct, Bokeo Food Security Project

Mr Somboun Kerthlxong, Deputy NPD, BFSP

Mr Singthong Souliya, Deputy NPD, BFSP

Mr Vichith Phommachanh, Administrator, BFSP

Mr Khamvay, Accountant, BFSP

Mr Nalin, Accountant, BFSP  
 Mr Thavone Selitham, Social Services Coordinator, BFSP  
 Mr Sisouk Khounvithong, Planning and Monitoring Officer, BFSP  
 Ms Chansamone, Book Keeper, BFSP  
 Mr Sengthavy, Assistant Accountant, BFSP  
 Mr Phannola, Inventory Officer, BFSP  
 Mr Phoumy, Assistant Deputy, PD  
 Ms Phoukham, Logistics Officer  
 Mr. Siegfried Jaehn, Technical Assistance Team Leader, Rural Development Project, Bokeo  
 Mr T. Gibson, General Agricultural Adviser, Rural Development Project, Bokeo  
 Dr Pany Sananikhom, Coordinator for the Social Sector, TA team  
 Mr Somsanone Keovilak, Head of Rural Infrastructure Section, TA team  
 Mr Somchit, Community Development Staff, Thongpeung  
 Ms Sengsavang, Community Development Staff, Nam Tin  
 Ms Viengvilay, Community Development Staff, Pha Oudom  
***Bokeo Province, District Personnel***  
 Mr Ounchanh, Deputy Chief, Pak Tha District  
 Mr Bounlieh, Deputy Director, Pak Tha District  
 Mr Sichanh, Crop Extension Officer, Pak Tha District  
 Mr Laoseng, Village Head, Houay Khot  
 Ms Laoying, VDC Member, Houay Khot  
 Mr Sene Duangmang, Village Head, Done Chanh Village, Houay Kai District  
 Mr Khonkheo, Acting Mayor, Thongpeung District  
 Mr Somphone, Head of Agricultural Department, Thongpeung District  
 Mr Choita, Head of Animal Group, Khonebong village, Thongpeung District  
 Mr Choiko, Head of Agricultural Group, Khonebong village, Thongpeung District  
 Mr Kaochan, Head of Fruit Tree Group, Khonebong village, Thongpeung District  
 Mr Sengdeo, Manager of Fruit Tree Nursery, Thongpeung District  
 Mr Kham Phou, Village Veterinary Worker, Thongpeung District  
 Mr Khamtanh Kumphon, Rural Development Officer, Thongpeung District  
 Ms Khambang Laphothong, Lao Women's Union Representative, Thongpeung District  
 Mr Vongchanh, Head of Education Office, Thongpeung District  
 Mr Maivanh, Responsible for Structural Organization, Nam You Special Zone  
 Mr Khanh Thong, Socio-economic Affairs, Nam Gnou Special Zone  
 Mr Keo, Socio-economic Development, Nam Gnou Special Zone  
 Mr Phonexai, Plant Production, DAFO, Nam Gnou Special Zone  
 Mr Khamphai, Forestry, DAFO, Nam Gnou Special Zone  
 Mr Dakhom, Forestry, DAFO, Nam Gnou Special Zone  
 Mr ChanPheng, District Chief, Pha Oudom District  
 Mr Xienkham, Deputy District Chief, Pha Oudom District  
 Mr Houmphane, , Head of DAFO, Pha Oudom  
 Mr Oudong, Livestock Officer, Pha Oudom,  
 Mr Holger Grages, DED Agriculture Adviser, Thongpeung District

## **8. VILLAGES VISITED BY THE MISSION**

### **Paktha District**

- 1) Kontum
- 2) Houay Khot
- 3) Hoanam

### **Houay Xai District**

- 4) Lao Louang
- 5) Ban Nam Gnome
- 6) Donchane
- 7) Namtin

### **Thonpeung District**

- 8) Simoung Khoun
- 9) Simouang Ngau
- 10) Koubong
- 11) Sidonxai
- 12) Nakkam
- 13) Beu Neung
- 14) Namkeung
- 15) Mai Phattana

### **Nam You Special Zone**

- 16) Thamphabath
- 17) Sali Heung
- 18) Sin Say

### **Dhau Dom District**

- 19) Vieng Kham
- 20) Ponglat
- 21) Palao



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 1**

**AGRICULTURE AND RELATED ACTIVITIES**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### ANNEX 1

### AGRICULTURE AND RELATED ACTIVITIES

#### 1. AGRO-ECOLOGICAL ZONES

1. Bokeo Province is remote and mountainous, sparsely populated and difficult of access. About half is under forest, with a remarkable flora and an impressive number of endangered animal species. Deforestation and slash-and-burn agriculture have contributed to the establishment of an important bamboo-based secondary vegetation, which dominates large parts of the territory.
2. There is encroachment of agriculture into the secondary vegetation and primary forest, which must be taken into consideration when planning future programmes, to prevent any further deterioration of these fragile ecosystems.

#### 2. OBJECTIVES AND COMPONENTS

3. The primary agricultural objectives are rice self-sufficiency and more reliable production of rice; food security; increased agriculture productivity and family incomes; improved animal health; and sustainable utilization in the uplands, thus reducing slash-and-burn agriculture and opium cultivation.
4. The project was based on several components: roads, irrigation schemes, development of agriculture and related activities, and pilot watershed management.

#### 3. ACTIVITIES

5. The mission visited all four project districts and the Nam Gnou Special Zone, 21 villages in all, located in diverse agro-ecological zones within the project area, and focusing on the poorest communities of the upland areas. Activities implemented were assessed, and discussed in the field with farmers, families, Village Veterinary Workers (VVs), extensionists, agricultural groups and operators, and PAFO and DAFO staff. Interviews were held with over 60 people, around 70% of whom were women.

##### 3.1 Infrastructure

6. Feeder roads and irrigation schemes were the most important and successful activities observed in the project area.
7. **Feeder roads.** The mission travelled over many sections of the feeder roads implemented under the project, which connect various villages, including some in remote areas. The total length implemented was around 48 km, of which 7.3 km were GTZ funded (See Table A1-1). Project design envisaged the IFAD-funded construction of 40 km of feeder roads and 25 km of access roads for irrigation schemes. Roads have been built to two specifications: mostly 4.5 m wide, with some 6.0 m wide. Design was by the Provincial Department of Communications, Transport, Posts and Construction (DCTPC) and local consulting firms.
8. A positive point is:
  - correct construction and gravelling, with some exceptions.

9. Negative points are:

- insufficient use of gravel in some limited sections; and
- inadequate construction of proper head and wing walls for culverts and road ditches.

**Table A1–1.** Feeder roads implemented to date

	<b>Section</b>	<b>Location</b>	<b>Length (km) and agency</b>	
1	Thongpeung	Thongpeung	5.6	(IFAD)
2	SMG-Houay-Ngau	Thongpeung	4.6	(IFAD)
3	Done Keo-Mai Phattana	Thonpeung	10.0	(IFAD)
4	NKK-Nam-Gnao	Thonpeung	2.6	(IFAD)
5	Sidon Xai-Mai Phattana	Thongpeung	3.3	(GTZ)
6	NKM-Sidon Xai	Thongpeung	3.8	(IFAD)
7	Mai Phattana-Nakkam	Thongpeung	4.0	(GTZ)
8	Hamgnonmay-Lao Luang	Houay Xai	5.7	(IFAD)
9	Pha Oudom, 1-2-3	Pha Oudom	12.4	(IFAD)
10	Pha Oudom 4	Pha Oudom	2.3	(IFAD)
11	Ban Kounbong	Thongpeung	3.0	(IFAD)
<b>TOTAL</b>			<b>48.17</b>	

10. **Irrigation schemes** The irrigation schemes implemented to date command approximately 450 ha for the wet season, plus some 250 ha still under construction. According to project design, 900 ha of paddy land were to be developed for irrigation.

11. The mission studied various schemes at the weir construction points, the critical points in any diversion irrigation scheme. In some cases, as in Nam Nhone, land levelling, field establishment and field canals were under preparation. The mission interviewed four farmers in the field, who affirmed that the whole irrigation scheme of 55 ha would be ready for the next rice transplantation season (July).

12. Positive points are:

- the low cost of upgraded, rehabilitated and new schemes;
- Water Users' Groups had been established and some of them had also been trained for maintenance; and
- simple maintenance requirements.

13. Negatives points are:

- lack of topographic maps for existing paddy fields and for areas for expansion;
- the planning process has been insufficiently participatory. In some cases landholders have been negatively affected by the primary canal construction, without their being informed and with no compensation; and
- nothing was clear regarding water distribution efficiency, which should be verified during the next wet season.

14. Table A1–2 summarizes all the irrigation schemes so far implemented.

**Table A1–2.** Irrigation schemes implemented (upgraded, rehabilitated or new)

	<b>Scheme</b>	<b>Location</b>	<b>Command area (ha)</b>	<b>Activity</b>
1	Houay Xo	Thongpeung	80	Upgrading
2	Houay Ngau	Thongpeung	120	Upgrading
3	Nam Gnao 1	Thongpeung	50	Upgrading
4	Nam Gnao 2	Thongpeung	70	Upgrading
5	Houay Na	Thongpeung	42	Upgrading
6	Nam Gnong	Thongpeung	35	Upgrading
7	Nam Gnone Mai	Houay Xai	55	New
<b>TOTAL</b>			<b>452</b>	

15. On the whole, the infrastructure is considered adequate to meet IFAD's main objectives for the target communities. The appropriateness and effectiveness of both roads and irrigation are certain. Infrastructure remains an extremely powerful means of rural development in the poorest areas.

### **3.2 Agricultural development**

16. This component seems rather weak. With a few exceptions, no significant activities were observed in terms of new technology, new techniques, or crop development and diversification. The project area remains dominated by traditional wet season rice-based farming.

#### **3.2.1 Crop diversification and productivity**

17. On some very limited plots of land, a second rice crop could be seen, ready for harvest in late May. The transplanted cultivars were TDK1 and TDK3, which are a novelty. These cultivars, according to five farmers interviewed in two localities, had proved successful. The yield increase had been around 1 t/ha compared with the usual traditional varieties.

18. The mission examined these rice fields with particular attention. No important pests or diseases were observed, and a yield of 3 to 4 t/ha could be expected. Farmers viewed these new cultivars with interest. Procurement does not seem to be a problem: seeds are put aside season by season. No particular new techniques are applied.

19. Although the introduction of these improved cultivars is very limited, they nevertheless represent a first step towards two important goals: (i) rice yield increase; and (ii) double cropping. Under irrigated conditions, farmers begin to realize that land could be better used. Fertilization does not seem to pose particular problems, since the satisfactory results reported were obtained using green manure and dung.

20. Some 14 other varieties of rice have been tried, but no clear results obtained. Throughout the project area, the mission saw no other field crops, apart from very limited plots of maize. During late April and early May (dry season) all the areas visited (lowland and upland) appeared devoid of crops, covered with only the usual seasonal vegetation and remarkably underused, even by livestock.

21. Many farmers reported having undertaken trials and demonstrations (GTZ activities) of vegetables throughout the project area, mainly as tiny plots in their home-gardens (very limited plots and in the most favourable topographic conditions), and only sometimes in the rice field. The most common species were onion, chives, garlic, lettuce, cabbage, Chinese cabbage, cauliflower, turnips, carrot, egg-plant, bell pepper, beans, green beans, melon, water melon, cucumber, pumpkin, vegetable marrow, sweet potato, soybean, parsley, beetroot, celery, spinach and tomato. In many cases the farmers were not in a position correctly to explain what species or variety they had received, bought or grown.

22. Although many of the above species had been grown during the winter, nevertheless some of them should have remained in the field, but the mission was unable to see any. Most of the male and female farmers interviewed declared that the results were limited or unsatisfactory. The main reasons appeared to be lack of proper field technical assistance and training. Farmers and villagers confirmed that the local markets, at village level and for moderate quantities, were favourable. A certain number of the abovementioned species are well known traditional crops, and their cultivation is not a trial or demonstration activity.

23. Mushroom cultivation was a novelty in the area. It was a GTZ activity, tried in many localities and in different periods of the year. The mission interviewed many farmers and groups. To date, the results did not seem satisfactory. In Nakkam village, Thonpeung District, such cultivation had been tried two years previous, on rice-straw beds enriched with animal manure, under small hut-like units (120 × 40 cm or longer, and ca. 1 m high), made up of a timber frame covered with a plastic sheet plus leaves. The species grown seems to be the common *Psalliota campestris*. The total area was 27 m<sup>2</sup>, divided into three plots, entrusted to three agricultural development groups, each comprising seven or eight persons, male and female. The harvests were reported to have been respectively 5 kg, 500 g and 100 g.

24. In two other villages, Ponglat and Palao, Pha Oudom District, the mission saw that mushroom huts had already been established and the spawn material sown on a proper rice-straw bed some ten days earlier. In one case, numerous small mushrooms were visible; the maximum diameter was 22 mm. The temperatures inside the huts were around 45°. No significant damage due to termites, ants, rats, unwanted mushrooms or other cause could be seen.

25. This activity deserves to be properly developed, since the farmers and groups interviewed said that there is a ready market. The preferred season is the dry one, when rice straw is available, although other material can be used. Besides, in winter, temperatures seem more appropriate.

26. Ginger also has been tried in the uplands, using a new cultivar introduced from Thailand. In Houay Khot, Pak Tha District, the mission met farmers who two years previous had planted 0.5 ha of this crop. The first-year results were positive, around 4 t/ha, while in the second year the whole crop failed owing to excessive soil moisture from rains, causing the rhizomes to rot.

27. Since Thai or local traders buy this produce at the moment of planting, the sale is assured. Prices have proved interesting, but fluctuate. This crop, with proper field technical assistance and support, could be an important source of cash for the poorest in the sloping areas of the uplands.

### **3.2.2 Fruit trees**

28. The mission noted that fruit-trees had been introduced throughout the project area, with both GTZ and IFAD funding. The mission observed scattered small plantations of fruit trees in most of the villages visited. The main species were mango, litchi, guava, lemon, green orange, grapefruit, tangerine, longan, sapodilla, jack-fruit, papaw, custard apple, banana and pineapple. This project component is partially successful. However it deserves far more attention. Field technical assistance and support are needed to improve husbandry practices, which are currently ignored.

29. For example, the mission was told that, in 1997, saplings of sapodilla were distributed to 20 families in Mai Phattana village. At the time of the mission, only two families still had sapodilla fruit-trees. Usually, fruit trees are planted within the home garden. When planted in plots of land far from the village results had been generally poor.

30. In Ponglat village, the mission noted that mango and sapodilla had been attacked by a pest (black beetle) and a disease (fungal). The farmer interviewed on the problem said that he had asked for assistance, but had received none.

31. Fruit fetches good prices in the market, according to most local farmers, villagers and families. Thus, fruit trees could provide another form of crop security, to overcome difficult periods during the dry season and for use on sloping areas.

32. More specifically, the reasons for such rather modest results include:

- farmers let fruit-trees grow naturally, with no husbandry practiced;
- plantations are not supported by proper field technical assistance;
- plantations far from the village totally fail for lack of proper surveillance against animals and theft; and
- sometimes fencing is not used, even within the village.

### **3.2.3 Non-timber forest products**

33. The ethnic minorities living in the uplands depend partly on the collection of non-timber forest products (NTFPs), which provide some cash. The mission noted that several commercial and non-commercial items are commonly collected, including aromatic barks and woods (for incense and lacquer), sticlac (for resins), various different arboreal species (*Aquilaria crassna*, *Nothaphoebe umbelliflora*, *Dipterocarpus alatus*, etc.), palm fruits (*Arenga pinnata*), broom grasses (*Thysanolaena maxima*), bamboo and rattan (*Calamus* spp., *Daemonorops* spp., etc.), many aromatic, edible and medicinal plants, and mushrooms (various species). Reptiles, birds and mammals were also an object of active hunting, and many are now rare.

34. Although there are many plant species already domesticated, like palm fruit, cardamom (*Amomum villosum*) and paper mulberry (*Broussonetia papyrifera*), the mission did not see much, except of the last-named.

#### **3.2.4 Agriculture promotion groups**

35. In addition to Water Users' Associations, the project has established many groups for agriculture and livestock development, for specific topics, such as rice, vegetables, fruit trees, mushrooms, cattle, pigs, goats, poultry raising, etc. These groups are meant to act as centres of reference to better implement certain activities, including extension, training, collective requests and participation.

36. The presence of these groups in the communities visited seems insignificant. The contribution they have made to developing agriculture and related activities is limited. However, they do not have a production purpose, nor should they assume such a function.

37. In Thamphabath village, the mission visited a common fruit tree garden (GTZ), entrusted to a group of villagers. This activity had totally failed. Villagers interviewed said that they did not have time to dedicate to this garden, and that they preferred by far to receive something individually, and not collectively.

### **3.3 Livestock**

38. This component has been mainly undertaken by GTZ. The mission observed many farmers who had received buffaloes, cattle, pigs, poultry and sometimes goats, plus vaccination, medicines and extension services. Only pigs and poultry included new breeds. Some new dairy cattle had also been introduced, but the mission was unable to see these.

39. There is an agreement between the farmers and GTZ to distribute offspring from each female they receive: three chicken for each hen, three ducklings per duck, two kids per goat, two piglets per sow, and two calves per cow or buffalo. This system seems to have functioned. The mission noted that in one case a farmer had built up a flock of 11 goats, and he was very satisfied with the results.

40. Goat development is worth strengthening in the sloping areas, on wastelands, that is on the secondary bamboo-based vegetation, where nothing else could be done.

#### ***Village Veterinary Workers and vaccination***

41. The mission could not ascertain the real number of these volunteers. It was claimed that there are one or two VVWs per village, but it seemed, from mission field visits and inquiries, that those effectively working were much fewer. In Simuang Ngau village, Thonpeung District, a VVW declared that he had started two years previous, and to date had vaccinated 300 chickens and 30 pigs, and that all of them were successful.

42. A VVW was specialized in one or two types of vaccination. They were selected by village authorities, and received one or two training courses from PAFO officers, each of five to seven days, eight hours per day. During the course they received 10 000 kip, and at the end the requisite equipment for vaccination, namely an ice box, syringe, needles, bag, pot for boiling needles, and some medicines.

43. Stock-farmers pay for vaccination: 1 000 kip each for buffaloes and cows: half of this sum is for the cost of vaccination; the rest is divided into two parts, 250 kip for the village fund, and the other 250 kip for the cost of transportation. Since the VVW lives in the village, transportation cost is practically nil, which means that this small amount goes into the VVW's pocket as compensation for their work.

44. Vaccination and VVW activities merit closer examination, since the results ascertained in the field, or read in recent reports, or even from discussions with local officers, are conflicting. In 2000, there were 95 VVWs; now it seems that some have given up, others say that they have family problems, or no longer have the proper equipment they received. In conclusion, it seems that the total number of VVWs effectively working in the project area was between 15 and 20.

45. In many cases, vaccination has been successful, as stated by VVWs and farmers, while in other cases animals died. This has been mainly attributed to the bad conditions under which the vaccine is stored for too long, with no proper cooling box (due to lack of ice), especially when the vaccination is in remote areas.

46. In addition, it seems that the vaccine quality was sometimes poor, in comparison with the vaccine produced in Thailand. It appears clear that:

- vaccination has not been always successful, mainly for lack of proper cold chain equipment;
- the number of real VVWs is totally insufficient; and
- most of the VVWs have given up for lack of interest.

47. After the demonstrations, the vaccination programme was to be supported by IFAD, and this activity should be re-organized in a proper way, requiring:

- purchase of two or three robust refrigerators, simple to maintain, strategically located in the project area;
- purchase of vaccine, in adequate quantities and at regular intervals, from a reputable source;
- renewal of VVW equipment whenever necessary;
- some adequate form of compensation for VVWs; and
- privatization, as foreseen, but only from the distribution point, i.e., from the refrigerators. Up to this point, this service should remain in the hands of DAFO/PAFO.

48. It should be possible to ensure post-project sustainability by adjusting the vaccine cost. At any rate, vaccination is so important that it could be considered of social importance.

49. The mission concludes that the livestock development component has been satisfactorily implemented, while vaccination needs improvement, as noted above.

### **3.4 Fishery**

50. This component has mainly involved providing fingerlings, plus a modest technical package, for those farmers who owned ponds or dug such. The most common species were reported to be common carp, grass carp, catfish and tilapia. The mission visited some 30 of these ponds, each between 100 and 200 m<sup>2</sup> surface area and 100-150 cm in depth. In all cases, the mission found that the ponds were dry or with little water. In the latter case, some small carp – around 15 cm long – were seen; water was devoid of aquatic vegetation and of green algae, and no frogs were seen.

51. The farmers interviewed declared that in some cases the fingerlings died for lack of pond water and the consequent rise in temperatures; in other cases, they said that they had not been adequately assisted, that they neglected this activity, or ate the fish when they were little. Besides, the ponds located far from villages were also subject to theft.

52. The mission understood that there may have been properly maintained ponds, but as far as was seen, no significant results seemed to have been achieved. This component deserves closer attention, since it is an easy activity and could be a useful food security resource.

53. Further development of fishery would demand the selection of proper topographic sites in relation to water runoff from rains; adequate provision of pond depth to prevent overheating; proper integration with livestock to provide the necessary dung for fish nutrition; technical assistance and support, particularly for procurement and feeding of fingerlings; as well as protection against fish-eating snakes.

### **3.5 Pilot watershed management**

54. This component was designed as an important activity for environmental conservation and improvement of local people's standard of living. The project area included five villages, in the Namtin-Namtong region of Houay Xai district: Nam Tin, Phouvanh Neua, Pouvanh Tai, Nam Tong Neua and Nam Tong Tai. The total area was 3 911 ha.

55. It is not clear why so large an area was chosen, nor the exact list of coordinated activities to be implemented. Although some reports are full of details on local population, ethnic groups, socio-

economic conditions, education, livestock, forestry, etc., the fundamental physical data (rainfall, erosion, flora, fauna, biomass, soils, slopes, sub-catchments, stream flows, etc.) are not available.

56. At any rate this project element was abandoned. In its place, it seems that there is being implemented some kind of agriculture mixed with related activities, scattered over the original area, under the title of integrated agriculture. This is indeed a well coordinated form of sustainable activities for the best use of a particular area. However, the mission was unable to obtain any report on these activities.

57. It seems worthwhile to stress how important it would be to set up a specific, but proper, catchment management project, on a clearly identified geo-hydrological unit, with the usual coordinated activities, including limited infrastructure development, reforestation, agro-forestry, agro-pastoral units, livestock and fishery. Since Bokeo Province is predominantly hilly and mountainous, this could be a first example, useful also for educational purposes, of how to profitably manage these areas while protecting the environment.

### **3.6 Cooperation with research institutes**

58. This seemed rather neglected. The mission ascertained that there was no substantial collaboration with the research institutes of Vientiane, Luang Prabang or elsewhere, in terms of applied research or investigation on specific subjects relating to the project's needs, apart from the training activities.

59. Such cooperation should be permanent, focusing on demand-oriented applied research, above all to respond to farmers' practical requirements, concerning soils, pests, diseases, inter-cropping, crop rotation, spacing, weed control, crop failures, etc. Crop failures in particular should be the object of specific and coordinated activities: investigating causes; correcting crop repetition; and provision of extension and training when necessary. This would be useful also for educational purposes.

### **3.7 Transfer of knowledge and skill**

60. It is clear that specific innovations in technology, crop diversification, livestock development, etc., require that research, training and extension will have to become more and more responsive to the particular needs and constraints of the poorest rural people in Bokeo. It was also clear for the mission that new cooperation patterns, involving more than the government, would be necessary in order to achieve innovative solutions.

#### **3.7.1 Agriculture and Livestock Promotion Centres**

61. The mission visited all four Agriculture and Livestock Promotion Centres located in the Districts of the project area. The main buildings were completed and seemed suitable for the designed purposes. They were to be used as base for staff and extensionists, as well as housing.

62. Each Centre had been allocated cultivable flat land of between 2 and 6 ha. In Nam You, the mission found that five fish ponds were being prepared, plus another for rearing frogs; 585 fruit trees had been recently planted, mainly guava; and a small nursery of about 60 m<sup>2</sup> was cultivated with arabica coffee plantlets, some 6-8 months old.

63. In Thonpeung, the mission noted the following activities: (i) small nurseries with plantlets of eucalyptus, teak and ornamental trees, in black plastic bags laid on the ground; (ii) tiny plots of land with graze species, including stylo, siratro, rhodesgrass, buffelgrass and guineagrass; (iii) fish ponds, ca 10 × 15 m., but dry; (iv) two goats of traditional breed. This Centre had one well, about 20 m deep, but with very little water. Labelling and recording of data were lacking.

64. The mission learnt that the project planned to equip the centres and to provide some additional infrastructure in order to ensure proper function. Although the mission acknowledges the usefulness of the centres as reference points for the surrounding farmers in certain areas, the mission also considers that the government, through the centres, could explore possible areas of cooperation with private initiatives normally outside the scope of government. Relying on centres solely controlled by the government, from which extension services would be provided to the farmers, is not necessarily

the most effective course, especially in the context of Bokeo Province, where interactions between Thai and Lao farmers are quite important.

65. Traders from private companies (and public) and border trade associations are actively involved in extension activities throughout the project area. These entities play a vital role in agricultural development through the provision of inputs (seeds, fertilizers and chemicals), agricultural services (technical advice) and guaranteed markets. Because they are in a position to control the entire production chain, from input supply to marketing, and because they invest their own money to pre-finance inputs, the farmers are normally quite receptive to the innovations proposed, especially if prices are attractive. The centres could play an intermediary role between the project and government, private companies and trade associations, and farmers. The centres could serve as a showcase for innovations and new technologies introduced by private and public companies, and as an outlet for saplings, cuttings, seeds and offspring. They could sell vaccine and other animal health services. Properly equipped and staffed, they could perhaps also undertake quality control of seeds, fertilizer, etc.

66. However, centres such as these tend to have better access to resources like water, fertilizer, better land, etc., and are therefore normally not comparable with small-scale-farm conditions. Therefore on-station trials should be combined with direct trials on farmers' fields (for example, in the shape of Farmer Field Schools).

67. Assurances should be obtained that during any new project phase, if used, the centres would have revenues from selling produce and services, a process that could lead to the centres becoming private businesses, making them more sustainable in the longer term.

### **3.7.1 Training**

68. A wide range of courses have been provided in these years, financed by both IFAD and GTZ, in many subjects, including crop productivity, crop diversification, vegetables, forage plants, fruit growing, fishery, livestock and infrastructure. Trainees were usually DAFO and PAFO staff, selected villagers or model farmers.

69. Each course lasted 2-14 days, 8 hours per day, attended by 7-14 persons. Each participant received daily subsistence allowance (DSA), proper material and transportation. Trainers came from Research Institutes and Universities of Vientiane and Thailand. It is estimated that the total number of participants during the years 1997-2000 was around 1000. More precisely, the mission found that in 1999-2000, 48 courses were held, in agriculture and related activities, with an average attendance of 10 participants, with a total of some 500 participants.

70. Many of these participants attended more than one course, both for a new specialization and for refresher courses. The mission tested the performance of the trained staff in the field. In general, it can be said that the results of these courses have been positive. The trainees concerned are well acquainted above all with traditional practices. The mission noted some weaknesses relating to pests, diseases, insecticide and fungicide treatments, new techniques and technologies, which should be covered in the remaining part of the project. Emphasis should be placed also on marketing, not only on production.

71. The mission also noted that little attention has been given to the use of chemicals. This is because in the project area, apart from some treatments, chemicals are very little used. This is an advantage that should be maintained for as long as possible to take advantage in the future of premium prices for bio-produce. Nevertheless, staff and farmers must be acquainted with and trained in the use of simple, possibly non-synthetic, chemicals, to combat pests and diseases as necessary.

### **3.7.2 Extension**

72. Extension is a relatively new activity in the country. The mission tried to get a clear idea of extension performance and effectiveness, particularly through interviews with extensionists, farmers and villagers engaged in agriculture and related activities.

73. In the project area, there were ten DAFO staff (three in Thonpeung, two in Houay Xai, two in Pha Oudom, two in Pak Tha and one in Nam Gnou Special Zone); an unknown number of volunteers;

and an unknown number of workers with NGOs or other international organizations, such as CONCERN, NCA or EU.

74. Generally, the extensionists have had 11 years of school. They have received the usual training courses as described above. The extension system is a modified T&V system, with government extension officers visiting farmers on a regular basis, supplying messages based partly on their own experience and partly on messages transmitted to them by district and provincial agricultural authorities. The extension service starts from the village: here the subject is decided and the appointment is fixed. The extensionist goes to the village in the evening, and sleeps there. He gives 2-6 hours of lessons to a specific group of farmers, some in the evening and some on the following morning.

75. Regarding the functioning of the extension system, the educational level of the extension officers is considered satisfactory, and they seem to be quite enthusiastic. This can be explained by the fact that working as an extension officer can lead to higher positions within the agricultural district and provincial authority structure. This fact provides some incentive to the officers to do a good job. In addition, the project has provided the officers with transport means, petrol and DSA, which may not be sustainable in the long run, but which at least has ensured that the extension officers can meet commitments on a more regular basis.

76. On the negative side, the mission noted an absence of cooperation and permanent contacts between research and the project, contacts that could assist extensionists facing new problems. In addition, the government relies solely on a public extension service for promoting agriculture, which is a fairly traditional approach. With only 10 extension officers and a few volunteers it is in practice impossible to service all target farmers. Therefore, there is a general lack of field guidance and technical assistance for farmers who have started a new activity, trials, etc. To maximize significant dissemination of new agriculture practices, especially crop diversification, agricultural interventions should be defined jointly by target groups and prospective traders, who could be involved in the implementation process, including technical follow-up and marketing of produce. Extension officers could be part of such a process. While still being government employees, they could link up with such private traders, who could perhaps pay part of their salaries in exchange for their experience. This would require that extension officers receive training in farm management, sales and marketing, in addition to more technical issues.

77. In other words, in the extension service, the officers should be better directed, and trained to undertake a facilitative role between farmer's needs and private demands. For dissemination, the mission noted that the only type of farmer-to-farmer extension takes place in a rather spontaneous, coincidental manner. A more market-oriented focus would enhance dissemination of promising technologies, but it should be combined with the establishment of group training, Farmer Field Schools and training of more volunteers from among the farmers.

#### **4. ENVIRONMENTAL IMPACT**

78. The mission travelled throughout the project area for about 1000 km, including mountainous and remote localities. The landscape of the uplands slopes was everywhere dominated by scattered, and even massive, patches of slash-and-burn agriculture, including on very steep hills, where the oncoming rains would surely cause tremendous erosion.

79. The mission received the impression that little or nothing had been done to reduce slash-and-burn agriculture. The same could be supposed for poppy cultivation, since the mission saw no substantial alternative.

80. Since over half of the area is still forested, with a rich patrimony of plant and animal species, among which are very rare mammals on the verge of extinction, the project should examine the possibility of implementing specific actions to protect the environment, including reforestation and agro-forestry. Agro-forestry activities had been included in project design but there was no sign of their having been implemented.

## 5. ACHIEVEMENTS

81. The project has partly achieved its main objectives, that is food security, increased paddy production and improved animal health. Although some activities need to be better implemented, the mission clearly understood that the project had created a major sense of security among the targeted communities. Roads and irrigation, above all, had generated an immediate positive impact on living conditions.

82. Although the farming system is still based on one wet-season paddy crop per year, the possibility of irrigation is a supplementary but very useful practice in the event of erratic rains. This provides more security for a stable rice yield, in addition to the awareness of a possible second crop during the dry season, a practice that has already started.

83. The other project objective – that of reaching a sustainable farming system in the uplands – has not been achieved. There is no trace of a permanent cropping system capable of replacing the current destructive agriculture. The project has not been able to establish any substantial alternative.

84. A possible way to reach this objective is first to create proper infrastructure, such as roads and small hill reservoirs for fishery and irrigation, for rice and high-value crops; and second to use the most topographically favourable areas for crops, through proper land management, including some terracing, plus fruit trees and livestock. All these activities are relatively costly.

## 6. SUSTAINABILITY

85. Regarding agricultural development, it is possible that some small activities, such as new species or varieties, introduced through the project could be replicated, provided the market is favourable. Double cropping should certainly be expanded since irrigation is a great resource whose potential should be developed in accordance with market demand. The same can be said for other activities, like fruit trees, livestock and fish production, which in some ways are self-sustaining.

86. Vaccination should certainly become a routine operation in livestock husbandry: farmers will realize the convenience of spending a little money to avoid painful losses. In this respect, extension will play an important role.

## 7. WEAK POINTS

87. The mission considers, component by component, that the weak points of the implemented activities have been:

- *Agricultural development* – little crop diversification, lack of new techniques and technology, insufficient field technical assistance;
- *Fruit trees* – lack of husbandry;
- *Livestock* – irregular vaccination;
- *Sustainable upland farming* – lack of any alternative to slash-and-burn; and
- *Fishery* – imperfect water depths and choice of locations.

## 8. RECOMMENDATIONS

88. In synthesis:

- (viii) The four Agriculture and Livestock Promotion Centres should play an intermediary role between the project and government, private companies and trade associations, and farmers. They should serve as a showcase for innovations and new technologies introduced by private and public companies, and as an outlet for saplings, cuttings, seed and offspring. They could sell vaccine and other animal health services. On-station trials should be combined with direct trials on farmers' fields (such as Farmer Field Schools). The possibility should be made for the centres to obtain revenues from selling their produce and services, a process that could lead to the centres becoming private businesses, which would make them more sustainable in the longer term.

- (ix) Expand roads and irrigation, even in the uplands, wherever possible, strategically located, as a base strategy for a permanent farming system to combat poppy and shifting cultivation.
- (x) Improve fruit tree husbandry practices.
- (xi) Strengthen extension, directing part of this service towards field technical assistance for those farmers who have started a new activity.
- (xii) Strengthen agricultural development by introducing fewer but better selected changes, especially in terms of new technology, crop diversification and double cropping.
- (xiii) Strengthen vaccination by introducing an effective cold chain system, with sufficient supply of good quality vaccines and attractive compensation for VVWs.
- (xiv) Strengthen fish production through improved site selection for ponds, ensuring water supply from runoff from rains; adequate pond depths to ensure sufficient water even during the dry season; and improved technical assistance.
- (xv) Implement proper pilot watershed management on a reasonable geo-hydrological unit, with the usual coordinated agricultural and related activities, as a first model to be replicated.



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 2**

**SOCIAL ASPECTS**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### ANNEX 2

#### SOCIAL ASPECTS

### 1. INTRODUCTION

1. A number of social aspects are relevant to the analysis of this project. In addition to the questions of targeting, participation and gender that are customarily addressed by IFAD projects, a major set of issues raised by this project concern 'minorities' and their integration into national development policies. These will be marginally addressed here.

### 2. DESIGN

2. Targeting the poor and participation in implementation were integrated into the project systematically and efficiently at the design stage. As stated early on,

“Critical factors in the selection and design of the project’s investment components include: poverty orientation; people’s participation and farmer initiatives; the need for promoting local-level solutions to development problems,” (Appraisal, Main Report, para. 69)

3. Beneficiary organization and mobilization were seen as the means to “target investment to communities that conform to the socio-economic eligibility criteria” of the project (para. 71). Appraisal considered that this approach

“is entailed partly by the financial and manpower constraints of government and the need to minimize recurrent costs to government and maximize cost recovery, and partly by the fact that some project benefits are simply not attainable without beneficiary collaboration.”

4. The absence of socio-economic differentiation within the villages and their ethnic homogeneity were seen by design as facilitating the process.

5. Design did not address the issue of minorities as such. It merely mentioned targeting marginal farming systems and short-cycle shifting rotations; in fact this implies targeting minorities as they are the ones who mostly cultivate in these conditions, but this was not made explicit. It is only with respect to the educational component that ‘ethnic minorities and women’ (para. 86) are specifically targeted. At Mid-Term Review (MTR), the target group was expressly expanded, stating that ‘special attention would be devoted to ethnic minorities and women.’<sup>1</sup> (para. 10).

6. As just mentioned, women’s problems and gender issues were inadequately addressed at design, with the following statement included in the target group section: ‘Project-supported development interventions in production and social services will pay particular attention to the promotion of women’s interests and benefits.’ (para. 70). No specific proposals were made concerning women or gender issues in the agriculture component annexes or in the description of activities.

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1. As is commonly the case, it is worth noting the assimilation of ‘minorities and women’ as if both are special cases. Here minorities are in actual fact the majority, and women represent half the population, i.e., if added together they represent well over ¾ of the total population!

7. Roads, irrigation schemes and improved agriculture should benefit women, particularly among the Lao Loum<sup>2</sup>, whose traditional social organization is far more favourable to women than many other societies: it is matrilineal and inheritance is equal for men and women. Unfortunately this aspect of traditional society is being eroded by the formalization of land titles and other aspects of land tenure and land management introduced in recent years, all of which favour men in practice, even if not in principle. This issue was not addressed at design, where land titling was not discussed either in the main text or the annexes.

8. It should also be noted that, particularly concerning land development, focus on minorities is likely to balance benefits towards men, given that in minority communities women have less authority and autonomy than among the Lao Loum.

9. Appraisal designed most health interventions to make use of Technical Assistance (TA) to the line agency, focusing on advice and support of the health services, health education and training, water supply and sanitation. Only USD 21 000 were allocated from the IFAD loan for some construction. Similarly in education, most 'software' was to be provided by TA with IFAD funds concentrated on construction or upgrading of 29 primary schools, 3 preparatory schools and a vocational teachers' school, with financial provision of USD 289 500 allocated from IFAD funds.

### **3. FINDINGS**

#### **3.1 Social sector achievements**

10. Despite overall very low population density in the Province (19 persons/km<sup>2</sup>) and the small size of villages, averaging 61 households per village, the project has succeeded in reaching about 20% of the province's villages and population. These are villages and populations in which project activities take place. To this must be added those villages and populations that benefit from the improved road network, a number not easily quantified.

11. It is important to note that one activity that is very important to reduce women's work load and improve their living conditions is the supply of domestic water. Appraisal had not included any such activities except in the pilot watershed management component. It was only after MTR that money was allocated for more water supply schemes, although the amounts remained modest and, indeed, have not been fully utilized. Out of a proposed 20 schemes, only 3 were contracted at the time of the Interim Evaluation (IE) Mission, and only another 3 completed, though most of these included more than one well or storage tank.

12. The project has built 15 new schools and rehabilitated 7 with IFAD funding. There have been about 2 400 participants in training with project support in a wide variety of subjects. However the actual number of trainees was less, as many individuals benefited from more than one training course.

13. The project set up a Community Development Unit with 9 Community Development (CD) specialists, including 5 women, all of them TA staff. These were posted in the districts and worked directly with the communities. They were involved in the following activities:

- (i) assessing villagers needs, constraints and potential, and preparing village profiles;
- (ii) assisting the selection of Village Development Committee (VDC) members, and organizing their training courses;
- (iii) drafting of Village Development Plans, and subsequently following up on their implementation;
- (iv) coordinating other project activities within the communities;
- (v) supervising construction of village meeting halls, latrines and water supply systems;

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2. With a wide variety of ethnic and social groups within Lao society, there are considered to be 47 main and 149 sub ethnic groups in the country according to the 1995 Census. These have been officially classified into three groups, on the basis of habitat: the Lao Loum, who live in the lowlands situated between 200-400 m altitude; the Lao Theung, who inhabit watershed slopes and valleys around the plains between 300 and 900 m; and the Lao Soung, who live in the upper reaches of the mountains. While this definition is far from perfect and causes considerable confusion for more sociologically scientific approaches, it has been widely accepted and used in official documents and daily life.

- (vi) managing TA-sponsored Village Activity Starting Funds<sup>3</sup> and the Village Revolving Funds (two pilot Village Revolving Funds had been started with TA funds);
- (vii) following up on non-formal education and public health promotion;
- (viii) organizing village training courses in gender sensitization, communications, etc.; and
- (ix) implementing impact-monitoring activities.

14. Through the CD component, VDCs have benefited from considerable project support, through training in management, financial, and mobilization skills, as well as various concepts helpful to improved community conditions (hygiene, village cleanliness, community organization, etc.).

### 3.2 Targeting

15. *Minorities* The project Province had a minority<sup>4</sup> population of 82 238, representing 66% of the total provincial population, with considerable variations between districts, ranging from 89% in the Nam Gnou Special Zone to 42% in Thongpeung. Indeed, the Special Zone had recently been created to receive returnees and minority populations who wanted to settle in potentially more productive areas.

16. The following government policies concerning minorities were all designed to increase their integration in national development:

- (i) improving living conditions of the minorities;
- (ii) ensuring their access to education and health services,
- (iii) raising their living standards through increased agricultural production and productivity;
- (iv) encouraging their participation in the market economy; and
- (v) improving their overall integration in the national entity.

17. Within this framework, government policy was to discourage slash-and-burn agriculture, as well as the production of opium on the higher reaches of mountains. Both these activities have been characteristic of the traditional way of life of many minority populations. There was no need to discuss the rationale behind government intention to reduce poppy cultivation: the reasons were obvious. However slash-and-burn cultivation was a major feature of life in Lao and could not be expected to end rapidly. At time of reporting, it was estimated that 300 000 families relied on shifting agriculture, working 2.5 million ha; this represented almost half of the nation's 650 000 rural families. The rationale behind Government hostility to slash-and-burn agriculture can be easily understood and appreciated:

- (i) while sustainable with a very low population density, this form of agriculture was no longer sustainable with the rapid population increase that had taken place in recent decades and was continuing;
- (ii) this type of agriculture was having negative environmental impact on what little remained of the primary forest and prevented secondary forest from regenerating, thus affecting the availability of non-timber forest products (NTFPs);
- (iii) forest destruction resulted in weakening of the soils and worsening of erosion, leading to serious long-term climatic and other problems;
- (iv) slash-and-burn agriculture provided very low, and annually decreasing, rice yields, even if it allowed inter-cropping of crops desired by the populations concerned; and
- (v) as rotation periods were shrinking due to reduced yields, more new fields had to be cleared and thus more forest destroyed.

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3. These were at an embryonic stage of development.

4. Lao Theung and Lao Soung populations are considered to be 'minorities.'

18. The distribution of villages where the project worked is shown in Table A2–1.

**Table A2–1.** Distribution of villages with direct project activities

	<b>Total no. of villages</b>	<b>Project villages</b>	<b>Project villages where minorities form main population</b>
Houay Xai	132	12	12
Thongpeung	59	32	16
Pha Oudom	99	12	10
Pak Tha	48	9	5
Nam Gnou Special Zone	13	12	8
<b>Total</b>	<b>351</b>	<b>77</b>	<b>61</b>

19. In the Province, the Minority populations represented 66% of the total. It was clear that the project had concentrated its efforts among them, as can be seen partly from Table A2–1, with 79% of the villages where the project worked being populated primarily by minorities. Prior to 1998, work concentrated on Houay Xai and districts near the provincial capital, where, in Houay Xai, the project concentrated its work among minority populations, while in Thongpeung only half the villages reached were primarily populated by minorities. The change of focus took place partly as a result of the MTR, which defined project strategy as targeting the poor and ethnic minorities (para. 66).

20. Project components to develop irrigated agriculture and provide social services to the minority villages conformed to national policy. Such activities were essential to development and to poverty reduction for communities that in the past had suffered exclusion and extreme poverty. However, the following points should be taken into consideration:

- (i) slash-and-burn agriculture will only be abandoned when the communities practising it have one or more viable alternative sources of income; these certainly include irrigated rice production. Other activities could be the production of high value fruit tree crops and increased domestication of marketable forestry produce. Until such alternatives are available, the communities must be allowed to continue this form of agriculture; and
- (ii) the efforts to integrate minority communities in mainstream society must be implemented in the framework of culturally sensitive approaches that allow the minorities to retain those of their socio-cultural characteristics that are compatible with sustainable economic development in the delicate environment of the tropical forest.

21. Retaining the cultural specificity of minorities was an important government objective, which should have been better supported by the project. In particular, project staff complained of the difficulties of dealing with minorities: they did not speak Lao, they had different attitudes, they destroyed the forests, etc. Instead, the project could have made better use of its own staff from the minorities, giving them more opportunities to apply their language and social skills among their communities. In this way the project could have contributed to retaining and supporting the useful, sustainable or otherwise positive features of the minority communities' culture.

22. Most of these minority communities had maintained sustainable livelihoods for many decades prior to the upheavals of the 1960s and 1970s. Although their way of life had been fundamentally and violently destabilized and transformed by the war years, it would be appropriate to assist them to rebuild a new type of sustainable livelihood that included the best of what could be retained from their traditions, and developing new economic activities that would be both sustainable and as culturally acceptable as possible to the minorities.

23. It is also important to take into consideration the complex and sometimes antagonistic relations that have marked Lao society in the past century. The future must be built on the basis of constructive and cooperative attitudes: given Lao culture, this is likely to be easier here than it would be in a more adversarial social environment. In this respect, while the project approach of focusing on Minority communities has been very valuable, it would be important to make sure that poor mainstream communities were also included; this would avoid creating a perception that minorities were being privileged.

24. **Women and gender issues** As stated above, women were targeted in a general way, without specific interventions designed either to improve women's conditions or protect their interests, except in health and education. In the design of the main project components – agriculture, irrigation and livestock – no mention was made of gender issues or women, thus allowing the project process to ignore them.

25. In view of the already existing balance in favour of men throughout the administrative system in the line agencies, it could have been foreseen that this bias would be reproduced at the community level. Design should have included measures to ensure that women were adequately represented among beneficiaries and trainees for all agricultural activities, in crop production and livestock. In particular, efforts should have been made to ensure that women be included among the village voluntary workers, be it in crop production or livestock. Had this been done, for example, there might have been more than just 2 women out of 73 trainees among the Village Veterinary Workers (VVs); among the village agricultural extension volunteers there were no women at all. It is to be noted that there were no women among the professional staff of the Project Support Office (PSO).

26. Training was a very important activity of the project, with over 50 training courses held for villagers, with a total of about 2400 participants<sup>5</sup>; however only 31% (743) of them were women. Unfortunately, the number of women was low even in activities that were very much within the female domain, e.g., horticulture (4%), livestock production (7%), rural credit (0), non-formal education (33%) and health (15%). The only field where women were adequately represented among the trainees was community development (45%).

27. The situation was not significantly better concerning study tours: 10 tours had been held, with 107 participants, of whom only 35% had been women. Training for line agency staff has also been very much biased against women, with 25 courses held, with 420 participants, only 22% of whom were women. Even in the case of health, only 25% of the beneficiaries were women.

28. Most important, with respect to irrigation and particularly concerning the development of new lands, the allocation and titling processes have not been addressed at all from a gender perspective. While, traditionally, land among the Lao Loum communities is held equally by men and women, the titling process has tended in the Lao PDR to favour men, who are assumed to be the household heads unless otherwise stated<sup>6</sup>. This problem has arisen throughout the country and there is no reason to believe that things are different here. Although the project was asked to provide data on land holdings by sex, the evaluation team was informed that land is allocated to households and that titles are held by the head of household. The data requested were not available. This in itself is significant. In this way, a situation that was previously favourable to women is being transformed, through a 'modernization' process, into one that favours men. This is a situation where a socially sensitive initiative on the part of the project staff could have improved the gender balance in a very important matter. Project intervention could have helped avoid this development by encouraging women to formalize their holdings through the titling process.

29. Almost the same could be said concerning the Water Users' Groups (WUGs): just as women traditionally played a major role in irrigation and in water management, the formal WUGs and Water Users' Associations (WUAs) created by the Project (paralleling those elsewhere in the country) were exclusively male organizations. These examples of the negative impact on women from the introduction of new legal mechanisms and processes are situations in which a socially sensitive project management could have assisted women in retaining and consolidating their position in the community, thus playing an important role in improving the long-term gender balance. Instead, women in the project area, as elsewhere, were now experiencing a deterioration in their long-term

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5. Participants here mean those who have been part of the courses; as many people have benefited from more than one course, the total number of trainees is much lower, but this has not been recorded in detail here as it would be necessary to check the participant list of all the courses. In the field, most people met who had been trained had benefited from more than one training session.

6. This process and the negative impact on women of the establishment of formal Water Users' Associations and Water Users' Groups, and the introduction of hand tractors were likely to bring about a significant deterioration of women's status in Laos in the medium to long term. They are discussed in detail in Schenk-Sandbergen, L., & Choulamany-Khampoui, O. 1995. *Women in rice fields and offices: irrigation in Laos. Gender-specific case studies in four villages*, Keiloo, The Netherlands: Empowerment.

status simply because the implications of these changes had not been made clear. Legally, there was nothing to prevent land titles from being registered in women's names or women from being full members and leaders of WUGs or WUAs.

30. **Targeting the poor** All the poverty studies in Lao PDR confirm that minority communities were the poorest, and in this respect project strategy of selecting minority communities for priority interventions ensured a poverty focus to project activities, and was therefore successful.

31. However, within communities, whether populated by Lao Loum, Lao Theung or Lao Soung, project efforts to give priority to the poor were limited. As most irrigation scheme development had been upgrading of already allocated land, the issue of land distribution did not arise, as the farmers already held land. Selection of irrigation schemes was made primarily on technical criteria (cost and ease of construction), rather than on social criteria such as size of holdings and poverty of the community. While it is recognized that the populations of the area include many poor, there were clear variations within the communities as well as between them.

32. Although project staff stated that distribution of fruit trees and selection of volunteers and trainees gave priority to the poorest, evidence found during fieldwork in over one-third of the project villages indicated otherwise. Everywhere the Mission went, villagers firmly stated that selection of beneficiaries for tree distribution and for training was by nomination from the village head or by self-selection, i.e., volunteering. This was the case whether for selection of VVWs, Village Development Committee (VDC) members, other volunteers or participation in agricultural or livestock trials, i.e., those who would receive free trees, seeds or animals. Nowhere was it suggested that the poorest were given priority. Wherever evaluation team members had the opportunity of checking, it was clear that those receiving these benefits were among the richer within the community.

33. With respect to irrigation and other interventions, the community of Nam Keung in Thongpeung was an example. It had benefited from 3 irrigation schemes (Nam Gnao 1, Nam Gnao 2, Nam Gnone), totalling 155 ha. Only 6 women were official landholders, none was on any of the 3 WUG committees. The village was at the end of the OPEC-financed asphalt road, had a feeder road to the irrigation schemes, and had also received the only health facility built with IFAD funding. It was a Lao Loum community of 298 households, with 15 shops, 10 rice mills, 6 vehicles, 80 tractors, and a water supply scheme (due to be expanded and funds had been collected from the community to finance the new scheme). Given the quality of their housing and the overall standards of living, there is no doubt that this community qualified as one of the most comfortable visited by the team during the entire field trip. It is unlikely that their high living standards were entirely due to project interventions.

34. It must therefore be concluded that, although there had been successful targeting of poorer communities by focusing on those mainly populated by minorities, within communities, priority and advantages had been given to the less poor. This confirmed the view expressed in Supervision Reports.

### 3.3 Participation

35. **Design** As discussed above, participation of beneficiaries was seriously addressed at design, with proposals for participatory mechanisms in all aspects of project implementation. These mechanisms were described in some detail for each of the different types of groups. Design envisaged the creation of different types of associations, namely:

- (i) WUAs would be services-type groups, but have 2 sub-groups: one for fish pond management and one for communal forest management, both of which would be production groups; indeed, given that they involved management of common goods, they were reasonably designed as production groups. No other production groups were envisaged, which is perfectly reasonable given that people like to cultivate crops and tend livestock at the level of the individual family unit;
- (ii) Village Water Committees, service groups, whose task would be to manage water supply schemes;
- (iii) Highland and Upland Conservation Farmers' Associations, services associations, concerned with seed buy-back schemes, agroforestry and forest management;

- (iv) Rice Bank groups, another type of service group, who would build up rice stocks at the village level to protect villagers from fluctuation in rice prices, which work to the disadvantage of the producers;
- (v) oil processing groups, which would be demonstration groups for the introduction of oil extraction technology; and
- (vi) micro-irrigation and draught animal scheme groups.

36. Overall village-level participation was to be coordinated through the VDCs, though other specialized groups were expected to emerge as necessary and appropriate. In practice, participation of beneficiaries in project implementation has been well below what had been designed, in quality if not quantity.

37. **Irrigation WUGs** existed formally in all functioning irrigation schemes. All have adopted constitutions and regulations as suggested by the project. The Project has introduced regulations that had been developed by other agencies. In practice, however, these associations have not functioned on the basis of their official regulations and constitutions. Instead, they continued to function according to the principles of the informal groups that had been established for the management of the traditional wooden irrigation weirs and schemes that preceded the upgrading work financed by the Project. Although officers had been selected (all men), no funds were collected systematically for maintenance, nor were many of the regulations observed. However, maintenance work has been organized and shared among the beneficiaries, and they intended to collect funds on a case-by-case basis as necessary for major repairs. In view of currency depreciation and inflation, and since this system seemed to work, it appears to be fully appropriate and adequate. Evaluation sees no advantage in the creation of formal institutions when informal systems are fully functional and operational and fulfil the necessary tasks. In the long run, however, it is likely that the formal committees would become increasingly operational. Hence it is all the more important to ensure that women are included in them to avoid the creation of a gender imbalance that did not exist in water management in the past.

38. Participation in the construction and improvement of irrigation schemes has been effective in terms of the contribution by future beneficiaries of unskilled labour and locally available raw materials. However, it has not extended to consultation about design, location or any aspects of the engineering, thus leading to dissatisfaction among many beneficiaries. The mission heard many complaints that canals had been built without steps to lead to the water (despite their requests), that there were leakages and seeping of water from canal banks (see Section 3.3 in Annex 6). There was also one case, at least, where four intended beneficiaries, all of them widows, were asked to contribute to the construction and later found that their lands were not irrigated. Not only was their water supply not increased, it was reduced to zero and their fields were now useless. They had not been compensated. Evaluation was unable to establish whether this mistake was one of scheme design or construction.

39. **Roads** Road building has been a major activity of the project. Here there has been no beneficiary participation or even contribution<sup>7</sup>. Those community members who had worked on road construction had done so as paid workers, like any other workers. No committees had been established for road maintenance, no tools provided to villages to carry out the work (despite requests from district authorities) and no mechanisms set up for distribution of maintenance works among the villages concerned. Hence it will not be surprising to find that the roads soon deteriorate.

40. **Schools** Participation in school construction has been good, though again limited to the organization and supply of unskilled labour and locally available raw materials. While this involved organizing the community to ensure that contributions were fairly distributed, it seems to have underestimated community potential. This was particularly the case in one community at least, where contribution was far higher than initially intended.

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7. Except in the GTZ-financed roads, where GTZ had been providing 'food for work' and [Thai] baht 20/day to community members working on construction. As the total value of this package was worth about baht 30 compared to daily wage rates of about baht 70-100/day, GTZ considered that the difference was 'community contribution' to road building. Issues of opportunity costs or distribution of the contribution among participant villagers had not been addressed. It is notable that the food was imported from Thailand, rather than using locally produced rice.

41. **Community Development** Many of the activities under this heading were basically the mechanisms through which community participation should be organized. As discussed in appraisal, communities were to be involved in the design and management of the various project interventions. The obvious institutions for this purpose were the VDCs. The role of the project should have been to assist and support the VDCs and other relevant institutions, such as WUGs, youth groups, etc., to improve their participatory capacity.

42. Instead, the project TA set up an alternative structure with its own staff. However devoted these staff might be, their usefulness was limited as they were not transferring their skills to anyone. Only one of them was from the project Province, all the others came from elsewhere in the country and would presumably return there once their contracts were completed. The role of TA should be to support local institutions at the Province, District and village levels to develop the skills necessary to carry out the work without external support. In this case, it was the district Rural Development Committees, the Lao Women's Union staff and the VDCs who should have been implementing community development activities at the different levels. TA should have given them the necessary back-up, including formal and informal training as necessary.

43. The role and composition of the VDCs changed as a result of project influence. Committees in villages where the project operated included 2 women out of 5 members, as well as at least 2 literate people. As a result, there were more women and youth in these committees than in others, and it can be said that the project had improved their representativity in terms of age and gender. This, in the long-term, was likely to be an important empowering measure for women and youth. VDC members had also benefited from many training courses in community management and various technical activities.

44. Village Development Plans were intended to help communities organize themselves around common aims. Their creation was part of national Rural Development policy. However, in practice, in all the villages visited, they were clearly not local initiatives. The evaluation team was informed that they had been drawn up and written by the TA CD team. They appeared to be kept in storage, to be brought out when a mission came to visit. While activities that were normally included in village life were implemented (cleaning the village, building fences, repairing local tracks), others were little more than wish lists for external support. They remained wish lists since, in most cases, the village plans were not part of district or provincial development planning mechanisms. Far more work needs to be done to make village development plans a meaningful component of normal village life and to integrate them into wider district and provincial planning and implementation mechanisms.

45. **Groups** As designed at appraisal, groups were intended to be functional organizations for sharing and managing common assets or shared interests. With the exception of a few WUGs, as discussed above, these specific-interest groups have not been created. Instead, a total of 140 more-or-less virtual groups had been officially set up, 99 of them concerned with livestock or fisheries, 12 with fruit trees, 10 with other crops, 7 with rice, 9 with tractors and the remaining 3 with handicrafts. According to project staff, these were demonstration groups and a focus for extension work, as well as being groups ready to receive and use the revolving fund. As they were not involved in savings and the revolving fund had not yet been established (except by GTZ in two pilot villages), these groups had no real rationale for existence and served no function, hence people did not perceive them as existing. In most villages, the mission was told that no groups existed, even when they were listed in project documentation, and when the question was repeated and reformulated more than once.

#### **4. CONCLUSIONS AND ISSUES**

46. In brief, it can be said that the project has been successful in targeting minority communities, but far less successful in reaching the poorest households within communities. Important features of women's status have been ignored, thus making it likely that women's status would worsen through some of the development processes encouraged by the project, such as land titling and the formation of formal WUGs and WUAs.

47. With respect to minorities, the project was contributing to their integration in the national framework through improvements in education, health services and irrigated agriculture. However, insufficient attention had been given to retaining and strengthening the positive aspects of minority livelihoods, and to showing sensitivity to their culture.

48. While participation has been below the intentions of Appraisal, there has been significant community contribution to most investments, except roads, and support to VDCs should ensure better standards of participation in the future, as there were more village-level people with knowledge and capacity for self-management.

49. The composition of VDCs has been influenced by the project, and this has increased the number of women, young and educated people in the Committees. This could have a socially destabilizing effect in the long term, as it is empowering the young at the expense of the elders. While this appears positive, as younger people have a more 'modern' perspective, this devalues the experience and knowledge of the older generation. Older people have unique knowledge of cultural traditions and technical skills. In particular, they have very valuable knowledge of the management of forests and natural resources, knowing the ways of sustainably exploiting NTFPs and other resources. There is thus a risk of losing this knowledge and their skills if they are not transmitted to the younger generation. The younger generation will only be interested in this if it is considered an important positive cultural value.

50. However, while long-term participatory capacity is being improved at the village level, district staff has not been given the training and support needed to ensure that they could assist similar processes in the 80% of the province's villages not covered by the project.

51. With respect to the community contributions to school building and to irrigation systems construction, it is unfortunate that no records have been kept of the community contributions in terms of materials and labour. As a result, they cannot be accounted in terms of their financial value, which is relevant for project data. But most importantly, it means the communities are not made fully aware of the value and importance of their contribution. Such awareness would be a major contribution to community empowerment and to increasing their self-confidence with respect to their capacities and abilities for future development efforts.

## **5. LESSONS LEARNT**

52. In the Lao context, it can be assumed that design plans and supervision recommendations will be implemented. Hence it is all the more important to be specific about targeting details to ensure that all the groups of concern to IFAD are explicitly and precisely included. In the case of this project, additional details should have been included at design with respect to the targeting of women, and the poor within communities.

53. Lao Loum women have in the past benefited from higher status and less gender disadvantage than found in other societies, in Lao PDR and elsewhere. These advantages are in danger of being lost through the process of development, in particular with respect to land ownership (titling) and irrigation management (WUGs). This need not be the case: close attention needs to be given to ensure the protection of women's traditional rights and their transfer to modern structures. The overall lesson is that gender issues can be complex and need to be addressed with imagination and the approach appropriate to the specific circumstances of time and place.

54. Targeting the poor within communities requires considerable attention and is frequently neglected, either to avoid what are perceived as social problems, or to speed up and simplify implementation. However, it could be done relatively easily, simply by giving priority to the poorest for technical trials and in training as village-level workers.

55. However detailed design may have been, ensuring full participation of beneficiaries is an objective that needs close attention from highly qualified staff during implementation. Without this, it is likely to be reduced to mere contribution of raw materials and unskilled labour. Improving standards of participation is a difficult process, requiring more than the establishment of village development plans on paper.

56. Integration of minorities in national development is an objective that should be implemented with considerable sensitivity and care to allow those minorities to retain all the features of their cultures and tradition that are compatible with sustainable rural development. The loss of these cultures is something that would impoverish the world as a whole, not just the Lao PDR.

## **6. RECOMMENDATIONS**

57. It is not too late to address the issues affecting women's land titles and participation in WUGs. Action should be taken immediately within this project and included in the design of forthcoming IFAD projects in Lao PDR to ensure that women:

- (i) take up their entitlements and register lands in their own names when they have inherited or acquired them;
- (ii) be included in the committees of WUGs, at least in a ratio appropriate to their participation in irrigated agriculture; and
- (iii) are given priority in training for agriculture-related activities and trials.

58. In the remaining time of this project, and in any future IFAD project involving minorities, design and implementation measures should be taken to carefully analyse the livelihood systems of ethnic minorities and establish means of retaining all the features that are sustainable and compatible with national development policy. Specifically, field staff, particularly women, posted in these areas should be encouraged and financially supported to learn the languages of the minorities concerned. This will enable them to communicate directly with the communities and hence to learn their perceived needs and overall perceptions of social development, and plan project activities accordingly.

59. TA staff should, for the remaining period of the project, concentrate their efforts on supporting and building capacity of local institutions and line agency staff, particularly with respect to community development. CD staff should be primarily concerned with strengthening the capacity of the Rural Development Committee, Lao Women's Union and other relevant personnel at the district and provincial levels.

60. While developing alternative farming systems to slash-and-burn agriculture, the comparative destructive force of slash-and-burn and logging should be taken into consideration in determining policy. The protection of the remaining natural environment should be given priority.

61. Issues of targeting and participation arise throughout project implementation and need to be addressed by specialized experts with understanding of the issues involved. Future projects should have, at least on a part-time basis, a senior social development expert, available to advise and deal with social issues arising throughout the project period.

**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 3**

**SOCIO-ECONOMIC IMPACT ASSESSMENT**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### ANNEX 3

### SOCIO-ECONOMIC IMPACT ASSESSMENT

#### 1. INTRODUCTION

1. Bokeo Project aims to improve food security improvement in Bokeo Province, primarily through the development of rural infrastructure, including rural roads and irrigation, which have consumed the bulk of IFAD funds. The location of the completed and ongoing roads and irrigation schemes are displayed in Figures A3-1 and A3-2. The project has also funded (mainly IFAD funds) health and education infrastructure, i.e., water supply schemes, schools and one health centre.

2. Besides infrastructure, the project directly supports agriculture and livestock development through demonstrations, field trials and the establishment of agriculture promotion centres. Training and Community Development (CD) activities have also been supported (mainly by GTZ), while pilot revolving funds have been established in two villages.

3. The project operates in four districts, namely Thongpeung, Houay Xai, Pha Oudom and Pak Tha, and in the Nam Gnou Special Zone. However, initially most project activities focused on Thongpeung, and to a lesser extent in Houay Xai district.

4. The bulk of project investment in irrigation and road development has been made in Thongpeung, and the living conditions in this area have significantly improved. The mission found that the development of infrastructure had contributed to alleviate poverty by inducing qualitative changes in the socio-economic environment.

5. Because most IFAD funds were devoted to infrastructure development, this impact assessment mainly addresses the impact of road and irrigation construction, which constituted the major tangible impact of the project. The socio-economic impact of other activities has been comparatively much lower, with the exception of the construction of schools.

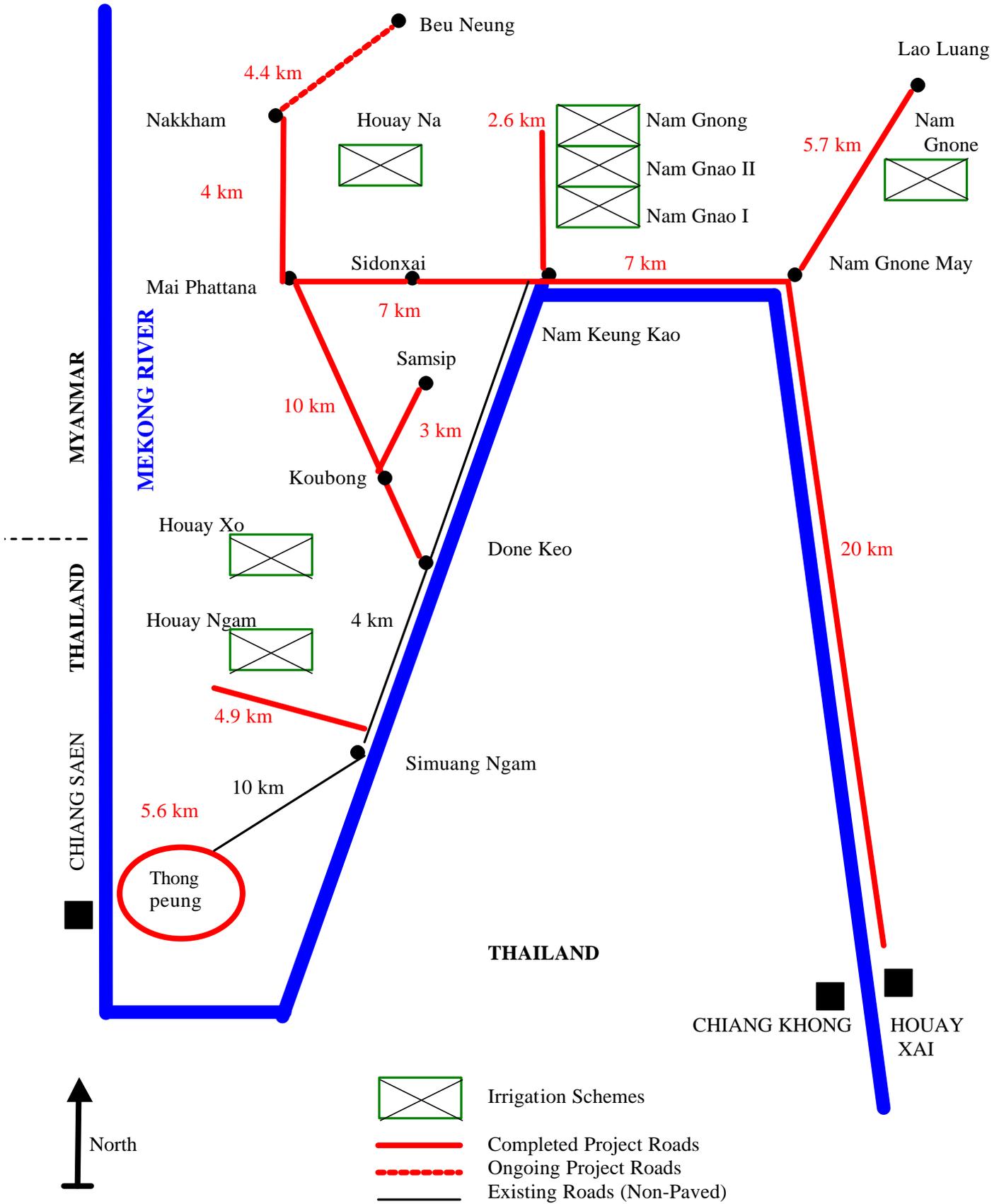
#### 2. ROAD IMPACT ASSESSMENT

##### 2.1 Current transport situation in Bokeo Province

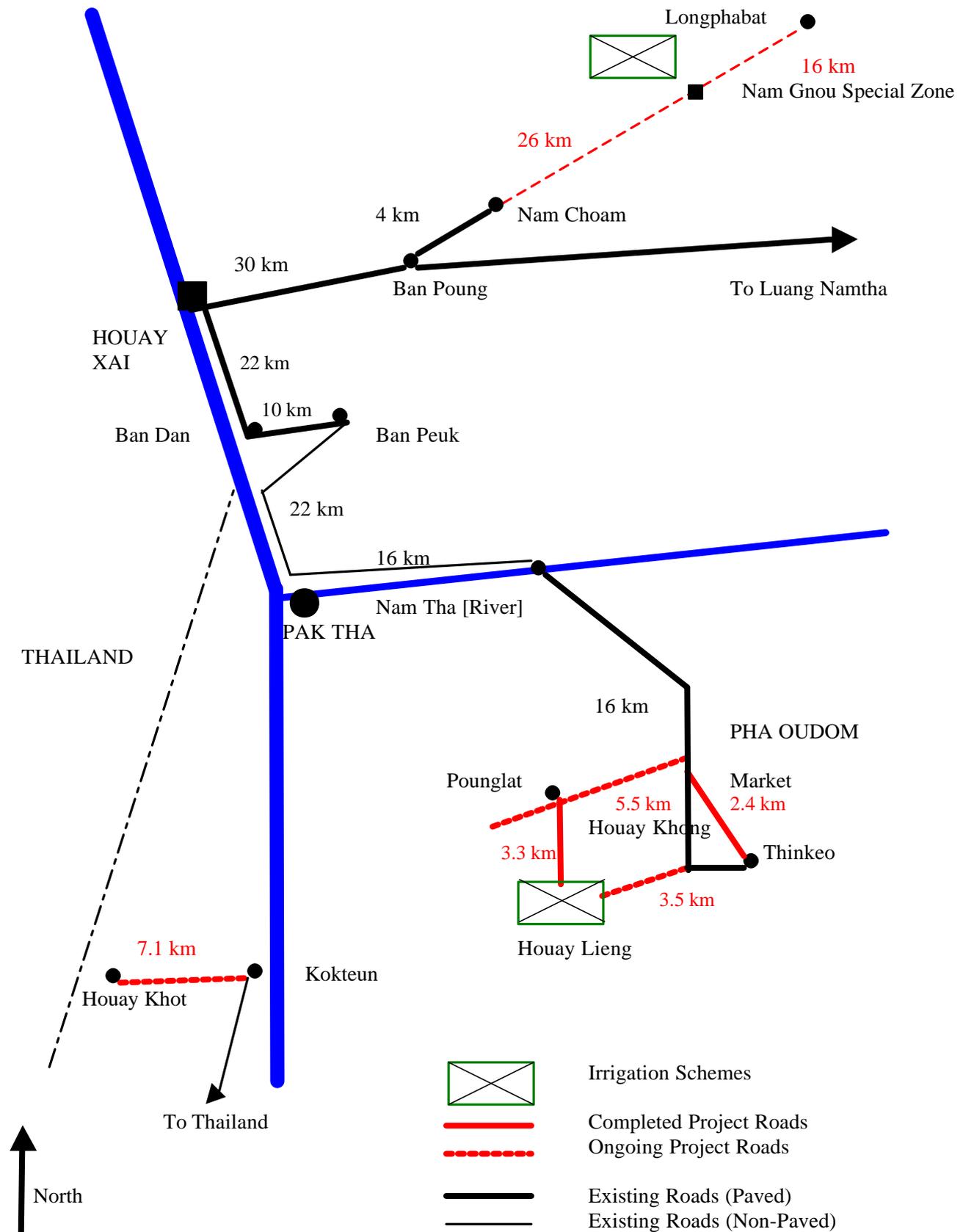
###### 2.1.1 Road network

6. Of the road network of Bokeo province, only 5% of the mileage is asphalted; the bulk (65%) consists of roads surfaced with gravel or laterite, usually allowing circulation year round, except during heavy rains, when traffic might be temporarily suspended. However, most of these roads are in bad condition and need rehabilitating to be fully eligible for the "all-weather road" designation. The remaining 30% of roads are "stripped roads" (earthen tracks), which are normally impassable during the rainy season.

Figure 1. Infrastructure Location Map (Thongpeung Area)



**Figure 2.** Infrastructure Location Map (Pak Tha, Pha Oudom, Nam Gnou Special Zone)



**Table A3–1.** Road mileage in Bokeo Province

Type of Roads	National Highways	Provincial Roads	Total	Percentage
Tarred (asphalt)	27	19	46	5.1%
Paved <sup>(1)</sup>	112	477	589	65.4%
Unpaved <sup>(2)</sup>	45	220	265	29.4%
<b>Total</b>	<b>184</b>	<b>716</b>	<b>900</b>	<b>100.0%</b>
Proportion	20.4%	79.6%	100.0%	

NOTES: (1) Paved road refers to road with a gravel or laterite surface, not asphalt.

(2) Unpaved roads are earth, with surface stripped.

SOURCE: CTPC Services, Bokeo Province

7. Along these roads, several transport modes operate regularly, i.e., pick-ups, passenger vehicles, and trucks for the transport of goods. The transport of passengers is ensured by private operators, who are grouped into an association established in Houay Xai under the supervision of the Department of Communications, Transport, Post and Construction (DCTPC). The association consists of 207 members, who each own one vehicle. Among the 207 vehicles officially authorized to transport passengers, 86 are meant for rural transport. The remaining 121 vehicles are *Tuk-Tuk* and tricycles that travel only in the town and its immediate surroundings.

8. Besides vehicles used for people transport, there are about 120 lorries and trucks in the province, which can be used for the transportation of goods as well as for construction work.

9. During nine months of the year (October-June), public transport is ensured on a daily basis to six major destinations, along four different routes (north, northeast, east and south). For the three other months – the rainy season – some of the destinations are very difficult to reach and the public transport service virtually comes to a standstill. During that period, if weather permits, public transport will only depart from Houay Xai if the vehicle is fully booked and if the passengers agreed to pay a significantly higher fare than during the dry season, to compensate for the “hardship” and the extra time involved.

**Table A3–2.** Public transport routes in Bokeo

Destination	Direction	Mileage (km)	Districts	Project Area?
<b>Route 1</b> <i>Houay Xai – Nam Keung Kao – Thongpeung</i>	North	58	Thongpeung	Yes
<b>Route 2</b> Houay Xai – Ban Dan – Ban Peuk	South	32	Houay Xai	No
<i>Houay Xai – Pak Tha – Pha Oudom</i>		86	Pak Tha and Pha Oudom	Yes
<b>Route 3</b> Houay Xai – Ban Poug – Nam Choam	Northeast	34	Houay Xai	No
<i>Houay Xai – Nam Gnou Special Zone – Muang Meung</i>		90	Nam Gnou Special Zone, Muang Meung	Yes
<b>Route 4</b> Houay Xai – Thapa – Luang Namtha	East			No

NOTES: Destinations in *italics* indicate places with difficult access during the rainy months (July to September)

SOURCE: Houay Xai Transporters Association

### 2.1.2 River network

10. The navigable river network consists mainly of the Mekong river, which is used year round for transporting both people and goods. Navigation on the Mekong remains hazardous, especially in the dry season, due to the numerous rapids and shallows.

11. Despite navigation difficulties, especially in the dry season, the Mekong remains the main communication axis for trade between the four countries of the economic quadrangle, i.e., China PR,

Lao PDR, Myanmar and Thailand. To the south, the Mekong river is also widely used for the transport of people and freight between Luang Phabang and Bokeo province. In addition, the Mekong river serves as a bridge between Bokeo and northern districts of Thailand – Chiang Saen and Chiang Khong – enabling border trade to flourish.

**Table A3–3.** Navigable waterways of Bokeo Province

Destination	River	Distance	Wet Season	Dry Season	Rapids	Shallows
Luang Phabang – Golden Triangle	Mekong	362 km	Max: 80 t	Max: 20 t	12	1
Golden Triangle – Chinese Border	Mekong	230 km	Max: 80 t	Max: 50 t	8	4
Pak Tha – Pakhat – Nam Tha	Nam Tha	200 km	Max: 2 t	Not navigable	Unknown	Unknown

SOURCE: CTPC Services, Bokeo Province

12. Several types of boat operate along these waterways, transporting either passengers or freight. For the movement of persons, the most common boat is the speedboat (6-8 persons), while, for goods, small boats (maximum 5 ton) and big boats (up to 100 ton) are widely used. In the province as a whole, the number and type of boats registered for public transport are shown in Table A3–4.

**Table A3–4.** Type and number of boats registered in Bokeo Province

Type of Boat	Passenger capacity	Number of boats	Freight capacity	Number of boats
Speedboats (Mekong river)	6-8 persons	216		
Slow boats (Houay Xai – Luang Prabang)	50 persons	25	Max: 100 t	42
Ferry boats (passenger) (Houay Xai – Chiang Khong)	8-10 persons	66		
Ferries (freight) (Houay Xai - Chiang Khong)			Max: 150 t	2
Total		307		44

SOURCE: CTPC Services, Bokeo Province

### 2.1.3 Accessibility

13. Although all five districts of Bokeo are connected to Houay Xai by road, travel becomes difficult from July to September, and even comes to a complete standstill during heavy rains. Ease of access varies throughout the province, and some districts are more accessible than others. Considering distance and passenger fares, the least accessible districts are Muang Meung and Pha Oudom, followed by Pak Tha, Nam Gnou Special Zone and Thongpeung.

**Table A3–5.** Freight costs and passenger fares in districts of Bokeo

From Houay Xai to:	Distance (km) and direction	Freight cost (average wet/dry season) (kip/t)	Passenger Fares (average wet/dry season) (kip)		
			Road	Road + Boat	Boat Only
Thongpeung	58 (north)	130 000	27 500	28 000	40 000
Nam Gnou Special Zone	5 (northeast)	200 000	35 000	n.a.	n.a.
Pak Tha	54 (south)	200 000	45 000 <sup>(2)</sup>	n.a.	20 000
Pha Oudom	86 (southeast)	300 000	66 000 <sup>(2)</sup>	46 000 <sup>(1)</sup>	n.a.
Muang Meung	90 (northeast)	400 000	72 500 <sup>(2)</sup>	n.a.	n.a.

NOTES: (1) Only in the wet season. (2) In rainy season, weather permitting.

SOURCE: Mission Findings (Appendixes A3–1 & A3–2)

14. Accessibility to Thongpeung district has been greatly enhanced by the project interventions, i.e., the construction of the main road from Houay Xai to Nam Keung Kao and the construction of feeder

roads from Nam Keung Kao to Ban Donekeo. The last section from Donekeo to Thongpeung is in bad shape and requires upgrading to improve access to Thongpeung during the rainy season.

15. Nam Ngou Special Zone is easily accessible from Houay Xai during the dry season, but the poor quality of the road makes circulation very difficult during the rainy season. After Nam Gnou Special Zone it takes about 2-3 hours of difficult driving (34 km) to reach Muang Meung, the most remote district of the province. The upgrading of the Nam Choam – Nam Gnou Special Zone – Longphabat – Muang Meung road is a definite pre-condition to the socio-economic development of this area.

16. In the southern part of the province there are two relatively inaccessible districts, Pak Tha and Pha Oudom. While the former can be easily reached by speedboat from Houay Xai, access to Pha Oudom is not possible by boat during the dry season, when the Nam Tha river is too shallow. As a result, it is a very difficult drive to reach Pha Oudom.

17. Project interventions in these districts have been minor, and although some feeder roads have been built in Pha Oudom, they do not improve the access of the district to the outside world (Houay Xai, Pak Tha), although they have facilitated internal communication within the district.

#### 2.1.4 Transport cost

18. The cost of transport decreases dramatically as the standards of the communication axis improves. For instance, improving a track, where hand tractors are the only vehicles able to travel, to a paved all-weather road will lead to a considerable reduction in transport cost: from kip 1 172 down to kip 383/person/km (a drop of 67%) for passengers, and from kip 10 547 down to kip 2 386/ton/km (drop of 77%) for freight.

19. The mission found evidence that boat transport remains quite expensive, if one considers the average cost over a year. During the wet season, when high-tonnage boats are able to navigate (up to 50 ton), transport cost is about kip 2 million for 50 t between Houay Xai and Thongpeung. This is a cost of kip 655 per ton-km. However, this cost does not include the extra labour charges associated with boat transport, compared with road transport. One extra loading and unloading has to be added, i.e., kip 20 000 per ton, or kip 1 million for 50 t. If the additional cost of labour is added, the cost of transport of 50 t between Thongpeung and Houay Xai becomes kip 3 million, i.e., kip 984 per ton-km. This cost is similar to the cost of transport on an asphalt road but takes more time, is more risky and less flexible. In the dry season, when a maximum of 15 to 20 t can be transported on some sections of the Mekong, the cost of boat transport becomes prohibitive.

**Table A3-6.** Transport cost in Bokeo Province

Type of Roads	Transport Modes	Fares (kip/person/km)	Freight cost (kip/ton/km)
Footpath	Walk	1 500 <sup>(1)</sup>	33 333
Rural Tracks	Hand tractor	1 172	10 547
Non-Paved Roads	Pick-up or truck	1 135	3 802
Paved Roads	All vehicles	383	2 386
Main Road	All vehicles	300	976
	Speedboat	702	n.a
River	3-5 tons	n.a	4 012
	15-50 tons	n.a	1 749

NOTES: (1) This figures represent the average Willingness To Pay (WTP) to avoid walking. Fares and Freight cost are unweighted average costs of both rainy and dry season.

SOURCES: Mission Findings (cf Appendixes A3-1 & A3-2); transporters association; boat/truck owners)

#### 2.1.5 Estimated traffic

20. Data on existing traffic are quite limited, especially concerning freight transport. Based on various sources of information, it seems that annual freight transport in Bokeo is almost 280 000 t, while about 145 000 passengers use public transport annually, both road and river.

**Table A3–7.** Estimated annual freight traffic in Bokeo Province

Import/Export	Destination	Tons
To/From Thailand	Houay Xai – Chiang Khong	20 136
	Thongpeung – Chiang Saen	
	Coal from Vieng Phu Kha mine	170 793
To/From China	China – Muang Mom - Chiang Saen	67 750
To/From Other Areas In-Country	Other areas – Houay Xai	20 000
Total		278 679

SOURCE: CTPC services of Bokeo Province

**Table A3–8.** Estimated annual passenger traffic in Bokeo Province

Transport Mode	Destination	Passengers
Boat	Houay Xai – Chiang Khong	60 000
	Houay Xai – Luang Prabang	50 000
	Nam Keung – Thongpeung – Mung Mom	15 000
Road	Six destinations in Bokeo (Pak Tha & Pha Oudom; Muang Ngou; Num Meung; Thongpeung; Ban Peuk; Nam Choam)	80 000
Total		205 000

SOURCE: CTPC services of Bokeo Province, Transporters Association (Houay Xai, Thongpeung)

## 2.2 Detailed impact assessment of project roads

### 2.2.1 Overview

21. The construction of roads has generated a positive impact throughout the project area by improving market accessibility, leading to higher farm-gate prices as a result of the reduction in transport cost and the opening of new market opportunities. This has led to increased rural income. Although in-depth impact assessment studies would be necessary to measure in detail the impact of roads on the living conditions of the population, the mission found evidence that the roads built by the project had brought about positive changes to rural livelihoods.

22. Beyond the significant impact on trade volume and prices of agricultural products, personal movement has been facilitated by the construction of roads, with the appearance of cheap motorized transport, including pick-ups, hand tractors, motorbikes and bicycles.

23. Not all the roads have the same potential impact. The degree of impact is largely dependent upon four main factors:

- (i) the demand for transport, expressed by the volume of existing and additional traffic;
- (ii) the existing transport facilities and cost prevailing before road construction;
- (iii) the location of the road; and
- (iv) the scale of decrease in transport costs following road construction.

24. The roads constructed by the project fall into four categories:

- (i) intra-village roads to improve the circulation in municipal townships;
- (ii) feeder roads linking a production area (irrigation scheme) with the benefiting village(s);
- (iii) feeder roads linking villages with a higher-standard road towards Houay Xai; and
- (iv) the national highway to the north of Houay Xai towards Thongpeung and the international deep water port of Ban Mom (Thongpeung district)

25. The project has primarily constructed roads in the 3<sup>d</sup> and 4<sup>h</sup> categories (68.2 km), mainly in Thongpeung and Houay Xai districts (61 km). In other districts, the road construction programme has been less significant and more oriented towards roads of the 1<sup>st</sup> and 2<sup>nd</sup> categories, which have a lower potential socio-economic impact because they do not change the overall accessibility status of the zone.

**Table A3–9.** Roads constructed by the project (IFAD & GTZ)

Type of Roads	Location	District <sup>(1)</sup>	Length (km)	Status <sup>(2)</sup>	Funding
1 <sup>st</sup> Category Intra-village Roads	Thongpeung	TP	5.6	C	IFAD
	Pha Oudom (Tinkheo – Market)	PO	2.4	C	IFAD
	Subtotal		8.0		
2 <sup>nd</sup> Category Productive fields to villages	Houay Ngau – Simuang Ngau	TP	5.0	C	IFAD
	Nam Gnao – Nam Keung Kao	TP	2.6	C	IFAD
	Houay Lieng – Ponglat	PO	3.3	C	IFAD
	Houay Lieng – Thinko	PO	3.5	O	IFAD
	Houay Khong – Thinko	PO	5.5	O	IFAD
	Subtotal		19.9		
3 <sup>rd</sup> Category Link Roads	Lao Luang – Nam Gnone Mai	HX	5.6	C	IFAD
	Done Keo – Mai Phattana - -Sidonxai – Nam Keung Kao	TP	17.0	C	IFAD: 14 km. GTZ: 3 km
	Nakkam – Mai Phattana	TP	4.0	C	GTZ
	Beu Neung – Nakkam	TP	4.4	O	GTZ
	Samsip – Koubong	TP	3.0	O	GTZ
	Houay Khot – Kaktun	PT	7.2	O	IFAD
	Subtotal		41.2		
4 <sup>th</sup> Category National Highway	Houay Xai – Nam Keung Kao	HX-TP	27.0	C	OPEC
GRAND TOTAL			96.1		

NOTES: (1) Key to the Districts: TP = Thongpeung, PO = Pha Oudom, PT = Pak Tha, HX = Houay Xai.  
(2) Status: C = Completed, O = Ongoing.

SOURCE: Project Annual Report (1999/2000)

### 2.2.2 Reduction in transport cost

26. With the development of a new road or upgrading of an existing road or track, the movement of people and goods becomes easier and faster, making life more convenient. In many instances, in the context of northern Lao PDR, the impact of rural road development is first an improvement of the day-to-day living conditions resulting from the existence of a convenient communication network to reach the two most frequent destinations of rural people: the farm (rice fields, gardens) and the market place(s).

27. The improvement in transport conditions associated with roads can normally be expressed in monetary terms, at least for the roads where public transport operates on a regular basis. This is the case for project roads in the 3<sup>rd</sup> and 4<sup>th</sup> categories. For intra-villages roads (1<sup>st</sup> category) and roads linking villages with their production areas (cul-de-sac) there is no obvious tangible monetary impact in terms of reduced transport cost, but the improved convenience for daily life is highly significant, including the reduced wear and tear of hand tractors.

28. To date, the impact of road development on transport cost is quite tangible in the northern part of the project area (from Houay Xai to Thongpeung), where the bulk of project investment in the road sector has been concentrated, but very limited elsewhere. With 31 km of link roads and 27 km of national highway, this area has undergone a dramatic change in the structure of its communication system, resulting in a drastic reduction in transport costs: -52% for passenger fares and -64% for freight transport.

29. Before the development of the road network supported by the project, this area was only accessible by boat and on foot or by hand tractor, leading to excessively high transport costs (cf. Appendix A3–3). On average, a trip to and from Houay Xai cost nearly kip 30 000 before, while it costs slightly over kip 15 000 now. For freight transport, the average cost of 1 t to or from Houay Xai has fallen from kip 181 000 to kip 116 000. The cost/km has dropped from kip 738 to kip 358 per person, and from kip 4 619 to kip 1 664 per ton.

30. As shown in Tables A3–10 and A3–11, the reduction in transport costs is less significant in Simuang Ngau and Thongpeung because the project road development does not fully reach these two localities. The last 14 km between Done Keo and Thongpeung (via Simuang Ngau) are still in a very bad shape and barely passable during heavy rains.

**Table A3–10.** Reduction in passenger transport cost in Thongpeung area

Destination	Fare (kip)			Reduction
	P <sub>0</sub> (before)	P <sub>1</sub> (after)	P <sub>0</sub> -P <sub>1</sub>	
From Houay Xai to:				
Lao Luang	24 000	8 000	16 000	-67%
Nam Keung Kao	20 000	8 000	12 000	-60%
Mai Phattana	27 000	11 000	16 000	-59%
Nakkam	30 000	12 000	18 000	-60%
Done Keo	35 000	14 000	21 000	-60%
Simuang Ngau	30 000	18 000	12 000	-40%
Thongpeung	40 000	27 500	12 500	-31%
Grand average for Thongpeung area	29 429	14 071	15 357	-52%

SOURCE: Mission Findings (cf. Appendix A3–3)

**Table A3–11.** Reduction in freight transport cost in Thongpeung area

Destination	Tariff (kip/t)			Reduction
	P <sub>0</sub> (before)	P <sub>1</sub> (after)	P <sub>0</sub> -P <sub>1</sub>	
From Houay Xai to:				
Lao Luang	143 515	36 540	106 974	-75%
Nam Keung Kao	104 304	30 000	74 304	-71%
Mai Phattana	178 131	46 705	131 427	-74%
Nakkam	209 772	56 250	153 522	-73%
Done Keo	221 225	70 568	150 657	-68%
Simuang Ngau	168 492	87 549	80 943	-48%
Thongpeung	244 714	130 000	114 714	-47%
Grand average for Thongpeung area	181 451	65 373	116 077	-64%

SOURCE: Mission Findings (cf. Appendix A3–3)

### 2.2.3 Increase in village-gate prices

31. An improved road network means better access to market, characterized by a reduction in transport cost and a corresponding increase in the village-gate price of agricultural, livestock and non-timber forest products (NTFPs). This assumes that the market is competitive and that there is not a monopoly situation with a single market outlet. In the case of a monopoly situation, the decrease in transport cost will not necessarily be passed on to the producers but will be kept by the buyer.

32. Because of the remoteness of the northern part of the province (Thongpeung area), and the lack of access to Houay Xai, and beyond that, to Luang Namtha (for China) and Vientiane, the only outlet for farmers' produce is Thailand. However, the level of tax imposed by Thailand for the import of agricultural produce is extremely high (40%), equivalent, for instance, to baht 1 (kip 200) for 1 kg of maize.

33. The isolation of Thongpeung from the Lao and Chinese markets, and its sole dependency on the Thai market, has meant that farmers have received comparatively lower prices for their products than in areas with several market outlets. This can be illustrated by maize.

34. Until the opening of the road to Nam Keung Kao and onwards to Ban Done Keo, the only possible market outlet for Thongpeung maize was Thailand. This was the result of the high transport cost to reach the other main regional market (China), due to the poor accessibility of Bokeo province in general and of the Thongpeung area in particular.

35. Currently, with the improvement of (i) the national highway from the Chinese border to Houay Xai (via Muang Sing and Luang Namtha), (ii) the national highway from Houay Xai to Nam Keung Kao (OPEC fund), and (iii) the feeder road from Nam Keung Kao to Ban Donekeo (all-weather gravelled road), the Chinese market has become easily accessible, enabling Lao farmers to get higher prices for their products: one ton of maize fetches kip 650 000 in Houy Xai (Ban Dan), compared to kip 500 000 in Thongpeung for the Thai market.

36. Provided that the demand from the Chinese market remains steady in the future, the potential benefits for farmers of the Thongpeung area are tremendous. On average, the village-gate price of maize is expected to rise by 27%, from about kip 460 000 to kip 585 000/ton. In some villages, the village-gate price could be well over kip 600 000, while in Thongpeung, the price is not expected to change very much because the last 14 km section of the road is still in a very bad shape.

37. The higher village-gate price is expected to boost maize production in the area: “If the price of maize reaches 570 kip/kg, up to 1 000 additional hectares of maize will be planted in Thongpeung, equivalent to an extra production of about 4 000 tons” (Quote from Mr Sagnavong, Director of Nam Keung Kao Export Company).

**Table A3–12.** Comparative village-gate prices for maize in April 2001

Village	To Thai Market	To Chinese Market	Increase in Village Gate Price	
	P <sub>Maize</sub> (kip/ton)	P <sub>Maize</sub> (kip/ton)	(kip/ton)	(as a percentage)
Nam Keung Kao	500 000	613 460	113 460	23%
Lao Luang	436 720	620 000	183 280	42%
Mai Pattana	426 173	603 295	177 122	42%
Nakkam	394 533	593 750	199 217	50%
Done Keo	457 812	579 432	121 620	27%
Simuang Ngam	500 000	562 451	62 451	12%
Thongpeung	500 000	520 000	20 000	4%
Average	459 320	584 627	125 307	27%

SOURCE: Mission findings (Appendix A3–4)

38. The increase in village-gate prices for other agriculture products and NTFPs could well follow the maize model if other markets outlets become available (China, Viet Nam and Vientiane). Although the mission could not gather immediate evidence that this was currently happening, except for maize, the potential was real because the transportation constraint in Thongpeung has been significantly alleviated.

39. Moreover, future road development planned by Government of Lao PDR, including the section linking the northern part of the province (Muang Mom, Thongpeung) to Houay Xai, will further enhance export opportunities to more attractive markets (China, Vientiane) while reducing the dependency on the Thai market.

40. In other areas of the project, i.e., Nam Gnou Special Zone, Pha Oudom and Pak Tha, no significant impact on village-gate prices have been noted because no roads of the 3<sup>rd</sup> or 4<sup>th</sup> categories (link roads or national highway) have been built. The impact of the roads built in Pha Oudom (inner city and links to productive areas) can not really be measured in monetary terms, but can be expressed in terms of “improved convenience” and “time saving.”

41. As a result, the prices of agriculture and NTFP commodities are still significantly lower in these areas than in Houay Xai and Thongpeung. For instance, the village-gate price of palm fruits (*mak tao*) was kip 2 000-2 200 in a village well connected to Houay Xai (Nam Keung Kao), while it was only kip 1 700-1 900 in remote areas (Nam Gnou Special Zone, Muang Meung). For sandalwood, a difference of 23% was observed between the factory price and the price in Nam Ngou.

**Table A3–13.** Village-gate price of palm fruit (*mak tao*)

Destination	Village-gate price (kip/ton)	Difference (kip/ton)	Percentage
Nam Keung	2 100 000		
Nam Gnou Special Zone	1 900 000	-200 000	-10%
Muang Meung	1 700 000	-400 000	-19%

SOURCE: Agriculture and Forestry Development Company, Bokeo

**Table A3–14.** Village-gate price of sandalwood (*mai khetsana*)

Destination	Price (kip/kg)	Difference (kip/kg)	Percentage
Factory (Ban Pong, main road to Houay Xai)	6 500		
Nam Gnou Special Zone	5 000	-1 500	-23%

Source: Agriculture and Forestry Development Company, Bokeo

#### 2.2.4 Economic impact: User Cost Saving

42. Although the relationship between roads and economic development is methodologically difficult to establish and to measure, as put forward by well known development economists<sup>1</sup>, several studies<sup>2</sup> have shown the positive economic impact of roads, especially on agricultural productivity, the introduction of cash crops and farmer income.

43. Despite some methodological uncertainty, it is possible to measure the economic impact of roads, following the Users' Cost Saving method, based on the principle that a new road induces a reduction in transport cost, which in turn induces an incremental demand for transport, measured by the increase in passengers and freight traffic. The economic benefit is equivalent to a consumer's surplus corresponding to the difference between the price effectively paid and the price the consumers were paying before the construction of the road.

44. The formula used for to estimate this consumer surplus is:

$$UCS = \frac{1}{2} * (T_0 + T_1) * (P_0 - P_1) * L$$

Where:

- UCS = User Cost Saving induced by the road (economic benefit of the road)
- T<sub>0</sub> = Traffic volume before the construction of the road
- T<sub>1</sub> = Traffic volume after the construction of the road
- P<sub>0</sub> = Transport cost per kilometre before the construction of the road
- P<sub>1</sub> = Transport cost per kilometre after the construction of the road
- L = Length of the road

45. The economic benefit of the roads developed by the project is expected to be significant in Thongpeung area, where the bulk of project investment has been made. As mentioned earlier, the benefit of road development in Pha Oudom is mainly improved convenience, not easily expressed in terms of user's cost saving. Although the immediate benefit of improving access to productive areas is real, no shift in transport modes used occurred and transport cost remains the same as before. Farmers continue to use hand tractors to carry their produce from the rice fields to the villages. If the access is improved, the trip will be easier and shorter, but a decrease in transport cost is not likely. For

1 Ahmed and Donovan, 1992, in *Issues of Infrastructure Development: a Synthesis of the Literature*. International Food Policy Research Institute; Cravelle Creightney, 1993, in *Transport and Economic Performances: a Survey of Developing Countries*. World Bank.

2 J.M. Antle. 1983. in *Infrastructure and Aggregate Agricultural Productivity*. (Economic Development and Cultural Change, Volume 31); Hans Binswanger, 1983. in *Growth and Employment in Rural Thailand*. World Bank Report, Bi 3906-H.

instance, transport cost along Houay Ngau feeder road remained the same before and after construction, i.e., 10% of the paddy transported.

46. Although quite positive, the impact of the rural feeder road programme will only be fully visible when the main connections between Houay Xai and the district headquarters of Thongpeung, Pak Tha and Pha Oudom has been upgraded.

47. For road links aiming at improving the overall accessibility status of villages, economic benefit is expected to be significant in Thongpeung because a shift in modes of transport occurs, leading to drastically lower transport cost (see Tables A3–10 and A3–11). The average UCS in Thongpeung area was estimated by averaging the reduction in transport cost that occurred between Houay Xai and Lao Luang, Nam Keung Kao, Mai Phattana, Nakkam, Done Keo, Simuang Ngau and Thongpeung.

48. To estimate the UCS induced by road development in Thongpeung, two scenarios were developed, reflecting different levels of demand for transport. Scenario 1 is based on the transport demand generated by 1 household:

- 8 person-trips to Houay Xai per year; for instance, 1 return trip for 4 persons per year, or 4 return trips for 1 person; plus
- 2 t of goods transported per year to or from Houay Xai; for instance, 1 t out and 1 t in.

49. Scenario 2 is based on the transport demand generated by 1 household:

- 4 person-trips to Houay Xai per year; for instance, 1 return trip for 2 persons per year, or 2 return trips for 1 person; plus
- 1 t of goods transported per year to or from Houay Xai; for instance, 0.5 t out and 0.5 t in.

50. In addition to UCS, improved access has stimulated additional agriculture production, maize for instance, due to higher prices obtained on the Chinese market. Under both scenarios, the average induced value added is estimated at 500 kg of maize per household, equivalent to kip 150 000 (USD 17.4), based on the return obtained for maize (yield of 4 t/ha; sales price kip 600 000/t; production cost of kip 1.2 million/ha, or kip 300 000/t, giving a value added of kip 300 000/t).

51. As shown in Table A3–15, it is estimated that the average annual economic benefit of road development stands between USD 37.9 (Scenario 2) and USD 58.4 (Scenario 1) per household, corresponding to an increase of Gross Development Product (Value Added) of between USD 6 (Scenario 2) and USD 10 (Scenario 1) per caput. Considering that 4 500 households of Thongpeung area have benefited from the roads, the total annual economic benefit derived from road investment is between USD 170 000 (Scenario 2) and USD 263 000 (Scenario 1).

52. All the households living within the command area of the roads benefit directly from road development, with no discrimination whatsoever, although the extent of the benefit is higher for more affluent households (Scenario 1), who have a higher demand for transport than the less affluent households (Scenario 2). Nevertheless, road development remains a very powerful means to reach the poor, although indirectly, through the increased village-gate prices of agricultural produce and NTFPs, and reduced transport cost.

**Table A3–15.** Estimated annual benefit from roads in Thongpeung area (for 1 Household)

User Cost Saving  Annual Freight = $\frac{1}{2} * (T_0 + T_1)$  (tons)	Annual Passengers Traffic = $\frac{1}{2} * (T_0 + T_1)$ (person-trips)			
	4 trips (Scenario 2)	8 trips (Scenario 1)	4 trips (Scenario 2)	8 trips (Scenario 1)
	(kip)		(USD)	
1 ton (Scenario 2)	176 215		20.5	
2 ton (Scenario 1)		352 430		41.0
Induced Agricultural Value Added = 0.5 t × kip 300 000	150 000	150 000	17.4	17.4
Total economic benefit/household/year	326 215	502 430	37.9	58.4

NOTE: Exchange rate based on USD 1 = kip 8600

SOURCE: Appendix A3–3

**Table A3–16.** Estimated total annual benefit from roads in Thongpeung area

UCS  Annual Freight = $\frac{1}{2} * (T_0 + T_1)$  (tons)	Annual Passengers Traffic = $\frac{1}{2} * (T_0 + T_1)$ (person-trips)			
	18 000 trips (Scenario 2)	36 000 trips (Scenario 1)	18 000 trips (Scenario 2)	36 000 trips (Scenario 1)
	(million kip)		(USD)	
4 500 t (Scenario 2)	793.0		92 206	
9 000 t (Scenario 1)		1 585.9		184 411
Induced Agricultural Value Added = 2 250 t × kip 300 000	675.0	675.0	78 488	78 488
Total economic benefit/year	1 468.0	2 260.9	170 694	262 899

NOTE: Exchange rate based on USD 1 = kip 8600

SOURCE: Appendix A3–3

### 2.2.5 Analysis of cost-effectiveness of road investment

53. Considering the demand for transport and traffic estimated under the two scenarios, the break even for road investment to get an internal rate of return (IRR) of 12% has been estimated in Table A3–17. If the full span of benefits materialize (UCS + Link Roads), in the Thongpeung area the break even investment cost per km is between USD 30 000 (Scenario 2) and USD 47 000 (Scenario 1).

**Table A3–17.** Break even for road investment in Thongpeung area. Maximum investment (maintenance: 2.5% every 3 years; road life: 20 years) for an IRR of 12%

Economic Benefit	Investment Cost			
	(Scenario 1)		(Scenario 2)	
UCS alone	33 054	USD/km	16 527	USD/km
UCS + Value Added	47 122	USD/km	30 595	USD/km

SOURCE: Appendix A3–3

54. With the noteworthy exception of the national highway built between Houay Xai and Nam Keung Kao, the investment cost per km of link roads does not exceed USD 36 000, while the average is well below USD 30 000/km. Based on mission findings, it can be asserted that the economic returns of the link roads developed in Thongpeung are quite satisfactory, with an IRR well above the threshold level of 12%.

55. The economic value of the road built with OPEC funding between Houay Xai and Nam Keung Kao is, to date, not visible. Indeed, the high investment cost (about USD 150 000/km) does not make economic sense unless the road continues to the international river port on the Mekong at Muang Mom. When that extension occurs, the road is expected to capture a significant part of the freight currently coming along the Mekong river from China. Currently, about 70 000 t of goods from China transit annually through Muang Mom before being exported to Thailand and Myanmar, bringing in about kip 115 million in government revenues each year. When the road from Houay Xai to Muang Mom is completed, a high proportion of the freight from China can be expected to transit by road via Luang Nam Tha, rather than using the Mekong.

56. Under these circumstances, when the full length of the highway is developed, the high investment cost for the road from Houay Xai to Nam Keung will be justified. Considering a projected traffic level of 100 000 t and 50 000 person-trips per year along the Houay Xai – Muang Mom road, and an induced agriculture production of 4 000 t, the rate of return on the investment would be 12.9% (cf Appendix A3–6).

57. As mentioned earlier, roads linking production areas with village(s) do not have a significant economic impact, but provide convenient access to farmers' fields.

### **2.2.6 Social and environmental impact**

58. While increase in traffic and reduction in transport cost are easily measurable and can be directly attributed to the road itself, diffusion of technology and social change are not easily measurable and can rarely be attributed to the road alone. Beyond the benefits directly attributable to the road (user cost saving, farmer income), road development has a wider social and environmental impact.

- (i) *Reduction of slash-and-burn agriculture.* By facilitating access to market, new opportunities for agricultural diversification, income generation and employment will materialize for the poor. The gradual emergence of a more market-oriented rural economy will eventually lead to the transformation of the traditional farming system and less slash-and-burn agriculture.
- (ii) *Food security and poverty reduction.* The positive economic benefits of road development will induce an increase of rural income, saving and investment capacity, thus contributing to stabilize rural livelihood, to reduce poverty and to improve food security. The incremental economic benefit deriving from roads, about USD 38/year for the poorer households (Scenario 2), means an additional purchasing capacity equivalent to about 250 kg of rice.
- (iii) *Permanent settlement* An important social benefit of road development is that it works against further migration of the villages that benefit. Once the road is there, the village is unlikely to move again. Once the population is settled, social and economic integration is greatly facilitated.
- (iv) *Enhancement of trust between ethnic minorities and the government.* This impact is quite important insofar as the strengthening of the unity of Lao society is concerned. Constructing a road to a remote place is also a political act, indicating in real terms, not only in words, the degree of solidarity the nation shows to the people living in such remote places. This positive act will enhance the relationship between government and the people and will facilitate mutual understanding and trust.
- (v) *Improved access to social services.* With the upgrading of communication facilities, access to schools, health centres and other public services will be facilitated. In the same way, the staff of different government services will have better access to the villages, which will facilitate development work as well as the implementation of government policies.
- (vi) *Social change, cultural change.* Construction of roads is often the starting point for future changes that will affect the way a community lives, produces and reproduces itself. Direct exposure to outside influence, values, way of life and culture is expected to modify the traditional cultural references of the communities, giving rise to new needs, desires, attitudes and expectations. Such a process is not without risk, and social problems may arise out of people's frustrations that all the new needs generated by the modern way of life cannot be easily met. These frustrations could be particularly acute for teenagers looking for a new way of life at odds with the reality of their daily life.

59. No significant negative social or environmental effect was noted. However, the following should be noted:

- (i) *Disruption of water drainage systems.* Beneficiaries have cut the roads to enable water flows to paddy fields between Mai Phattana and Donekeo. Culverts should have been installed to preclude the problem.
- (ii) *Dust and accidents.* The high speed of some vehicles through villages raises a considerable amount of dust, causing serious inconvenience to the residents. Speed-breaks could be constructed at both ends of villages to force passing vehicles to reduce speed. Eventually this should also help to prevent accidents.

### **2.2.7 Impact sustainability**

60. The improvements described above will be sustainable as long as transport costs remain at their current level, i.e., as long as the road is well maintained. Any deterioration of road conditions will be passed on to users by the transporters through an increase in transport costs. If the transport cost increases, the users' cost saving will vanish. The issue of road maintenance is critical to ensure sustainability but, so far, no specific steps have been taken to establish a community-based maintenance system involving the beneficiaries. Such a system would make it able to prevent serious damage to the roads as maintenance tasks could be performed routinely.

## **2.3 Lessons learnt**

### **2.3.1 General**

61. The mission found that the development of roads in rural Laos remains an extremely powerful tool for socio-economic development and poverty alleviation. With road construction, a series of positive socio-economic changes take place, including

- improved accessibility and decrease of transport costs;
- higher sale prices for farm products and NTFPs;
- decrease of village prices for imported goods (fuel, salt, etc.);
- increased demand for labour; and
- creation of more opportunities for income diversification.

62. In turn, these will contribute to raise rural incomes, improve food security and reduce poverty, while improving access to social services, such as education and health.

63. Among the roads constructed, the village links and the national highway have the most significant positive social and economic impacts on the communities served in general, and on the poor in particular. Benefits of other roads (to production areas or villages) are less measurable. They contribute to improving the quality of life of beneficiaries through easing transport difficulties near their home and workplaces.

### **2.3.2 Cost-effectiveness of road investment**

64. Roads built are cost-effective, except for the national highway from Houay Xai to Nam Keung Kao. This can be justified only when the full stretch of the highway is completed up to the international port on the Mekong at Ban Mom.

65. Based on the actual impact of roads in Thongpeung, the mission found that the maximum investment cost to ensure a rate of return of 12% is within a range of USD 30 000 and 47 000, depending on the level of traffic.

66. Using the transport cost data obtained in Bokeo, the minimum road traffic requirement to ensure that a road investment is cost effective (e.g., IRR of 12%) has been estimated in order to facilitate decision-making in the future with respect to the definition of an acceptable level of investment (see Appendix A3–5). Assuming that, on average, each household transports 1 ton of freight per annum, the minimum number of households using the road has been estimated as shown in Table A3–18.

**Table A3–18.** Minimum Traffic Requirement For Cost-Effectiveness of Road Investment

<b>Change of Road Type</b> From (existing situation) >> to (after construction)	<b>Maximum Investment Cost</b> (USD)	<b>Annual Passengers</b> (person-trips)	<b>Annual Freight</b> (ton)	<b>No. of house- holds in the area affected</b>
Boat <sup>(1)</sup> >> Paved Roads <sup>(2)</sup>	30 000	32 169	16 085	16 000
Boat >> Main Road	150 000	73 914	49 276	49 000
Rural Track >> Non-Paved Road	10 000	8 756	1 751	1 700
Rural Track >> Paved Road	25 000	11 813	2 363	2 300
Rural Track >> Main Road	145 000	59 093	11 819	11 800
Non-Paved Road >> Paved Road	15 000	18 573	3 715	3 700
Non-Paved Road >> Main Road	135 000	76 493	38 247	38 200
Paved Road >> Main Road	120 000	182 000	91 000	91 000

NOTES: (1) Boat: speedboat for passenger transport and small boats (3-5 ton) for freight transport.

(2) Gravel or laterite roads, not asphalt.

SOURCE: Mission field work

### 3. IRRIGATION DEVELOPMENT

#### 3.1 Overview

67. Although this has to be confirmed in the future through a fully-fledged impact assessment study, the mission gathered evidence of the positive impact of the irrigation component on rice production, rice yields and farm income.

68. To date, as a direct result of project intervention, 412 ha of existing paddy fields have secure access to water during the wet season, and 20 ha of slash-and-burn fields are being developed into paddy rice fields and should be ready for cultivation this year (Nam Gnone scheme).

69. As the extension area of Houay So scheme could not yet be developed due to water shortages resulting from leakage of the main canal and erosion problems, the achievement of the project (IFAD funds) in terms of new rice fields development is, to date, limited to 20 ha. However, considering the two medium-scale schemes currently under construction, 252 ha of new paddy fields are expected to be developed in 2002, i.e., a total of 272 ha for the entire project, and possibly 292 ha if the Houay So scheme reaches its full potential.

70. Besides IFAD financing, GTZ is also supporting irrigation development. To date, four schemes are under construction, covering 85 ha, including 41 ha of additional areas, with 103 families expected to benefit.

71. To date, 253 families have benefited from IFAD-financed irrigation development, including 42 households of Ban Lao Luang previously involved in slash-and-burn cultivation (Nam Gnone scheme). When the full programme is achieved, almost 600 families will have benefited, or 2/3 of the estimated number at appraisal.

72. Due to limited water availability in the dry season, irrigation schemes constructed with IFAD funds are mainly used for supplementary irrigation in the wet season, stabilizing rice yields at a higher level than in the past, when the irrigation water was not available. Although the mission could see some irrigated paddy fields in the dry season, the area involved was quite small, about 15 ha within the 432 ha actually irrigated in the wet season in the seven completed schemes.

**Table A3–19.** Planned and actual achievements of the irrigation programme

No.	Name of Scheme	District		Irrigated Area in Wet Season				
				Before	Additional Area		Total	
					Plan	Actual	Plan	Actual
1	Houay So	Thongpeung	25	60	20	0	80	60
2	Houay Ngau	Thongpeung	90	120	0	0	120	120
3	Houay Na	Thongpeung	21	42	0	0	42	42
4	Nam Gnao I	Thongpeung	26	50	0	0	50	50
5	Nam Gnao II	Thongpeung	26	70	0	0	70	70
6	Nam Gnong	Thongpeung	29	35	0	0	35	35
7	Nam Gnone	Houay Xai	42	35	20	20	55	55
Subtotal – Completed			259	412	40	20	452	432
8	Houay Lieng	Pha Oudom	225	50	155		205	
9	Nam Gnou Special Zone	Houay Xai	110	2	97		99	
Subtotal – Ongoing			335	52	252		304	
GRAND TOTAL			594	464	292		756	

Source: Provincial Irrigation Service, and Mission Findings

### 3.2 Economic benefits

73. The benefits of the irrigation work undertaken by the project occurred mainly in the wet season. For existing rice fields, traditionally irrigated and/or rainfed, secure access to water throughout the wet season combined with the use of improved rice varieties (cv. TDK 1), has induced an incremental yield of 0.5 to 1.5 t/ha, up from an average of 2.9 t to 3.9 t/ha (+34%), as shown by the farm budget in Appendix A3–7.

74. In the case of new paddy fields, the expected incremental yield<sup>3</sup> is much higher, between 2 and 3 t/ha, up from 1.2 t (slash-and-burn) to 3.9 t/ha (+225%). The value added (VA)<sup>4</sup> rose significantly, from USD 205 to 297/ha (+45%) for existing paddy fields, and from USD 115 to 297/ha for new paddy land (+159%).

75. The VA increase has a positive effect on labour return, rising to USD 2/day, compared to USD 1.4/day for existing rice fields and USD 0.6/day for slash-and-burn cultivation. Considering that the value of labour workforce<sup>5</sup> is USD 1/day, the VA generated by slash-and-burn is insufficient to provide a decent return to farmers and the farm income is negative. However, in the absence of irrigated land, upland people have no alternative but to employ their labour in a very low-production farming system. The low returns to labour derived from slash-and-burn explain the priority given by upland communities to the development of paddy fields to improve their livelihood.

**Table A3–20.** Comparisons of rice field productivity before and after intervention

Paddy Fields	Area (ha)	Yield (t/ha)	Value Added (VA)		Farm Income
			per hectare	per labour unit	per hectare
Before – Lowland	412	2.9	205	1.4	39
Before – Slash-and-Burn	20	1.2	115	0.6	-85
After – Wet Season	432	3.9	297	2.0	131
After – Dry Season	15				

SOURCE: Mission Findings

- Rice fields are now being developed and cultivation will start this wet season (2001). The yields given here are projected yields at full development and the benefits described are future benefits.
- Production Output (Yield) - consumables (inputs, with the exception of Labour and Assets Depreciation).
- Opportunity cost.

76. As a whole, the 7 irrigation schemes supported by IFAD have generated benefits estimated at:
- An incremental paddy production of 525 ton.
  - An incremental agriculture Gross Development Product (Value Added) of USD 46 111.
  - An incremental farm income (Farm income = Value Added - Labour Force Opportunity Cost - Depreciation of Fixed Assets) for beneficiaries of USD 44 278.

**Table A3–21.** Estimated annual irrigation benefits

Paddy Fields	Cropped Area	Yield		Value Added	Farm Income
		ton	USD	USD	USD
Before – Lowland	412	1 195	105 587	84 536	15 870
Before – Slash-and-burn	20	24	2 121	2 293	-1 707
All	432	1 219	107 708	86 830	14 163
After – Wet Season	432	1 685	168 480	128 480	56 480
After – Dry Season	15	59	5 850	4 461	1 961
All	447	1 743	174 330	132 941	58 441
Increment	15	525	66 622	46 111	44 278

SOURCE: Mission Findings

77. For the 259 households benefiting (= 1 554 persons), the impact of irrigation development is highly significant, in terms of improved food security and income (Household Farm Income = Value Added - hired labour), both for lowlanders (existing rice fields) and for the shifting cultivators who have developed new rice fields in place of slash-and-burn.

78. With a total expected annual production of 1.9 tons of paddy per household (310 kg/caput), the food security situation of the shifting cultivators will improve (from 2001 onwards, when all the 20 ha of new paddy fields will have been developed), almost reaching the sufficiency level of 350 kg/caput. In terms of income, considering that no labour is hired, because of the small holding size, the expected increase in gross annual income per caput is USD 15, up from USD 9 to USD 24 (+167%). However, because of the small holding size, no significant rice surplus is expected to be traded by the former shifting cultivators.

**Table A3–22.** Estimated annual benefits of irrigation per household

Paddy Fields	Number of households	Cropped area (ha)	Per household			Per caput	
			Rice (ton)	Value Added (USD)	Income (USD)	Rice (kg)	Income (USD)
Before – Lowland	217	1.90	5.5	390	231	918	39
After – Irrigated	217	1.90	7.4	565	406	1 234	68
Increment	0	0	1.9	175	175	316	29
Before – Slash-and-burn <sup>(1)</sup>	42	0.48	0.57	55	55	95	9
After – Irrigated lowland <sup>(1)</sup>	42	0.48	1.9	142	142	310	24
Increment	0	0	1.3	87	87	214	15

NOTES: (1) No hired labour: Value Added = Income

SOURCE: Mission Findings

79. For owners of existing paddy fields, the benefits are quite considerable:
- An incremental rice production of 1.9 ton per household, corresponding to an increase in rice production per caput of 316 kg per year. To date, the production of one household has reached 1 234 kg/caput, quite above the self-sufficiency level.
  - The surplus production of rice has increased the household rice tradable surplus and cash income generated. On average, household gross income has increased annually by USD 175, up from USD 231 to USD 406. This corresponds to an incremental income per caput of USD 29 per year, up from USD 39 to USD 68.

80. Although the results achieved to date are encouraging, the full impact of the investment in irrigation development planned under the project will only materialize when the two medium-scale schemes currently under construction are operational, probably in 2002. These two schemes are expected to lead to the development of 304 ha of irrigated paddy fields, of which 254 ha will be new fields. This investment will benefit about 300 households and generate an incremental rice production of about 800 ton annually.

### 3.3 Cost-effectiveness of irrigation schemes

81. The cost of the investment in irrigation made by the project varies from USD 61/ha (rehabilitation of Houay Ngau scheme) to USD 2 233/ha (new scheme in Nam Gnou Special Zone) (see Annex 6). In general, considering the benefits generated by the investment, the cost per ha is quite reasonable if compared with the threshold level for which the IRR of the investment is 12%.

82. The investment threshold level is estimated in Table A3–23 for different cropping pattern scenarios, different levels of cropping intensity (Net Cropped Area (Wet + Dry season) / Physical Area) and separately for existing and new paddy fields, previously used as slash-and-burn fields. The net farm income (see Appendix A3–7), after deduction of labour opportunity cost, has been used in the analysis and compared to different investment levels per hectare. The threshold is the cost per hectare for which the benefits (farm income) gave an IRR of 12%.

83. The main findings of the threshold-level analysis are:

- (i) With a single wet season rice crop, and no cultivation at all in the dry season, the investment threshold levels are USD 633/ha for irrigation of existing rice fields and USD 1 482/ha if the command area consists of slash-and-burn fields transformed into paddy fields.
- (ii) If a dry season crop is grown once the scheme is developed (two cropping intensity scenarios are envisioned here: 25% and 50% of the wet season command area is cultivated in the dry season. It is assumed that previously no dry season crops were grown at all), rice is a less economically attractive crop than maize, Chinese cabbage or common bean. These three crops are produced for export purposes (Thailand, and recently China for maize) and generate a very attractive farm income – much higher than rice.
- (iii) In pure economic terms, without considering other environmental, social and political benefits arising from irrigation development, the investment cost per hectare should be within USD 1 500 and USD 3 000 for new schemes, and between USD 6 000 and USD 1 500 for the rehabilitation of existing schemes. In some areas the benefits of stabilizing the livelihoods of shifting cultivators are extremely significant, justifying higher investment level than the threshold level given here. Also, were the cropping intensity to exceed 1.5, these levels could be higher.

**Table A3–23.** Irrigation investment threshold level (based on farm income)

Maximum Investment per hectare for an IRR = 12% (USD/ha)	Incremental Farm Income (USD/ha)		Investment (USD/ha)		
	Wet Season	Dry Season	Cropping Intensity		
Cropping Patterns			1.00	1.25	1.50
<b>Rice – Rice</b>					
Existing Paddy Fields	92	131	633	857	1 081
New Paddy Fields	216 <sup>(1)</sup>	131	1 482	1 707	1 931
<b>Rice – Maize</b>					
Existing Paddy Fields	92	194	633	965	1 297
New Paddy Fields	216	194	1 482	1 815	2 147
<b>Rice – Chinese Cabbage</b>					
Existing Paddy Fields	92	326	633	1 192	1 752
New Paddy Fields	216	326	1 482	2 042	2 602
<b>Rice – Common Bean</b>					
Existing Paddy Fields	92	459	633	1 420	2 207
New Paddy Fields	216	459	1 482	2 270	3 057

NOTE: (1) FOR transformation of slash-and-burn fields to paddy fields, the incremental farm income (USD 216/ha) is higher than the farm income of a paddy field (USD 131/ha) because slash-and-burn farm income is negative (USD -85/ha).

SOURCE: Mission Findings (Appendix A3–7)

84. Benefits generated by an irrigation scheme are better appreciated using the concept of value added, which measures the “pool of income” distributed to the factors of production, e.g., land, capital and labour, while farm income measures only the return to land and capital. From a social point of view, public investment threshold levels should be defined according to the amount of value added generated because it is an expression of the overall economic welfare of the society, while farm income is an expression of the economic welfare of capital owners only. Using the value-added approach to define the benefits of an irrigation scheme, the investment threshold levels, for which an IRR of 12% is generated, are given in Table A3–24.

85. The main findings of the threshold-level analysis based on value added are:

- (i) With a single wet season rice crop, and no cultivation at all in the dry season, the investment threshold levels are USD 633/ha for irrigation of existing rice fields, and USD 1 254/ha if the command area consists of slash-and-burn fields transformed into paddy fields.
- (ii) If a dry season crop is grown once the scheme development is completed, maize and rice result in less value addition than do Chinese cabbage or common bean.
- (iii) Based on the value added generated, the investment cost per hectare could be as high as USD 5 400 for new schemes if a high value added crop is grown in the dry season (such as common bean) on 50% of the command area. For rehabilitation, the ceiling is USD 4 800 with a dry season crop of common bean.

**Table A3–24.** Irrigation investment threshold level (based on Value Added)

Maximum Investment per hectare for an IRR = 12% (USD/ha)	Incremental Farm Income (USD/ha)		Investment (USD/ha)		
	Wet Season	Dry Season	Cropping Intensity		
Cropping Patterns			1.00	1.25	1.50
<b>Rice – Rice</b>					
Existing Paddy Fields	92	297	633	1 143	1 653
New Paddy Fields	183	297	1 254	1 764	2 274
<b>Rice – Maize</b>					
Existing Paddy Fields	92	263	633	1 084	1 536
New Paddy Fields	183	263	1 254	1 705	2 156
<b>Rice – Chinese Cabbage</b>					
Existing Paddy Fields	92	396	633	1 312	1 990
New Paddy Fields	183	396	1 254	1 933	2 611
<b>Rice – Common Bean</b>					
Existing Paddy Fields	92	1 223	633	2 730	4 828
New Paddy Fields	183	1 223	1 254	3 351	5 449

SOURCE: Mission Findings (Appendix A3–7)

86. If no dry season crop is grown on at least 25% of the command area, three schemes exceed the investment threshold levels, and have a relatively weak economic justification:

- (i) Nam Gngong: USD 1 389/ha to irrigate existing fields.
- (ii) Houay So: USD 966/ha to irrigate existing fields.
- (iii) Nam Gnou Special Zone: USD 2 233/ha for the development of new paddy fields.

### 3.4 Social and Environmental Impact

87. In addition to the economic benefits directly attributable to irrigation development, other positive social and environmental changes are associated with the stabilization of rural livelihoods:

- (i) *Reduced slash-and-burn.* New paddy fields can be developed, enabling shifting cultivators to give up slash-and-burn farming, thus contributing to reduce pressure on natural forests.
- (ii) *Increased household income.* Because of better rice yields and the possibility of cultivating a second crop, additional resources are available to the beneficiaries. The incremental income will improve the overall living conditions of the household, enabling it to improve savings and investment.
- (iii) *Improved food security.* More rice is available to the household members, who do not have to seek alternative sources of income (like employment) to ensure food security. With the

food problem solved, household economic strategy is no longer constrained by the need to raise cash to address rice shortages. The household can invest its time and efforts in other cash-income generating activities, enabling it to generate additional surplus, which can be saved and invested.

- (iv) *Improved education.* Increased household income and food security frees children from economically productive work and they will be able to attend school on a regular basis.
- (v) *Improved health status.* Increased household income and food security improve the diet of the members and their nutritional status. In addition, money becomes available to purchase medicines when required.
- (vi) *Permanent settlement.* An important social benefit of irrigation development is that it discourages further migration of the benefiting village. Once a scheme is established, the village will no longer move. Once the population is settled, social and economic integration are greatly facilitated.
- (vii) *Enhanced trust between ethnic minorities and Government of Lao PDR.* This impact is quite important in strengthening the unity of Lao society. Building an irrigation scheme is also a political act, indicating in real terms, not just in words, the degree of solidarity the nation shows to the beneficiaries. This positive act will enhance the relationships between the Government and the people and will facilitate mutual understanding and trust.

88. Negative social or environmental impact associated with irrigation development was not found to be significant in the project area. However there are some case for concern:

- (i) Houay So scheme: disagreement over water use between two communities (Museu and Lao Leu).
- (ii) Soil erosion (Houay So scheme).
- (iii) Loss of paddy land due to canal construction without full compensation (case of four widows in Nam Keung Kao, Nam Gnong scheme).
- (iv) Loss of topsoil due to mechanical paddy field development.
- (v) Increased use of chemicals and fertilizers and absence of protection while spraying.

### **3.5 Impact sustainability**

89. All the impact described above will sustain as long as the irrigation scheme remains fully operational. The issue of maintenance is critical to ensure impact sustainability and the community-based maintenance systems in place through Water Users' Associations (WUAs) should be regularly monitored by district authorities to ensure that systems are properly maintained.

### **3.6 Lessons learnt**

90. The mission found that irrigation in rural Laos remains an extremely powerful tool for socio-economic development and poverty alleviation. With irrigation construction a series of positive socio-economic changes take place, namely:

- increased yields and land productivity;
- increased labour productivity;
- diversification of income sources; and
- provision of more opportunities for income diversification;

which, in turn, will contribute to raise rural income, improve food security, stabilize livelihoods and reduce poverty, while improving school attendance and health status.

91. Irrigation schemes enabling the development of new paddy fields induce the greatest amount of social, environmental and economic benefits because of the positive transformation in land use and livelihood generation (from slash-and-burn to paddy field cultivation).

92. While social and environmental benefits are positive, economic efficiency of irrigation development is not always good, particularly if no dry season crop is cultivated on a significant portion of the schemes' command area.

93. For dry season cropping, rice is not necessarily the best alternative because of the high volume of water required and because of the low market price for rice. Other crops with export market potential, such as maize, Chinese cabbage or common bean, are much more attractive.

#### **4. OTHER AGRICULTURAL ACTIVITIES**

94. Other than infrastructure, the project has had little impact on household income because the promotion of income-generating activities, both on-farm and off-farm, has been limited. This is mainly due to the lack of credit facilities for farmers. Although a budget was earmarked for this purpose, methodological issues and differences between the GTZ TA Team and Project Management have prevented the release of these funds, resulting in a lack of support for household investment in farm and off-farm activities.

95. The agriculture demonstrations carried out by the project (with GTZ support) have little economic significance, with the exception of the introduction of new lowland rice cultivars. These interventions, such as fruit tree plantations or fish pond development, are too scattered, involve too few households and are on too small a scale to have a significant impact on family income. In general, there has been insufficient attention to the development of linkages between production and market, thus preventing the emergence of viable alternatives to traditional farming systems. In brief, the approach to agriculture development has not been based on a comprehensive analysis of the agrarian systems and its constraints.

96. Although technical issues, including lack of farmers' knowledge, are real and important, they are not the most prominent, especially in upland areas. The lack of market outlets is the main constraint. Experience throughout Lao PDR has shown that an upland demonstration programme aimed at introducing new crops, however successful it might be on the technical/biological side, fails at the dissemination stage if a guaranteed market is not available to farmers. Upland farmers, like others elsewhere, are conservative and prefer their traditional farming system, which has proved its value. Innovation is a risky venture, which might turn out to worsen the already precarious situation of many shifting cultivators if crops fail or if no market is available. An example of this occurred in Luang Phabang in 1999/2000, where the local buyer failed to purchase the crops he had promoted (Job's tears (*Coix lachryma-jobi*)) among upland villages.

97. Modification of the upland farming system is a difficult exercise, which has to be pursued from different angles, including infrastructure development, establishment of market linkages, agriculture diversification and technology improvement.

#### **5. ISSUES**

98. Both irrigation schemes and roads have been selected and implemented without proper feasibility studies, including any comprehensive cost/benefit analysis. Because this information is not available, irrigation schemes are not necessarily selected on their merits, and some potential developments are neglected. For example, no consideration was given to micro-hydropower development. In other cases, better technical options could have been available.

99. No Environmental Impact Examination (EIE), let alone Environmental Impact Assessment (EIA), including social and economic aspects, were carried out prior to the development of irrigation schemes or roads.

100. The cost-effectiveness of irrigation investment has been satisfactory, although the small area under dry season cultivation does not realize the full economic potential of the schemes. There is need for greater efforts to promote a second (non-rice) crop during the dry season

101. The provincial Irrigation Services uses only one criterion (unit cost per hectare developed) to define if a scheme is acceptable. This is not fully satisfactory, especially if the same unit cost is used for all types of schemes (new and rehabilitated). Indeed, while USD 1 500/ha is a reasonable figure for rehabilitation, up to USD 3 000/ha could be invested in a scheme where new rice fields will be developed. Before any decision on the feasibility of a scheme is made, the cost per hectare should be

compared to the flow of benefits, both tangible and intangible, that can be expected after the completion of the scheme.

102. In general, the planning process for rural infrastructure development (roads and irrigation) has been insufficiently participatory. More public consultation is required at the design stage to ensure that the planned infrastructure is socially acceptable and that nobody is adversely affected. For instance, such a consultation process would have minimized the number of road cuts done by farmers to provide water to their rice fields.

## **6. LESSONS LEARNT**

103. The mission finds that irrigation in rural Laos remains an extremely powerful tool for socio-economic development and poverty alleviation. With irrigation construction, a series of positive socio-economic changes take place, including:

- increased yields and land productivity;
- increased labour productivity;
- diversification of income sources; and
- provision of more opportunities for income diversification.

104. These can contribute to raising rural incomes, improving food security, stabilizing lifestyles and reducing poverty, while improving school attendance and health status.

105. Irrigation schemes enabling the development of new paddy fields have the greatest social, environmental and economic impact thanks to the positive transformation in land use (from slash-and-burn to paddy field).

106. Up to now, in this project, the benefits of dry season crops have been limited. Rice is not the best crop for dry season cultivation as it requires too much water and has a low market price. Maize, Chinese cabbage or common bean are much more attractive crops as they have good market potential.

## **7. CONCLUSIONS**

107. Rural development and poverty alleviation, especially in a remote and difficult environment, is a long process that extends far beyond the time span of a single project. In this regard, the project has contributed to pave the way for the improvement of living conditions of the beneficiaries, but a lot remains to be done, especially in upland areas, in terms of infrastructure and human resources development. Given the positive but precarious preliminary impact of the rural development strategy pursued by the Government of Lao PDR in the project area, more efforts are required to consolidate and expand interventions in upland areas.

108. Contrary to preconceived ideas that infrastructure benefits primarily the better off, the mission found that the development of infrastructure has contributed to alleviate poverty by inducing qualitative changes in the socio-economic environment. Several interventions, such as construction of feeder roads and irrigation schemes, have already had a significant positive social, economic and environmental impact on the communities served in general, and on the poor in particular.

109. Small-scale irrigation remains a powerful anti-poverty tool, enabling families to secure farm income and increase labour productivity, while offering opportunities to reduce slash-and-burn cultivation if new land is to be irrigated.

110. Rural feeder roads and the development of indigenous transport modes (pick-ups, hand tractors) induce meaningful changes in the socio-economic environment, opening up opportunities for economic development, market integration and poverty alleviation.

111. In upland areas, the introduction of new crops without proper linkages to the market is almost bound to fail. The traditional approach to crop development, using government extension services alone, is not successful unless a trader is involved in the process to provide quality services to the farmers, e.g., inputs and seeds, technical follow-up and an outlet for farmers' products at a guaranteed price.

## **8. RECOMMENDATIONS**

112. In the future, and in accordance with the guidelines issued by STEA on 3 October 2000 (No. 1770), an EIE should be conducted prior to construction of roads and irrigation schemes, and, if the findings of the EIE indicate significant potential impact, a full EIA should be done.

113. Similarly, in order to optimize the effectiveness of public investment, a cost-benefit analysis should be conducted with the aim of defining the economically and socially acceptable investment levels and the best cropping scenarios.

114. Decision on the feasibility of irrigation schemes should be based on a comparison between cost and benefits (whether tangible or intangible). A proxy indicator of a scheme's potential is the development cost per hectare. On the basis of the evidence gathered, an investment of up to USD 1 500/ha for the upgrading of existing paddy fields, and up to USD 3 000/ha for the development of previous slash-and-burn fields transformed into paddy fields, are reasonable development costs, provided a second crop is grown on at least 25% of the wet season command area. The second crop should preferably not be rice, which has a low market value.

115. Crop diversification should be considered on the basis of market potential. In particular, alternatives to rice need to be developed in Thongpeung district, where there is a surplus of rice production. Other less water consuming crops are more economically attractive: green bean, maize, Chinese cabbage, etc.

## APPENDIX A3-1

### TRANSPORT FARES FOR PASSENGERS

**Annex 3, Appendix 1, Table 1.** Fares to the districts of Bokeo, by road

Destination	Road Type	Season	Distance (km)	Fare (kip)	
				1 person	person-km
Houay Xai - Thongpeung	MR/NPR	DS	58	25 000	431
		WS	58	30 000	517
Average Fare to Thongpeung			58	27 500	474
Houay Xai - Nam Gnou Special Zone	MR/NPR	DS	56	30 000	536
		WS	56	40 000	714
Average Fare to Nam Gnou Special Zone			56	35 000	625
Houay Xai - Muang Meung	MR/NPR	DS	90	65 000	722
		WS	90	80 000	889
Average Fare to Muang Meung			90	72 500	806
Houay Xai - Paktha	PR/NPR	DS	54	30 000	556
		WS	54	60 000	1 111
Average Fare to Paktha			54	45 000	833
Houay Xai - Pha Oudom	PR/NPR	DS	86	46 000	535
		WS	86	86 000	1 000
Average Fare to Pha Oudom			86	66 000	767
Average Fare to a District		DS	69	39 200	570
		WS	69	59 200	860
		All	69	49 200	715

NOTES: MR= Main Road, PR= Paved Road, NPR= Non-Paved Road

SOURCES: Mission Findings from interviews with Transporters' Association (Houay Xai; Thongpeung) and Beneficiaries

**Annex 3, Appendix 1, Table 2.** Speedboat fares

Destination	Season	Distance (km)	Fare (kip)	
			1 person	person-km
Houay Xai - Nam Keung Kao	WS/DS	26	20 000	769
Houay Xay - Simuang Ngam	WS/DS	42	30 000	714
Houay Xai - Thongpeung	WS/DS	61	40 000	656
Houay Xai - Muang Mom	WS/DS	75	55 000	733
Houay Xai - Pahtha	WS/DS	35	20 000	571
Houay Xai - Pakhat (Mekong + Nam Tha )	DS	50	40 000	800
Average Fare/km for 1 Pax		All		702

SOURCES: Mission Findings from interviews with Transporters' Association (Houay Xai; Thongpeung) and Beneficiaries

**Annex 3, Appendix 1, Table 3. Fares by type of road**

Type of Roads	Season	Distance (km)	Fare (kip)	
			1 person	person-km
<b>Main Road (Asphalted)</b>				
Houay Xai - Nam Keung Kao	WS/DS	27	8 000	296
Average Fare/km for 1 Pax	All			296
<b>Main Road (Non-Asphalted)</b>				
Houay Xai - Ban Poug	WS/DS	30	9 000	300
Houay Xai - Nam Tha	DS	200	60 000	300
	WS		100 000	500
Average Fare/km for 1 Pax	DS			300
	WS			400
	All			350
<b>Paved Road</b>				
Houay Xai - Mai Phattana	WS/DS	7	3 000	429
Houay Xai - Donekeo	WS/DS	17	6 000	353
Houay Xai - Ban Peuk	WS/DS	32	12 000	375
Pakhat - Pha Oudon	WS/DS	16	6 000	375
Average Fare/km for 1 Pax	All			383
<b>Non-Paved Road</b>				
Nam Keung Kao - Thongpeung	DS	14.0	11 000	786
	WS		16 000	1 143
Ban Poug - Nam Gnou Special Zone	DS	26.0	21 000	808
	WS		31 000	1 192
Ban Poug - Long Phabat	DS	40.0	31 000	775
	WS		51 000	1 275
Ban Poug - Muang Meung	DS	60.0	56 000	933
	WS		71 000	1 183
Ban Peuk - Paktha	DS	22.0	18 000	818
	WS		48 000	2 182
Ban Peuk - Pakhat	DS	38.0	28 000	737
	WS		68 000	1 789
Average Fare/km for 1 Pax	DS			809
	WS			1 461
	All			1 135

SOURCES: Mission Findings from interviews with Transporters' Association (Houay Xai; Thongpeung) and Beneficiaries

**Annex 3, Appendix 1, Table 4.** Fares to selected villages of Bokeo Province

Houay Xai to Thongpeung Area	Season	Main Roads			Paved Roads			Other Roads			Total		
Lao Luang	WS/DS	20.0	6 000	300	6.0	2 000	333				26.0	8 000	308
Nam Keung Kao	WS/DS	27.0	8 000	296							27.0	8 000	296
Mai Phattana	WS/DS	27.0	8 000	296	7.0	3 000	429				34.0	11 000	324
Nakkham	WS/DS	27.0	8 000	296	11.0	4 000	364				38.0	12 000	316
Donekeo	WS/DS	27.0	8 000	296	17.0	6 000	353				44.0	14 000	318
	DS	27.0	8 000	296	17.0	6 000	353	4.0	2 000	500	48.0	16 000	333
Simuang Ngam	WS								6 000	1 500		20 000	417
	Average								4 000	1 000		18 000	375
	DS	27.0	8 000	296	17.0	6 000	353	14.0	11 000	786	58.0	25 000	431
Thongpeung	WS								16 000	1 143		30 000	517
	Average								13 500	964		27 500	474

Houay Xai to: Nam Gnou Special Zone & Muang Meung	Season	Main Roads			Paved Roads			Other Roads			Total		
Ban Poug	WS/DS	30.0	9 000	300							30.0	9 000	300
Nam Gnou Special Zone	DS	30.0	9 000	300				26.0 <sup>(2)</sup>	21 000	808 <sup>(2)</sup>	56.0	30 000	536
	WS								31 000	1 192		40 000	714
Long Phabat	DS	30.0	9 000	300				40.0 <sup>(2)</sup>	31 000 <sup>(2)</sup>	775 <sup>(2)</sup>	70.0	40 000	571
	WS								51 000 <sup>(3)</sup>	1 275 <sup>(3)</sup>		60 000	857
Muang Meung	DS	30.0	9 000	300				60.0	56 000	933	90.0	65 000	722
	WS								71 000 <sup>(3)</sup>	1 183 <sup>(3)</sup>		80 000	889

Notes: (2) Minor rehabilitation: roads hardly passable during the wet season (3) If weather permits and if the car is fully booked.

Houay Xai to: Paktha & Pha Oudom		Paved Road			Non-Paved Road			Paved Road			Total		
Ban Peuk	WS/DS	32.0	12 000	375							32.0	375	
Paktha	DS	32.0	12 000	375	22.0	18 000	818				54.0	30 000	556
	WS					48 000 <sup>(3)</sup>	2 182 <sup>(3)</sup>					60 000	1 111
Paktha By Boat	WS										35.0 <sup>(4)</sup>	20 000 <sup>(4)</sup>	571 <sup>(4)</sup>
Pakhat	DS	32.0	12 000	375	38.0	28 000	737				70.0	40 000	571
	WS					68 000 <sup>(3)</sup>	1 789 <sup>(3)</sup>					80 000	1 143
Pakhat By Boat	WS										50.0 <sup>(4)</sup>	40 000 <sup>(4)</sup>	800 <sup>(4)</sup>
Pha Oudom	DS	32.0	12 000	375	38.0	28 000	737	16.0	6 000	375	86.0	46 000	535
	WS					68 000 <sup>(3)</sup>	1 789 <sup>(3)</sup>					86 000	1 000
Pha Oudom by boat to Pakhat + Paved Road (16 km)	WS										66.0 <sup>(4)</sup>	46 000 <sup>(4)</sup>	697 <sup>(4)</sup>

NOTES: (3) If weather permits and if the car is fully booked. (4) Transport by speed boat

SOURCES: Mission Findings from interviews with Transporters' Association (Houay Xai; Thongpeung); Beneficiaries

## APPENDIX A3-2

### COST OF FREIGHT TRANSPORT

**Annex 3, Appendix 2, Table 1.** Freight cost (by truck) to the districts of Bokeo, by road

Destination	Road Type	Season	Distance (km)	Cost (kip)	
				1 ton	ton-km
Houay Xai – Thongpeung	MR/NPR	DS	58	80 000	1 379
	MR/NPR	WS	58	180 000	3 103
Average Freight Cost to Thongpeung			58	130 000	2 241
Houay Xai – Nam Gnou Special Zone	MR/NPR	DS	56	200 000	3 571
Houay Xai – Muang Meung	MR/NPR	DS	90	400 000	4 444
Houay Xai – Paktha	PR/NPR	DS	54	200 000	3 704
Houay Xai – Pha Oudom	PR/NPR	DS	86	300 000	3 488
Average Freight Cost to a District			69	246 000	3 576

NOTES: MR = Main Road; PR = Paved Road; NPR = Non-Paved Road.

**Annex 3, Appendix 2, Table 2.** Freight cost (by truck) by type of road

Type of Road	Season	Distance (km)	Load (ton)	Freight cost (kip)	Unit cost (kip)	
					1 ton	ton-km
Main Road						
Houay Xai – Nam Keung Kao	WS/DS	27	20.0	600 000	30 000	1 111
Houay Xai – Nam Tha	DS	200	20.0	3 000 000	150 000	750
	WS	200	13.5	3 000 000	222 222	1 111
Houay Xai – Muang Sing	DS	260	20.0	4 000 000	200 000	769
	WS	260	13.5	4 000 000	296 296	1 140
Average Cost for 1 ton-km						976
Paved Road						
Houay Xai – Ban Dan	WS/DS	22	20.0	1 000 000	50 000	2 273
Houay Xai – Ban Peuk	WS/DS	32	4.0	320 000	80 000	2 500
Average Cost for 1 ton-km						2 386
Non-Paved Road						
Houay Xai – Nam Gnou Special Zone	DS	56			200 000	3 571
Houay Xai – Muang Meung	DS	90			400 000	4 444
Houay Xai – Paktha	DS	54			200 000	3 704
Houay Xai – Pha Oudom	DS	86			300 000	3 488
Average Cost for 1 ton-km						3 802

**Annex 3, Appendix 2, Table 3. Freight cost by other transport modes**

Transport Mode	Season	Distance (km)	Load (ton)	Freight Cost (kip)	Unit Cost (kip)	
					1 ton	ton-km
Big boat						
Houay Xai – Thongpeung	DS	61	15.0	2 300 000 <sup>(1)</sup>	153 333	2 514
	WS	61	50.0	3 000 000 <sup>(1)</sup>	60 000	984
Average Cost for 1 Ton-km						1 749
Small Boat						
Thongpeung – Muang Mom	WS/DS	14	2.0	140 000	70 000	5 000
Thongpeung – Nam Keung Kao	WS/DS	35	2.0	240 000	120 000	3 429
Thongpeung – Houay Xay	WS/DS	61	4.0	880 000	220 000	3 607
Average Cost for 1 Ton-km						4 012
Song Theaw						
Lao Luang		6	1.0	20 000	20 000	3 333
Average Cost for 1 Ton-km						3 333
Hand Tractors						
Houay Khot		7	0.6	40 000	66 667	9 390
Hom Yem		4	0.6	24 000	40 000	10 000
Houay Ngam		5	0.6	45 600	76 000	14 615
Nakhm		11	0.6	54 000	90 000	8 182
Average Cost for 1 Ton-km						10 547
Walk						
Lao Luang (Before Road)		6	0.03	6 000	200 000	33 333
Average Cost for 1 ton-km						33 333

NOTES: (1) The cost of freight includes the extra labour needed for loading and unloading (= kip 20 000/ton)

SOURCES: Mission Findings from interviews with Rural Development Company, Bokeo; Private Company, Bokeo (beside Agriculture Promotion Bank); Agriculture & Forestry Development Company, Bokeo; Transporters' Association (Houay Xai; Thongpeung); Beneficiaries

## APPENDIX A3-3

### ROAD USER'S COST SAVING (THONGPEUNG AREA)

**Annex 3, Appendix 3, Table 1.** Pre-project transport fares in Thongpeung area

From Houy Xai to:	Season	By boat			By foot			Total		
		Distance (km)	Fare (kip)		Distance (km)	WTP <sup>(1)</sup> (kip)		Distance (km)	Fare (kip)	
			1 person	person-km		1 person	person-km		1 person	person-km
Lao Luang	WS/DS	20	15 000	750	6	9 000	1 500	26	24 000	923
Nam Keung Kao	WS/DS	26	20 000	769	0	0	1 500	26	20 000	769
Mai Phattana	WS/DS	26	20 000	769	7	7 000	1 500	33	27 000	818
Nakkham	WS/DS	26	20 000	769	10	10 000	1 500	36	30 000	833
Donekeo	WS/DS	42	30 000	714	5	5 000	1 500	47	35 000	745
Simuang Ngam	WS/DS	42	30 000	714	0	0	1 500	42	30 000	714
Thongpeung	WS/DS	61	40 000	656	0	0	1 500	61	40 000	656

NOTE: (1) WTP = Willingness to pay to avoid walking

**Annex 3, Appendix 3, Table 2.** User's saving in Thongpeung area after project interventions (passengers)

From Houy Xai to:	Season	Distance (km)	WO <sup>(1)</sup> fares (kip)		WP <sup>(1)</sup> fares (kip)		Users' saving (kip)	
			1 person	person-km	1 person	person-km	1 person	person-km
Lao Luang	WS/DS	26	24 000	923	8 000	308	16 000	615
Nam Keung Kao	WS/DS	27	20 000	741	8 000	296	12 000	444
Mai Phattana	WS/DS	34	27 000	794	11 000	324	16 000	471
Nakkham	WS/DS	38	30 000	789	12 000	316	18 000	474
Donekeo	WS/DS	44	35 000	795	14 000	318	21 000	477
Simuang Ngam	WS/DS	48	30 000	625	18 000	375	12 000	250
Thongpeung	WS/DS	58	40 000	690	27 500	474	12 500	216
Grand Average for Thongpeung Area		39	29 429	749	14 071	358	15 357	391

NOTES: (1) WO = Without Project; WP = With Project. Data displayed in Appendix A3-1, Table 4

**Annex 3, Appendix 3, Table 3.** Pre-project freight cost in Thongpeung area

From Houy Xai to:	Season	By boat			By hand tractor			Total		
		Distance (km)	Freight (kip)		Distance (km)	Freight (kip)		Distance (km)	Freight (kip)	
			ton	ton-km		ton	ton-km		ton	ton-km
Lao Luang	WS/DS	20	80 234	4 012	6	63 280	10 547	26	143 515	5 520
Nam Keung Kao	WS/DS	26	104 304	4 012	0	0	10 547	26	104 304	4 012
Mai Phattana	WS/DS	26	104 304	4 012	7	73 827	10 547	33	178 131	5 398
Nakkham	WS/DS	26	104 304	4 012	10	105 467	10 547	36	209 772	5 827
Donekeo	WS/DS	42	168 492	4 012	5	52 734	10 547	47	221 225	4 707
Simuang Ngam	WS/DS	42	168 492	4 012	0	0	10 547	42	168 492	4 012
Thongpeung	WS/DS	61	244 714	4 012	0	0	10 547	61	244 714	4 012

**Annex 3, Appendix 3, Table 4.** With-project freight cost in Thongpeung area

From Houy Xai to:	Season	Main Roads			Paved Roads			Other Roads			Total		
		Distance (km)	Freight (kip)										
			ton	ton-km									
Lao Luang	WS/DS	20	22 222	1 111	6	14 318	2 386	0	0	0	26	36 540	1 405
Nam Keung Kao	WS/DS	27	30 000	1 111	0	0	2 386	0	0	0	27	30 000	1 111
Mai Phattana	WS/DS	27	30 000	1 111	7	16 705	2 386	0	0	0	34	46 705	1 374
Nakkham	WS/DS	27	30 000	1 111	11	26 250	2 386	0	0	0	38	56 250	1 480
Donekeo	WS/DS	27	30 000	1 111	17	40 568	2 386	0	0	0	44	70 568	1 604
Simuang Ngam	WS/DS	27	30 000	1 111	17	40 568	2 386	4	16 981	4 245	48	87 549	1 824
Thongpeung	WS/DS	27	30 000	1 111	17	40 568	2 386	14	59 432	4 245	58		2 241

**Annex 3, Appendix 3, Table 5.** User's saving in Thongpeung area after project interventions (freight)

From Houy Xai to:	Distance (km)	WO <sup>(1)</sup> Freight (kip)		WP <sup>(1)</sup> Freight (kip)		Users' Saving (kip)	
		1 ton	ton-km	1 ton	ton-km	1 ton	ton-km
		Lao Luang	26	143 515	5 520	36 540	1 405
Nam Keung Kao	27	104 304	3 863	30 000	1 111	74 304	2 752
Mai Phattana	34	178 131	5 239	46 705	1 374	131 427	3 865
Nakkham	38	209 772	5 520	56 250	1 480	153 522	4 040
Donekeo	44	221 225	5 028	70 568	1 604	150 657	3 424
Simuang Ngam	48	168 492	3 510	87 549	1 824	80 943	1 686
Thongpeung	58	244 714	4 219	130 000	2 241	114 714	1 978
Grand Average for Thongpeung Area	39	181 451	4 619	65 373	1 664		2 955

NOTE: (1) WO = Without Project; WP = With Project.

**Annex 3, Appendix 3, Table 6.** User's saving in Thongpeung area after project interventions (passengers + freight)

From Houy Xai to:	Distance (km)	Users' Saving (kip)			
		Passenger		Freight	
		1 person	person-km	1 Ton	ton-km
Lao Luang	26	16 000	615	106 974	4 114
Nam Keung Kao	27	12 000	444	74 304	2 752
Mai Phattana	34	16 000	471	131 427	3 865
Nakkham	38	18 000	474	153 522	4 040
Donekeo	44	21 000	477	150 657	3 424
Simuang Ngam	48	12 000	250	80 943	1 686
Thongpeung	58	12 500	216	114 714	1 978
Grand Average for Thongpeung Area	39	15 357	391	116 077	2 955

NOTE: (1) WO = Without Project; WP = With Project.

**Annex 3, Appendix 3, Table 7.** Annual economic benefit of the road network in Thongpeung area

$$UCS = \frac{1}{2} * (T_0 + T_1) * (P_0 - P_1) * L$$

UCS = User Cost Saving induced by the road (economic benefit of the road)

T<sub>0</sub> = Traffic volume before the construction of the roadT<sub>1</sub> = Traffic volume after the construction of the roadP<sub>0</sub> = Transport cost per kilometre before the construction of the roadP<sub>1</sub> = Transport cost after per kilometre after the construction of the road

L = Length of the Road

P <sub>0</sub>	kip	749	4 619
P <sub>1</sub>	kip	358	1 664
P <sub>0</sub> - P <sub>1</sub>	kip	391	2 955
L	km	39	39

For 1 Household

UCS		Annual Passengers Traffic = $\frac{1}{2} * (T_0 + T_1)$ (person-trips per household)							
		Annual Freight = $\frac{1}{2} * (T_0 + T_1)$ (tons/household)							
		4	8	12	16	4	8	12	16
		(Kip)				(USD)			
1		176 215	237 197	298 179	359 160	20.5	27.6	34.7	41.8
2		291 448	352 430	413 412	474 394	33.9	41.0	48.1	55.2
5		637 148	698 130	759 111	820 093	74.1	81.2	88.3	95.4
10		1 213 314	1 274 296		1 396 259	141.1	148.2	155.3	162.4
(Exch. rate: USD 1 = kip 8 600)									
Induced Value Added (t/household)		300 000 kip per ton ( for maize)							
		kip	USD						
0.5		150 000	17.4						
1		300 000	34.9						
2		600 000	69.8						
Total Annual Benefit									
Scenario 1		USD 58.4							
Scenario 2		USD 37.9							

For the Entire Area

Beneficiaries									
Villages		60							
Households		4 500							
UCS		Annual Passengers Traffic = $\frac{1}{2} * (T_0 + T_1)$							
Annual Freight (person-trips)		18000	36000	54000	72000	18000	36000	54000	72000
(ton)		(million kip)				(USD)			
4500		793.0	1 067.4	1 341.8	1 616.2	92 206	124 115	156 024	187 933
9000		1 311.5	1 585.9	1 860.4	2 134.8	152 502		216 320	248 229
22500		2 867.2	3 141.6	3 416.0	3 690.4	333 391	365 300	397 209	429 119
45000		5 459.9	5 734.3	6 008.7	6 283.2	634 873	666 783	698 692	730 601
USD 1 = kip 8 600									
Induced Value Added (ton)		300 000 kip per ton ( for maize)							
		million kip	USD						
2 250		675.0	78 488						
4 500		1 350.0	156 977						
9 000		2 700.0	313 953						
Total Annual Benefit									
Scenario 1		2 260.9 million kip			262 899 USD				
Scenario 2		1 468.0 million kip			170 694 USD				

Maximum Investment (maintenance: 2.5 % every 3 years, road life: 20 years) to get a Rate of Return of 12%

UCS + VA	47 122 USD per km	30 595 USD per km
UCS only	33 054 USD per km	16 527 USD per km

## APPENDIX A3-4

### VILLAGE-GATE PRICE FOR MAIZE

		Maize Price	Freight Cost	Maize Price Houay Xai
Nam Keung Kao	Before	500 000	104 304	604 304
	After	570 000	30 000	600 000
Mai Phattana	Before	500 000	104 304	604 304
	After	553 295	46705	600 000
Thongpeung	Before	500 000	221 225	721 225
	After	500 000	130 000	630 000

Villages	Destination	Village Gate Price	Transport Cost	Price at Destination
Nam Keung Kao	NK Kao	500 000	0	500 000
Lao Luang	NK Kao	436 720	63 280	500 000
Mai Pattana	NK Kao	426 173	73 827	500 000
Nakkham	NK Kao	394 533	105 467	500 000
Donekeo	Simuang Ngam	457 812	42 188	500 000
Simuang Ngam	Simuang Ngam	500 000	0	500 000
Thongpeung	Thongpeung	500 000	0	500 000
Average		459 320	40 680	500 000

Villages	Destination	Village Gate Price	Transport Cost	Price at Destination
Nam Keung Kao	Houay Xai	613 460	36 540	650 000
Lao Luang	Houay Xai	620 000	30 000	650 000
Mai Pattana	Houay Xai	603 295	46 705	650 000
Nakkham	Houay Xai	593 750	56 250	650 000
Donekeo	Houay Xai	579 432	70 568	650 000
Simuang Ngam	Houay Xai	562 451	87 549	650 000
Thongpeung	Houay Xai	520 000	130 000	650 000
		584 627	65 373	650 000

Villages	Before	After	Increase	
Nam Keung Kao	500 000	613 460	113 460	23%
Lao Luang	436 720	620 000	183 280	42%
Mai Pattana	426 173	603 295	177 122	42%
Nakkham	394 533	593 750	199 217	50%
Donekeo	457 812	579 432	121 620	27%
Simuang Ngam	500 000	562 451	62 451	12%
Thongpeung	500 000	520 000	20 000	4%
Average	459 320	584 627	125 307	27%

## APPENDIX A3-5

### ROAD ECONOMIC MODEL

**Annex 3, Appendix 5, Table 1.** Basic data (kip)

Type of road	Transport mode	Season	Fare (person/km)	Freight Cost (t/km)	Investment Cost/km
Footpath	Walk	WS/DS	1 500	33 333	-
Rural Tracks	Hand tractors	WS/DS	1 172	10 547	5 000
Non-Paved Roads	Pick-Up/Truck	mainly DS	1 135	3 802	15 000
Paved Roads	All vehicles	WS/DS	383	2 386	30 000
Main Road	All vehicles	WS/DS	300	976	150 000
Boat	speedboat	WS/DS	702	N.A	N.A
	3-5 ton	WS/DS	N.A	4 012	N.A
	15-50 ton	WS/DS	N.A	1 749	N.A

**Annex 3, Appendix 5, Table 2.** Expected fare reduction (kip per person-km)

Footpath	Footpath			
Rural Track	328	Rural Track		
Non-Paved Road	365	37	Non-Paved Road	
Paved Road	1 117	789	752	Paved Road
Main Road	1 200	872	835	83
Boat	Boat			
Paved Roads	319			
Main Road	402			

**Annex 3, Appendix 5, Table 3.** Expected reduction of freight cCost (kip per ton-km)

Footpath	Footpath			
Rural Track	22 787	Rural Track		
Non-Paved Road	29 531	6 745	Non-Paved Road	
Paved Road	30 947	8 160	1 416	Paved Road
Main Road	32 357	9 571	2 826	1 410
Boat	Boat (3-5 ton)		Boat (15-50 ton)	
Paved Roads	1 625			
Main Road	3 035		772	

**Annex 3, Appendix 5, Table 4.** Estimated Investment Cost by Type of Road (USD/km)

Footpath	Footpath			
Rural Tracks	5 000	Rural Tracks		
Non-Paved Roads	15 000	10 000	Non-Paved Roads	
Paved Roads	30 000	25 000	15 000	Paved Roads
Main Road	150 000	145 000	135 000	120 000

**Annex 3, Appendix 5, Table 5.** Estimated annual traffic required to improve terrestrial transport (IRR = 12%)

<b>Passengers (number)</b>				
Footpath	Footpath			
Rural Tracks	1 733	Rural Tracks		
Non-Paved Roads	3 296	8 756	Non-Paved Roads	
Paved Roads	4 981	11 813	18 573	Paved Roads
Main Road	23 367	59 093	76 493	182 000
<b>Freight (ton)</b>				
Footpath	Footpath			
Rural Tracks	347	Rural Tracks		
Non-Paved Roads	659	1 751	Non-Paved Roads	
Paved Roads	996	2 363	3 715	Paved Roads
Main Road	4 673	11 819	38 247	91 000

**Annex 3, Appendix 5, Table 6.** Estimated Annual Traffic Required for a Shift from Boat to Road (IRR = 12%)

Boat	Persons	Freight (ton)	
		Boat (3-5 ton)	Boat (15-50 ton)
Paved Roads	32 169	16 085	
Main Road	73 914	49 276	193 647

## APPENDIX A3-6

### ECONOMIC ANALYSIS OF HOUAY XAI - BAN MOM ROAD

$$UCS = \frac{1}{2} * (T_0 + T_1) * (P_0 - P_1) * L$$

where

- UCS = User Cost Saving induced by the road (economic benefit of the road)  
 T<sub>0</sub> = Traffic Volume before the construction of the road  
 T<sub>1</sub> = Traffic Volume after the construction of the road  
 P<sub>0</sub> = Transport Cost per kilometre before the construction of the road  
 P<sub>1</sub> = Transport Cost after per kilometre after the construction of the road  
 L = Length of the Road

#### Houay Xai - Nam Keung Kao (alone)

Investment		US		
Maintenance	40 000	Every 3 years		
Life Duration	30	years		
Length	27	km		
	Unit	Passengers	Freight	
0.5*(T <sub>0</sub> +T <sub>1</sub> )		15 000 persons	10 000 tons	
P <sub>0</sub>	kip	769	4 012	
P <sub>1</sub>	kip	296	1 111	
P <sub>0</sub> - P <sub>1</sub>	kip	444	2 752	
L	km	27	27	
UCS	kip	90 000 000	371 522 248	461 522 248
	USD	10 465	43 200	53 665
Induced Agriculture Value Added	kip	Additional Maize production of 700 tons i.e., incremental value added of 300 000 kip per ton		210 000 000
	USD			24 419
Total	kip			671 522 248
	USD			78 084

#### Houay Xai - Ban Mom

Investment		USD		
Maintenance	131 852	Every 3 years		
Life Duration	30	Years		
Length	89	km		
	Unit	Passengers	Freight	
0.5*(T <sub>0</sub> +T <sub>1</sub> )			tons	
Total		50 000 persons	100 000 tons	from China 0.088
P <sub>0</sub>	kip	711	4 012	430
P <sub>1</sub>	kip	296	1 111	258
P <sub>0</sub> - P <sub>1</sub>	kip	414	2 901	
L	km	89	89	
UCS	kip	922 235 839	12 907 663 284	13 829 899 123
	USD	107 237	1 500 891	1 608 128
Induced Agriculture Value Added	kip	Additional Maize production of 4000 tons i.e., incremental value added of 300 000 kip per ton		1 200 000 000
	USD			139 535
Total	kip			15 029 899 123
	USD			1 747 663
IRR		12.5%		

## APPENDIX A3-7

### FARM BUDGET

Before Project	Yield Range		Yield Range				
	2	3	3.5	4.5			
	1	1.5					
Paddy Fields	Area	Incremental Yields		USD	per HH	per pers	
Existing	417	0.5	1.5	417	45 870	110	18
New	35	2.5	3.5	105	11 550	330	55
<b>Total</b>	<b>452</b>			<b>522</b>	<b>52 200</b>	<b>115</b>	<b>19</b>



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 4**

**MANAGEMENT ISSUES**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### ANNEX 4

### MANAGEMENT ISSUES

## 1. INTRODUCTION

1. The project was originally identified during an IFAD General Identification mission in 1992. This was followed by a Beneficiary Needs Assessment Study in early 1993, and IFAD Preparation and Appraisal missions in the course of 1993 (both of which included GTZ personnel). The project was approved by the IFAD Executive Board in April 1994 and became effective in August 1995. UNOPS was appointed as the Cooperating Institution responsible for loan administration.

2. Total project cost at design was estimated as USD 15.33 million, including an IFAD loan equivalent to USD 4.09 million (27%); a loan from the OPEC Fund of USD 4.7 million (31%); a grant from the Government of Germany of USD 5.64 million<sup>1</sup> (37%); a Government of Lao PDR contribution of USD 0.67 million (4%); and beneficiary contribution of USD 0.22 million (1%). Due to the delay in start up of the 7-year implementation period, the current completion date is scheduled to be 30 September 2002, with a loan closing date a year later. The change from the original dates took place after the Mid-Term Review (MTR).

### 1.1 The first years

3. As stated in the first three supervision reports, and later in the MTR report, implementation in the first years was extremely slow, with very low disbursement and very few achievements on the ground. The main reasons for this can be summarized as follows:

- (i) the long time necessary for the start up of activities in communities, due to the participatory process; in particular, government staff, Technical Assistance (TA) personnel and communities were unused to this approach and were learning;
- (ii) the introduction of decentralization, which necessitated the development of new mechanisms, including training in their implementation;
- (iii) physical considerations, in particular the remoteness of the areas for investments and therefore inaccessibility prior to road construction;
- (iv) difficult communications and climatic conditions delaying contract implementation; and
- (v) reluctance of government to use loan funds when grant funds were available; this was encouraged by the fact that GTZ had funds available for both TA and investment. Although this situation was formally remedied at MTR by the re-allocation of most 'software' IFAD funds to civil works, the fact that GTZ continued funding investments ensured that difficulties continued.

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1. This amount was allocated for the first 52 months. A further USD 2.75 million was allocated for 1999-2001; this is not included in the abovementioned total cost.

## 1.2 Mid-Term Review

4. In 1999, towards the middle of the fourth year of project implementation, an MTR took place. Its main findings were:

- (i) disbursements were distinctly below expectation;
- (ii) construction of irrigation schemes were behind schedule, with fewer beneficiaries than designed and larger holding sizes for each beneficiary household;
- (iii) constructed and contracted feeder roads represented only 43% of the design total;
- (iv) offices, extension centres and staff housing had been built or were under contract;
- (v) there had been little direct investment in agricultural development at farm level;
- (vi) because of availability, GTZ grant funds were used to finance investment costs (for equipment as well as field activities);
- (vii) GTZ involvement was through direct implementation of activities using its own staff, instead of working through government line agencies; and
- (viii) Government of Lao PDR funds were not available for field allowances. When available, their real value was below the incremental costs of field visits for staff.

5. MTR envisaged closing the project early due to the major problems it was encountering and the fact that, in its view,

‘without the timely implementation of these agreements (reached during the mission), it is expected that the project will not be able to achieve its objectives. Therefore project activities should cease as soon as is practical, i.e., at the end of 1999.’ (para 63)

6. The said agreements were listed in an action plan, which was to be followed up by the UNOPS Supervision Mission later in 1999. In fact, no supervision mission took place until 16 months later.

7. Further to the MTR findings and recommendations, the following main changes were made to project design:

- (i) use of loan funds was authorized for the payment of DSA and travel costs;
- (ii) the Department of Planning and Cooperation (DPC) was, among other responsibilities, to coordinate the activities of implementing agencies, PSO and TA, and effectively act as Project Head;
- (iii) the National Steering Committee was replaced by a Provincial Steering Committee (PSC) responsible for providing guidance to all parties concerned, approving the Annual Work Plan and Budget (AWPB), supervising and monitoring overall progress;
- (iv) it was agreed that GTZ would finance all TA, training, crop and livestock trials and small-scale demonstrations, i.e., focus on capacity building, while IFAD funds would be used to finance infrastructure, and agriculture and livestock development activities ‘once they have progressed beyond the trial and demonstration stage’ (MTR Report, para. 38); and
- (v) SDR 70 000 was allocated for the establishment of Village Revolving Funds ‘to invest in productive new crop and livestock technologies’.

8. Re-allocation of IFAD funds followed, with the following changes from the Loan Agreement:

Category	Loan Agreement (SDR)	Amended amounts (SDR)
1. Civil works, etc.	1 070 000	1 920 000
2. Vehicles, equipment, etc.	540 000	420 000
3. Studies, training, etc.	80 000	40 000
4. Operating costs, etc.	900 000	170 000
5. Unallocated	360 000	330 000
6. Village Revolving Fund	none	70 000
<b>Total</b>	<b>2 950 000</b>	<b>2 950 000</b>

NOTE: Elsewhere the current USD equivalents are used, but as the exchange rate between SDR and USD fluctuates, totals do not always add up exactly.

## 2. EVALUATION

### 2.1 Summary of achievements

9. Most IFAD funds have been spent on different types of civil works. After re-allocation in 1999, 65% of loan funds were allocated to this purpose. Since funds were available from the GTZ grant for most 'software' and even some 'hardware' activities, the government and project management have, unsurprisingly, used these in preference to using loan funds. Investment in civil works by GTZ continued after MTR, despite agreement to the contrary. This has been one reason for the low disbursement rate of the project.

10. By April 2001, i.e., over 5½ years after project effectiveness, the following major investments had been completed with IFAD funding:

Buildings for project offices and line agencies, as well as staff housing and facilities	USD	448 700
School buildings and rehabilitation	USD	157 250
Feeder road construction (24.6 km)	USD	480 000
Irrigation systems (452 ha)	USD	238 325
<b>Total IFAD funds spent on construction</b>	<b>USD</b>	<b>1 324 275</b>

NOTE: Figures have been rounded up. In addition, it is to be noted that in some cases slightly different amounts were reported to the mission for the same contracts, probably due to exchange rate fluctuations; all these figures should be considered to be indicative. All figures provided in this section of the report are based on expenditures and contracts signed. They do not deal with accounts nor with the balance in the Special Account.

11. While the construction of offices, housing, etc., had been completed and none was still under design or construction, work was proceeding on a number of contracts, and others had been signed with respect to the other three items:

Schools	USD	88 343
Roads (29.55 km)	USD	517 533
Irrigation Schemes (199 ha)	USD	420 720
Water projects (3 schemes)	USD	12 175
<b>Total IFAD contribution contracted</b>	<b>USD</b>	<b>1 038 775</b>

12. The sum of funds already spent on infrastructure and those committed totals USD 2 363 050, equivalent to approximately SDR 1 750 000<sup>2</sup>, or 59% of the loan amount.

### 2.2 Disbursements

13. Of a total of approximately USD 4 million<sup>3</sup> available, by the end of March 2001 the project had effectively disbursed USD 2.2 million, or 55% of funds available. Of the available balance of USD 1.8 million, the majority (71%) is for civil works, and 80% of this had been committed. Close to USD 260 000 remained for further commitments in civil works. Of the other funds, most of the approximately USD 50 000 remaining for equipment and vehicles had been committed, while the amounts available for studies, training and operating costs had been overspent. The only unused funds were those unallocated and those for the Revolving Fund. While the former would presumably be used, at least in part, to cover overexpenditures elsewhere, the issue of the Revolving Fund is discussed elsewhere (Annex 3). Shortly after the Interim Evaluation (IE) field visit, negotiations for further re-allocation took place between the Project, UNOPS and IFAD.

14. The current level of commitments suggested significant progress in comparison with earlier years. However, in view of past experience, and in particular the average annual disbursement rates to date, the mission had to express doubt that the works undertaken would be completed by the current project completion date. While all the schools and buildings that had been contracted were completed within a reasonable period, the same could not be said for roads or irrigation systems. Of the three

2. Exchange rate of SDR 1 = USD 1.3505, used by the project in May 2001

3. These figures have been rounded; they are presented for indicative purposes only as the loan is in SDRs, and the exchange rate between USD and SDR fluctuates.

roads still under construction, two of the contracts were signed in April and May 1999 respectively, and the contract for one of the two irrigation systems was signed in June 1999. None of this construction was close to completion. It was likely that other recently signed or proposed contracts would experience similar delays as such delays had been the hallmark of the project. Delays on this scale, given the size of the operations concerned, must be cause for concern.

### 2.3 Special Account

15. The Special Account of the project was managed by the Ministry of Finance, through the Treasury. They experienced some delays in replenishment, the longest delay being 3 months whereas other International Financial Institutions (IFIs) replenished within 3 weeks. It was not clear to the mission whether these delays were due to problems in UNOPS or in Rome.

### 2.4 Decentralization

16. While government policy of decentralization was somewhat older, and decentralization was written into project design, the project only really started to implement a decentralization policy from 1999. As a result, project expenditures for operational costs were managed directly by the line agencies, which received advance payments in accounts opened by each agency. These were to be reimbursed on the basis of clear statements of expenditure, on a quarterly basis. It was only after the MTR that DSA and other running costs, such as fuel, could be financed through the IFAD loan. While this raises serious concerns with respect to post-project sustainability, it has been an opportunity to give line agencies experience and training in expenditure management.

17. Decentralized implementation is one of the project's main achievements, and has taken place through line agencies implementing all activities, thanks to training and equipment support from the project. Thus the chances for long-term sustainability have been improved and local capacity strengthened, improving development prospects. The establishment of parallel temporary structures has been avoided.

### 2.5 Cofinancing in practice: the 'two-project syndrome'

18. Cofinancing, while popular with financiers, is often the source of difficulties and problems for those implementing projects. This project is an extreme example of such a situation. The following point in the Appraisal Report, taken up again by the first Supervision Mission, suggests that the problems that later emerged had already been foreseen during appraisal.

“Notwithstanding the size of the TA provision, it will be transient and supportive of the development of local capabilities and in no way will a situation be allowed to arise where TA acts as either a parallel or substitute implementing structure.” (para. 144).

19. The evidence of five years of implementation, regardless of the multiplicity of agreements to the contrary, is that TA had indeed done precisely that: namely develop as a parallel and substitute implementing structure.

20. One indicator of the situation is the fact that every one, including this mission, has talked of the “IFAD project” and the “GTZ project.” Indeed the two have different names: Bokeo Food Security Project (IFAD) and Rural Development Project for Bokeo (GTZ), as well as different logos, etc. They even produced T-shirts and caps with the different logos and names. One sign of unity: both adopted the same slogan: “the poor people's project”!

21. **Hierarchy** According to the Appraisal Report, the Project Director was to be responsible, *inter alia*, for reporting to GTZ and ‘will be expected to work particularly closely with the TA Senior Adviser’ (para. 130). The accompanying organigram (Appraisal Report attachment 9) showed TA in its own box, with dotted horizontal lines to the Project Implementation Task Force, which itself was hierarchically under the authority of the Project Director<sup>4</sup>. Thus, although the Project Director was supposed to be the head and the one reporting to GTZ, there is no clear statement concerning the

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4. The Project Director was to have been from the Ministry of Agriculture and Forestry; however, from the beginning, this was changed and the Project Director came originally from the State Planning Committee (SPC).

hierarchical relationship between the TA Senior Adviser and the National Project Director (NPD). This ambiguity did not help the situation.

22. It is not surprising that human relations between the two team leaders deteriorated over time. While at the first supervision, the Project Management Team (GTZ and NPD) sent a joint response to UNOPS concerning the recommendations, and clearly seemed to work together, by the third supervision, a recommendation was made

“that regular meetings be held between GTZ and project management. These meetings would serve to inform each other of progress, to discuss the overall programme, to plan training needs and to address problems.”  
(para. 9 of Annex 2)

23. This clearly indicates that, by that time, there was not cooperation between the two sides.

24. Since the TA Senior Adviser clearly was not working under the management of the NPD, supervision missions addressed this problem without success, given that they had no authority over a GTZ staff member who did not consider UNOPS to be in its hierarchical organigram. Again, MTR tried to address the issue, making a formal agreement that the ‘NPD and GTZ team leader to work as counterparts for the success of the project, with both answerable to the Director of CPC’. In other words, the MTR intervention created another level, above both NPD and GTZ TA Senior Adviser, to which both should be answerable, and which would effectively be the project director.

25. This agreement has not been implemented and, despite the efforts of the MTR, supervision missions and, most recently the formulation mission for the new project, there have been in effect two projects currently operating in Bokeo, out of opposite ends of the same building. On the one hand, the NPD answers to CPC and other local authorities, while on the other hand the GTZ team leader merely ‘copies’ CPC any decision-making document he has signed, apparently considering that he is accountable only to GTZ in Germany. The GTZ component continues to finance investments and, indeed, is seeking additional finance for further investment in the Province (roads from KFW, and maternity homes from WHO).

26. Regardless of the situation on paper, there has been no single management to whom both NPD and TA Senior Adviser answer.

27. **Funding of investments** According to the original design, investments were to be financed from the IFAD loan, while GTZ was to provide TA. However, from the very beginning, GTZ funds were used to finance some investment activities, as well as some of the costs that were to have been covered by the loan. This pattern has continued throughout and caused tensions. As early as the first supervision mission, it was stated that ‘it has been agreed with GTZ that henceforth no disbursements will be made by GTZ to cover expenditures allocated to the IFAD loan.’ (para. 68). At the time of MTR, a further agreement was reached, stating that, in future, IFAD funds would be used for investment in infrastructure and for extension of technical packages prepared and tested by GTZ. However, even before the MTR report had been written, this agreement was broken, with GTZ financing infrastructure investments. These agreements were repeatedly made and broken throughout the project period. By the time of the November 2000 supervision, GTZ financing had been used for 10 shallow wells, 2 gravity water supply schemes, 5 community halls, one dormitory and vocational training centre, 3 roads and 2 irrigation schemes, for a total value of USD 164 000. It should be noted that, from the point of view of government, the use of GTZ grant funds for investments is something they could live with, since it gave them additional investment on a grant, not a loan, basis.

28. **Coordination** GTZ held an initial planning workshop in September 1995, a month after effectiveness of the IFAD loan. The presence of IFAD or UNOPS supervisors at that workshop might have helped to create a ‘single-project philosophy,’ which was already lacking, given the separate project cycles and objectives. On the basis of statements in the first supervision report (p. 40), it appears that the Project did not invite UNOPS to participate in the two initial workshops!

29. As both were supposed to jointly produce an AWPB, this caused annual difficulties. In the early years, this plan was not jointly produced. More recently, the mechanism appears to be that planning meetings are held in the summer by PSO and line agency staff. The draft plan produced on this basis is submitted to a workshop including PSO, GTZ, the Steering Committee and line agencies. The priorities are defined and the broad outlines of the plan are agreed. The PSO and GTZ TA team

finalizes the plan. Once the plan is signed by the NPD and GTZ TA Senior Adviser, and approved by UNOPS and GTZ, it becomes official. While this procedure ensures that all parties have a say in the activities implemented, it is not entirely satisfactory.

30. The following examples of problems that have arisen are illustrative of the difficulties:

- (i) In 2000-01, the districts and the Provincial Agriculture and Forestry Office (PAFO) submitted requests for funding for vaccines for animals through the IFAD loan; this request was included in the draft plan. However, at that time, the GTZ Agricultural Adviser was of the opinion that such vaccinations were not effective. The GTZ TA therefore refused to sign the workplan as long as this proposal was included. A delay of 3 months occurred. Finally the vaccines were removed from the plan. In 2001, the evaluation mission visited many villages where people complained that vaccination was not taking place this year, as it is a project intervention that they value. The only vaccinations taking place were those 'trial' vaccinations funded by GTZ.
- (ii) The funds available from the IFAD loan and from government were clearly defined and presented; those available from GTZ were not presented in any detail. The line agencies and PSO were not informed of the total amounts available, nor their distribution between sectors or over time. Therefore they have not been in a position to suggest re-allocation according to their priorities. They could only present 'blind' requests, hoping that such proposals were acceptable to the TA team.
- (iii) Line agency staff experience the relationship with TA as one of inequality; evaluation team members were repeatedly told that the TA staff 'give them orders.' They felt that the relationship has been authoritarian. Not knowing what can and what cannot be provided from TA personnel or funds means that they have had no means of controlling the situation themselves, and were at the mercy of the TA team for GTZ contributions.

31. **Implementation mechanisms** The IFAD-supported PSO and the GTZ team have had different staff, with different activities and responsibilities. The GTZ staff implemented activities and some of its advisers were outposted in various line agencies. The PSO staff coordinated and supervised the disbursement of funds; they planned activities with the implementing line agencies. In other words, while the IFAD-supported staff has worked in a decentralized way through the line agencies, the GTZ TA team has done their own implementation, with the staff on their pay roll. The case of the Community Development activities is a prime example of this situation and its consequences; it is discussed in detail in Annex 5.

32. **Impact on project implementation** The different implementation mechanisms, as well as the bad relations between the two 'projects,' has had a definite impact on project implementation and on development of the Province. Some aspects of this situation have a positive impact:

- (i) more investment funds have been made available to the Province; and
- (ii) line agencies and villagers could try to get support from both parts of the project;

33. However, most of the impact was negative: lack of coordination between the two parts meant that activities which should have been started by one and completed by the other tended to get stuck in some quagmire along the way. The most notorious example of this concerns extension. In theory, activities were to be financed up to the demonstration stage by GTZ, and then support from IFAD funds was to be used to assist extension in popularizing these activities. In practice, as mentioned above, GTZ considered that it had a lot of packages ready for extension and blamed 'IFAD' for not extending them. This view is not shared by the mission, which considered that the packages were not ready for extension, and in any case extension would be a line agency activity, for which IFAD only provides some recurrent cost financing.

34. In addition, while GTZ readily blamed 'IFAD', i.e., the IFAD-funded component of the project, for not supporting extension, it was clear that the only role this component had in supporting extension was the payment of DSA and travel allowances. These were managed directly by PAFO, who have an advance and their own bank account for such expenses, which were paid for in advance, quarterly by the project, and, if blame is appropriate, it should be directed there.

35. **Analysis** Looking at the structure of the project, it becomes clear that such a situation was inevitable. However, the structural context in which the ‘two projects’ were required to cooperate and in theory operate as a single entity made this an unrealistic demand.

36. GTZ operated according to its own Agreements with the government, with specific objectives and principles determined by GTZ overall policy; its component has been supervised separately by different institutions and individuals. No reference to IFAD has been made during the preparation of new phases or concerning changes of objectives and activities. It has operated on the basis of 3-year project cycles, the second of which was close to completion (Phase 1: 1995-1998; Phase 2, 1999-2001). The third phase, to cover Aug 2001 to July 2004, was also designed without reference to IFAD. One of the proposed intentions of GTZ has been

“within the coming years, RDP Bokeo will become a strong part of the renewed efforts to strengthen collaboration and coordination among all GTZ-supported projects operating in the rural areas of Lao PDR. Eventually these projects shall be combined under the newly created ‘Rural Development Program for Mountainous Areas in Lao PDR’” (Draft Concept and Strategy paper on Community Development, Phase 3 of RDP Bokeo, Feb 2001, p2).

37. Thus in future, the intention appeared to be to integrate activities in Bokeo with those of GTZ elsewhere, not to improve integration into this (IFAD) project.

38. Some project activities need to be implemented sequentially, starting with GTZ TA development and continuing with line agency activities financially supported by the IFAD loan. This effectively has not happened, as a result of different views on the success and stage reached of the activity, lack of communications, or other disagreement. Besides the fact that one element (PSO) backed line agencies while the other (GTZ) had its own implementing staff has been a major constraint with respect to sustainability.

39. The characteristics of the situation can be summarized as follows:

- (i) lack of clear hierarchical structure, with a single effective head;
- (ii) the ability of TA to finance similar investments to those funded by the IFAD loan, one being constrained by government and IFAD procedures, while the other appears to be effectively free to spend grant funds at will;
- (iii) inadequate financial transparency of the grant funds; the Government side did not actually know in advance how much GTZ funds would be available for any activity, so therefore it has had no influence on the distribution of these funds according to activities and priorities; and
- (iv) implementation of decentralization mechanisms through line agencies by one side, while the other side used its own staff (far better paid) to implement activities directly.

**2.6 Role of supervision**

40. UNOPS, based in Kuala Lumpur, is the cooperating institution appointed by IFAD to supervise and administer the loan on its behalf. UNOPS teams have supervised the project four times since it started. The first three missions were led by the same officer, assisted by a different consultant: twice project management specialists and once an agronomist. The most recent mission comprised three persons, including a new project supervisor, an engineer and an institutions specialist.

41. While in each case the recommendation was for a 6 to 8 month interval between missions, only the second mission took place within such a reasonable interval. Actual timing was as follows:

First Mission: August 1996	One year after effectiveness.
Second Mission: March 1997	7-month interval.
Third Mission: split, June and August 1998	15-month interval.
Fourth Mission: November 2000	26-month interval.

42. In view of the difficulties of the project, it is surprising to note that 15 months elapsed without supervision in 1997-98, and a full 26 months elapsed between the 1998 and the 2000 supervisions. This is all the more remarkable given that the MTR made specific recommendations and laid out conditions that had to be fulfilled prior to the 1999 supervision mission, or the project would be closed.

43. With the exception of the first mission, which rated the project as having major problems, subsequent missions systematically rated it as having minor problems, which, given financial disbursements, the problems with TA and the overall lack of progress, seem to have been somewhat unrealistic. The suggestion that the interval between missions should be 6 months clearly indicates the fact that real problems were perceived and should have been addressed through more effective and supportive supervision.

44. The first three supervision reports are similar (drafted by the same team leader) in structure and trends. Although recognizing improvements in implementation, they point out the same types of problems and follow-up:

- (i) inadequate training and support to line agency implementation staff;
- (ii) support for transfer of health and education components entirely to the relevant line agencies;
- (iii) support to decentralization and local institutional empowerment; transfer of maximum activities and responsibilities to line agencies by expanding the process of integration and adjustment of role of project management and TA;
- (iv) restriction of GTZ role to TA and training;
- (v) establishment of effective Monitoring and Evaluation (M&E) system;
- (vi) establishment of real and integrated AWPB conforming with UNOPS standards;
- (vii) rationalization of patterns of project expenditure;
- (viii) speeded up pace of physical and financial implementation, particularly in civil works; and
- (ix) increased role of steering committees.

45. Contrary to the views of earlier supervisions, the new supervision officer and the latest mission had a far more positive view of the project, and in particular criticised its predecessors for having been more receptive to the views of the TA team than to those of the project management team. It also pointed out that there had been misconceptions and in particular earlier missions had stated that relations between line agencies and TA were excellent but those between line agencies and project management were bad. This supervision mission found the opposite (as indeed did the IE team).

46. In contrast with earlier ones and due to the time gap since the previous supervision, the latest supervision provided a table of compliance with MTR recommendations rather than those of the previous mission. Despite the mission's overall positive view of the project, it had to note that of 37 major points of recommendations and action suggested by MTR, only 11 were being fully complied with. However, the Evaluation mission found that some of those considered by Supervision Report to be being complied with were the case; for example, only two village tree nurseries had been established, rather than 12! The latest supervision also stated that Lao Women's Union Groups had been established as planned but, as stated elsewhere in its own text, this was not the case. Of the remaining 26 recommendations, most were either partially implemented or not at all, according to the Supervision Report itself. A close look at the details indicates an overall lack of significant improvement in project performance. Moreover, it gave no grounds for optimism with respect to future improved disbursement rate or more rapid implementation of the contracts signed. In other words, while the text is optimistic, the check on actual indicators and activities would lead to a more pessimistic view.

47. The supervision missions identified many problems correctly and made good suggestions. However, evaluation must raise some serious questions concerning the effectiveness of supervision of this difficult, and indeed problematic, project:

- (i) Given the problems and difficulties, why did missions not take place at the proposed intervals of 6 months, or at worse 8 months?
- (ii) How was a gap of 26 months allowed to occur, particularly after the MTR, which had set certain targets to be achieved within 4 months prior to the proposed supervision mission: failing these achievements, project life was to be curtailed?
- (iii) What action was taken by UNOPS to address the problems between project management and GTZ?
- (iv) What action was taken to speed up disbursements and improve project contract performance?

### 3. LESSONS LEARNT AND RECOMMENDATIONS

48. **Disbursements** Project disbursement schedules should be prepared realistically, taking into consideration the implementation mechanisms of projects and in particular the delays that result from participatory processes and natural conditions.

49. Design of future projects should take this in consideration, both with respect to the size of the loan and to duration and disbursement schedules.

50. **Decentralization and participation** These processes are linked but not identical: government decentralization policies involve increased participation of local government staff and can also increase participation at the community level. Both require more lead-in time. While this may initially slow down disbursements, it is beneficial in the long term as far greater sustainability is ensured by a participatory approach. In order to avoid some of the difficulties and problems that have occurred in the past, and to ensure the sustainability of investments, it is important to always ensure that systematic beneficiary consultation and participatory mechanisms are set up and implemented from the earliest stages of any activity.

51. Project duration and implementation mechanisms should be designed to take these delays into consideration and to note the long-term benefits of such an approach.

52. **Cofinancing** Cofinancing is often a major source of implementation difficulties. This project is an extreme example of the situation, with what was originally intended to be a technical assistance input having become a separate project (with different accountability structure, its own investment financing, etc.).

53. IFAD, as well as government, should seriously consider and study the comparative merits of cofinanced versus single-financed projects. It might be appropriate to reconsider policies that systematically encourage cofinancing.

54. **Technical Assistance** A major lesson of this project is that any TA should be managed within the framework of the investment project, not separately. TA personnel (whether short or long term) should work within the framework of a single project management with a single project manager.

55. Government at the highest level should address the issues raised by this project and ensure that in future the following principles are applied:

- (i) a clear hierarchy with a single head in charge of, and responsible for, all activities;
- (ii) financial transparency of loan and grant funds for all concerned agencies, including line agencies at the Province and District levels;
- (iii) clear demarcation of responsibilities; and
- (iv) detailed and explicit coordination mechanisms throughout implementation to ensure that activities are brought to a satisfactory conclusion; e.g., in the case of trials, each step from experiment to field extension must be clearly detailed and responsibility as well as hand-over process to field extension defined.



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 5**

**MONITORING AND EVALUATION**



# **LAO PEOPLE'S DEMOCRATIC REPUBLIC**

## **BOKEO FOOD SECURITY PROJECT (351-LA)**

### **INTERIM EVALUATION**

#### **ANNEX 5**

### **MONITORING AND EVALUATION**

#### **1. INTRODUCTION**

1. According to the Appraisal Report (1994), a Planning and Monitoring Officer would be recruited, as a member of the Bokeo project office, to be responsible for data collection and providing planning backup for the National Project Director (NPD). Within the first three months of the project, a Monitoring and Evaluation (M&E) workshop should be held to introduce the principles of M&E to the project staff involved with project execution and monitoring. During this workshop, the design for the project's M&E would be discussed, a set of monitoring indicators agreed upon, and an indicative list put forward of likely subjects for case studies on project effects.

2. These aims were reiterated by the 1996 Supervision Report (UNOPS), which stated that arrangements satisfactory to the Fund and UNOPS for monitoring project progress should be submitted no later than six months from the date of that Supervision Mission. The proposal should include information related to the organization, staffing, location and status of the entity responsible for M&E, and also should contain a work programme and budget for M&E activities.

3. None of these activities were implemented in the first three years of the project. The 1997 Supervision Report notes that the design of the project M&E had not yet been completed, and the 1998 supervision mission team reiterated that the project still lacked a comprehensive monitoring, evaluation and reporting system. From 1996 to 1998, monitoring activities were carried out in a very sporadic manner and information on detailed physical and financial progress was not readily available.

4. The 1998 Supervision Report recommended that the Technical Assistance (TA) team should support the process of developing an M&E system. This recommendation was followed up by the Mid-Term Review (MTR) in 1999, where a team member of the MTR was requested by the TA office to assist with setting up an activity monitoring system. The system was implemented as of 1999, and Project Support Office (PSO) recruited a staff member from the Department of Planning and Cooperation (DPC) in Bokeo to be responsible for M&E. This staff member forms a unit together with colleagues in PSO, each monitoring specific sections in the line agencies.

5. The implementing line agencies at district and provincial level are responsible for data collection and for feeding activity progress findings into the system, which is based on the Annual Work Plan and Budget (AWPB) covering all project activities at the input-output level. Half yearly, a Progress Report is made, with an M&E column added to the normal AWPB format. The column is divided into quarters, plus a space for remarks. Each activity is graded: A for done on time, a B for done late, C means postponed, and D signals that the activity has been cancelled. In the remark field, the line agencies should state the explanation for the status of each and every activity. They report to those responsible for M&E within PSO, who arrange the data.

## 2. IMPLEMENTATION ACHIEVEMENT: STRENGTHS AND WEAKNESSES

### 2.1 Strengths of the M&E system

6. **Flow of information.** It is the view of the IE Mission that a good dialogue exists between the PSO and the line agencies in terms of M&E. District and provincial agencies collect data on a regular basis, and the information stream from the field to the project HQ is functioning. In compliance with recommendations given by various supervision reports, the system is simple to execute and has not required new software.

7. **Meetings.** Each quarter, the Planning and Monitoring Officer and other PSO staff members participate in district and provincial meetings, where activities carried out in the last 3 months are evaluated and a plan for the next quarter is developed. During each quarter, regular supervision is carried out by PSO staff members responsible for specific sections.

8. **Training.** Since 1999, a number of PSO staff members have received training in how to carry out M&E activities<sup>1</sup>, and the Mission found an increased recognition of the importance of monitoring among project staff, TA staff and project management.

9. **M&E as part of project management.** The mission found it positive that the M&E unit is placed in the PSO, as the linkage to daily project management is very close. The Mission believed that having the M&E unit as part of project management would increase the project's ability to adjust to an unpredictable and dynamic environment.

### 2.2 Weaknesses of the M&E system

10. **Baseline study.** The project's ability to monitor progress and impact has been hampered by a lack of systematic use of the village baseline surveys carried out early on in the project (data from 1994/95). The surveys are divided into 5 overall themes: *population* (no. of households, inhabitants in each village, etc.); *health/education* (no. of health posts, literacy level, etc.); *village infrastructure* (no. of shops, distance to market, extension and veterinary posts, etc.); *agriculture, livestock and land use* (cultivated area and production at village level, land tenure systems, work calendar, no. of livestock in each village, etc.); and *income generating activities* (practising handicrafts, farm labour, sale of livestock, etc.). The data sheets, each covering a village, are simple, but nevertheless contain some good basic data relevant to project intervention. However, no information was made available to the mission that suggested that this data had ever been followed up by the project. The sheets could have constituted a good starting point for quantitative impact assessments at the present stage. In contrast, GTZ initiated, in late 2000, a number of participatory baseline surveys in target villages in each of the 4 districts and in Nam Gnou Special Zone. The surveys contain a wealth of data for each village, more or less organized under the same headings as the initial village surveys. However, no linkage exists between the first questionnaires and these later surveys, which would otherwise have been an obvious opportunity to try to measure project impact over the last 5 years. Furthermore, the PSO seemed to have no knowledge of these new GTZ baseline reports and PSO staff did not participate in the data collection. Important information has thus not been shared between PSO and GTZ, seriously affecting the M&E efforts.

11. **Physical output.** The mission found that the amount and quality of the information given by the line agencies is unsatisfactory in terms of explaining why certain activities have been delayed or less successful (or even successful), a fact acknowledged by the M&E staff members themselves. The Mission observed that a great deal of emphasis is placed on measuring physical output, rather than aspects related to project reach, effect and impact. The information is further narrowed to mainly quantitative statements, giving number of people trained, fruit trees planted, etc.

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1. M&E training course 16-18 October 1999, and theoretical and practical training in Participatory Impact Assessment (PIA) in October 2000 in connection with the PIA of the Northern Sayaboury Rural Development Project, Lao PDR.

12. **Completed activities.** In line with the latest supervision mission, the Evaluation Mission observed that no evaluation is being carried out of completed activities. This is also the case for completed irrigation and water supply schemes, where the measurement of impact on poorer households and women would be of particular importance.

13. **Impact assessments.** No impact assessments and no case studies on project effects, as indicated by the Appraisal Report, have so far been made. This leaves the project with only vague ideas as to actual impact on specific target groups. From the outset, the project intended to include ethnic minorities and women as target groups. The Mission has no doubt that ethnic minorities in particular have benefited from project activities, but as the present input/output M&E system has not generated any ethnic- or gender-disaggregated data, the Mission foresees difficulties in measuring how women in particular have benefited from this project.

14. **Impact training and surveys.** The Mission acknowledges that Project management has tried to rectify this situation by letting responsible M&E personnel undergo training in PIA – the goal being that the M&E staff could initiate impact monitoring in the immediate future. A study has furthermore been launched with the purpose of identifying different sources of household income, as well as to quantify monetary income and cost of living.

15. **GTZ.** The PSO has no overview of GTZ activities, as the project office does not monitor these and only a superficial dialogue exists between the TA office and PSO in this area. This is a weakness for M&E work and a major problem for the project overall.

16. **DPC.** An attempt was made to establish an M&E Unit in DPC, which would be responsible for monitoring IFAD as well as GTZ activities. This attempt was supported by GTZ TA staff. Two officers from DPC would be responsible for the unit. However, the unit was dissolved as the officers found other jobs outside DPC.

### 3. LESSONS LEARNT AND RECOMMENDATIONS

17. It is obvious from the above that the project has experienced a significant delay in the design and implementation of an M&E system. However, the Mission also observed that Project Management since 1999 has put effort into establishing a functional and simple M&E system.

18. In order to improve the present system, the IE Mission suggests that training be given to local staff at district and provincial level, enabling them to be able to inform the Management Information System on activity progress in a more comprehensive manner. The aim would be to focus more on “why?” activities were successful or less so, and to report on impact.

19. Information was given to the Mission that financial and staff resources of PSO have been set aside to undertake specific studies on impact on beneficiaries, to be carried out in the beginning of the financial year of 2001/02. This is in line with the latest Supervision Mission, which recommends that the impact of project activities in terms of achieving project objectives should be evaluated. Some staff members of PSO have received theoretical and in-the-field training on various Participatory Rural Appraisal (PRA) methodologies and techniques at courses in 2000 and 2001. Although already undertaken, the IE would still recommend that staff members with responsibility for future impact assessments in the field should be given more training in this field, to better prepare them for carrying out such tasks properly. It is recommended that concentrated support in this area be given by the TA team, the cooperating institutions and by IFAD HQ, Rome, during the remaining part of the project. Furthermore, it is recommended that external assistance should be attached to any larger field-studies. No clear ideas of subjects to be studied were presented to the mission.

20. Monitoring emphasizing the physical and financial aspects of project implementation can also be observed in other IFAD projects. It is partly due to the fact that this type of monitoring is easier to undertake than, for instance, impact monitoring, and that physical and financial monitoring is required by project supervision. Seen in the light of IFAD’s enhanced focus on impact and the consequent important role envisaged for the monitoring system, it is recommended that more attention in any new phase of the project be given to the introduction of impact methodologies and skills. Such training would be relevant for project designers and staff for them to be able to undertake reach, effect and impact monitoring. Participatory and qualitative methods are particularly suited to the understanding

of concepts such as livelihood strategies among target groups, and complex relationships between project activities, outcomes and impacts. This could mean, for instance, funding support during the initial phase of a project for the design of an M&E system, as well as for subsequent implementation and adjustments of the system and staff training. IFAD is currently developing new practical M&E Guidelines for results-oriented project management (scheduled to be ready in late 2001). It would be evident that these could be used when designing the M&E system for any new phase of the project.

21. It was the understanding of the IE Mission that plans existed for re-establishing an M&E unit in DPC that would be responsible for both GTZ and IFAD activities. The view of the Mission was that such a unit could benefit the project, provided that adequate human resources are connected to it and provided that this does not drain the PSO of good human resources. A close linkage to daily project management should be maintained.

**LAO PEOPLE'S DEMOCRATIC REPUBLIC**

**BOKEO FOOD SECURITY PROJECT  
(351-LA)**

**INTERIM EVALUATION**

**ANNEX 6**

**RURAL INFRASTRUCTURE**



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## BOKEO FOOD SECURITY PROJECT (351-LA)

### INTERIM EVALUATION

#### ANNEX 6

### RURAL INFRASTRUCTURE

## 1. INTRODUCTION

1. Bokeo Food Security Project aims to improve food security in Bokeo Province, primarily through the development of rural infrastructure, including rural roads and irrigation, which have consumed the bulk of IFAD funds.
2. The project has also funded health and education infrastructure, i.e., water supply schemes, schools, and one health centre.
3. The project operates in four districts, i.e., Thongpeung, Houay Xai, Pha Oudom and Pak Tha, and in the Nam Gnou Special Zone. However, until recently, most project activities focused on Thongpeung, and to a lesser extent on Houay Xai district.
4. Because most IFAD funds have been devoted to infrastructure development, the engineering aspects of rural road and irrigation development have been assessed in detail.

## 2. FEEDER ROADS

### 2.1 Programme objectives

5. The objectives of the feeder road programme are to facilitate communications between the villagers in the rural area and the main roads, as well as to the market.

### 2.2 Design

6. The scope of the road component to be financed out of the loan proceeds include:
  - (i) Rehabilitation and upgrading to Class IV (see Table A6-1) of about 78 km of earthen road with a granular material base course of 3.5 m wide and an overall road formation of 6 m (OPEC funds).
  - (ii) Construction of the major bridges along the same road.
  - (iii) Construction of about 40 km of spur roads to Class V, with an overall road formation of 4.5 m.
  - (iv) Strengthening of the Department of Communications Transport, Post and Construction (DCTPC) in the project area.
7. The road selected for upgrading to Class IV was the road linking Houay Xai and Muang Mom.
8. The project planned to build Class IV and Class V roads, with the following characteristics:
  - (i) Class V (Rolling): The formation width or the total road width is 6 m, in which 3.5 m is the lane base course, with a shoulder width of 1.25 m. The thickness of sub-base course is 0.2 m in granular material and compacted to 98% of Standard Proctor Test (SPT), with a California Bearing Capacity Ratio (CBR) >30, and sub-grade material compacted 95% of SPT with CBR>7. Surface slope = 5%.

- (ii) Class IV (Mountainous): The formation width is 4.5 m in which 3.5 m is the lane base course, and shoulder width is 0.50 m. The thickness of sub-base is 0.2 m in granular compacted 98% of laboratory proctor test with CBR>30 and sub-grade material compacted 95%, with CBR >7. Surface slope = 5%.

9. The construction standard is based on the standards defined by the Ministry Of Communications Transport, Post and Construction (MCTPC) in 1993, as shown in Table A6-1.

### 2.3 Achievements

10. The design of 20 feeder roads, with a total of 142.7 km for rehabilitation or new construction, has been completed for 18 roads and was ongoing for 2 roads. The survey and design was funded by IFAD and GTZ.

11. The roads were designed by Bokeo provincial DCTPC and local consulting firms, following the standards of a Class V road (M), where (M) means “mountainous” area, as shown in Table A6-1).

12. At the time of Mission, 14 feeder roads, with a total length of 48.7 km had been implemented, of which 38.15 km were funded by IFAD and 10.65 km by GTZ. Rehabilitation accounted for 15.5 km, while new roads were 33.2 km.

13. A full overview of the feeder road programme of the project is presented in Table A6-2.

14. The feeder roads have been constructed by private contractors using local competitive bidding procedures. The supervision (field compaction density test) of construction of the road was conducted by the DCTPC. The mission visited 11 feeder roads and generally found the quality of construction satisfactory.

**Table A6-1. MCTPC Minimum Design Standard for Rural Roads (1993)**

Design parameter	Road design class														
	I			II			III			IV			V		
Average daily traffic (number of vehicles)	5000 - 1000			1000 - 300			300 - 100			100 - 20			<20		
Terrain <sup>(1)</sup>	F	R	M	F	R	M	F	R	M	F	R	M	F	R	M
Carriageway (m)	7.00	7.00	6.00	7.00	6.00	6.00	6.00	6.00	5.00	3.50	3.50	3.50	3.50	3.50	3.50
Shoulder width (m)	1.00	1.00	0.50	1.00	1.50	0.50	1.50	1.50	0.50	1.25	1.25	0.75	0.75	0.75	0.50
Formation width (m)	9.00	9.00	7.00	9.00	9.00	7.00	9.00	9.00	6.00	9.00	6.00	5.00	5.00	5.00	4.50
Max. gradient (%)	6	8	12	6	8	14	8	10	14	8	12	14	10	15	20
Minimum design speed (km/h)	100	85	60	100	85	60	85	70	60	70	50	40	60	40	30
Minimum horizontal curve (m)	350	250	100	350	250	100	250	150	100	150	60	60	100	30	15
Minimum vertical curves (m)															
a) Crest to road surface (m)	125	70	20	125	70	20	70	35	20	35	11	6	20	6	3
b) Sag for comfort (m)	13.1	8.1	3.5	13.1	8.1	3.5	8.1	4.8	3.5	4.8	2.2	1.3	3.5	1.3	0.7
Road reserve (m)					40 - 60										
Pavement slope (%) (paved shoulder)					4						4 - 6				
Shoulder slope (%) (unpaved)					6						6 TO 8				
Maximum axle loading (ton)								9.1							

NOTES: (1) F = Flat; R = Rolling; M = Mountainous.

SOURCE: Ministry of Communications, Transport, Post and Construction (MCTPC)

**Table A6-2** Status of Feeder Road Programme implementation at time of Interim Evaluation Mission

	Feeder Road	District	Length (km)	Total cost (USD)	Cost/km (USD)	Status	Funds Source
1	Thongpeung Municipality (rehab.)	T/P	5.6	57 549	10 277	Cmpl. 99	IFAD
2	Done Keo – Mai Phattana (rehab.)	T/P	10.0	89 077	8 908	Cmpl. 00	IFAD
3	Simuang Ngam – Houay Ngam	T/P	5.0	33 247	7 228	Cmpl. 98	IFAD
4	Nam Keung Mai – Sidon Xai	T/P	3.8	135 301	35 605	Cmpl. 99	IFAD
5	Nam Keung Kao – Nam Gnao Irrig.	T/P	2.6	25 250	9 711	Cmpl. 99	IFAD
6	Nam Gnone Mai – Lao Luang	H/X	5.7	182 220	31 969	Cmpl. 98	IFAD
7	Thinkeo – Houay Lieng	P/Dom	3.6		18 325	Ongoing	IFAD
8	Pounglat – Houay Lieng	P/Dom	3.3	228 146	18 325	Cmpl. 01	IFAD
9	Thinkeo – Houay Khong	P/Dom	5.5		18 325	Ongoing	IFAD
10	Market – Thinkeo	P/Dom	2.4	55 842	23 267	Cmpl. 01	IFAD
11	Kokteun – Houay Khot	Pak Tha	7.1	227 547	31 824	Ongoing	IFAD
Subtotal IFAD roads			54.6	228 444	4 184		
12	Sidonxai-Mai Phattana	T/P	3.3	Cost of GTZ roads not requested by the Mission		Cmpl. 99	GTZ
13	Mai Phattana-Nakham	T/P	4.0		Cmpl. 00	GTZ	
14	Nakkham-Berneung	T/P	4.4		Ongoing	GTZ	
15	Koubong-Samsip	T/P	3.0		Cmpl. 01	GTZ	
Subtotal GTZ roads			14.7				
Total IFAD + GTZ			69.3				
Including completed			48.7				
Including ongoing			20.6				
16	Bam Namtha	NGSZ	2.0			Designed	No fund yet allocated. Other donors might be involved
17	Nam Choam – Longphabat	NGSZ	42.0			Designed	
18	Homsouk – Viengphattana	Pha/Dom	10.4			Designed	
19	Lao Luang – Panna	H/X	3.0			Designed	
20	Paktha – Viengphattana	Pha/Dom	16.0			Designed	
Subtotal designed			73.4				
GRAND TOTAL			142.7				

Key to Districts: T/P = Thongpeung; H/X = Houay Xai; P/Dom = Pha Oudom; NGSZ = Nam Gnou Special Zone

## 2.4 Assessment and evaluation

15. The road Class IV(M) from Houay Xai to Muang Mom, funded by OPEC, was constructed as asphalted. To date, only 27 km instead of 78 km planned had been completed (34.6% of target). The road was originally designed as a gravel road, but was upgraded to an asphalt road, so the available budget was insufficient to complete the full length.

16. The length of the feeder roads funded by IFAD and completed to date was 38 km, which is more than the original target of 25 km.

17. The approach followed for the development of the feeder roads to the irrigation schemes has been different to the design. The supervision mission of 1996 recommended that

“to the extent possible, construction should be labour intensive, involving the community being served, so as to reduce the construction cost. It will probably be necessary to hire a bulldozer for the initial cut and fill of the new alignment and a motor grader for the final shaping of the road. The community can do the compaction of the road surface and the digging of the drain canal along both sides of the road to the pipe culvert by using the tools provided by the project.”  
(Supervision Report, 15 October 1996, para. 40)

18. The quality of the design drawings (Section 4 of the contract) is standard (specifications of material for sub-grade and sub-base are shown on the drawings). However, the design reports were not available to the mission, the bill of quantities was absent and the as-built drawings were also missing.

19. The construction cost of the feeder road from Namkeung Mai to Sidonxai (USD 35 605/km) was expensive in comparison with other project roads due to the topographic conditions and to the fact that 30 culverts had to be built (more than 9 sites/km). The quantity of soil excavation and road embankment for sub-grade were higher than estimated at Appraisal Report. Therefore the cost was much higher than elsewhere.

After this road, the second most expensive feeder road was that from Ban Nam Gnone Mai to Ban Lao Luang, followed by the road from Ban Konteun to Ban Houay Khot, with costs of USD 31 900/km and USD 31 825/km, respectively.

20. The unit cost/km of the project roads was considered reasonable, if compared to the implementation cost of similar roads in Lao PDR. According to MCTPC, the cost of this type of road would be in the range of USD 30 000 to 35 000/km. For instance, a similar road was built by the Lao EU Microproject in Luang Prabang at a cost of USD 30 000/km (Pak Xeuang – Pak Xeng road).

21. The cost projected in the appraisal report (Annex 7) was USD 11 000/km for a Class V road, USD 28 310/km for a Class IV road, and USD 14 740/km for the rehabilitation of a Class IV road. These cost ranges are clearly below national expected costs.

22. The quality of the material for the sub-base course of some portions of the Nam Keung Mai to Sidonxai feeder road was not good enough, due to insufficient gravel. Therefore the surface of the road is easily eroded by water runoff. The mission observed erosion at the steep-gradient portion of the road.

23. In general, the quality of the construction was found to be satisfactory, with the exception of some weak points.

- (i) For almost all the pipe culverts constructed, no head wall and no wing wall had been built to protect the structure from soil erosion.
- (ii) On the Nam Keung Kao – Sidonxai road, it was found that the surface of the road was already worn out.
- (iii) The materials for the sub-base course of some portions of Nam Keung Mai to Sidonxai were not well mixed.
- (iv) The materials used for base course, such as laterite, were not always available locally for road construction.
- (v) The materials were not always mixed according to specifications.

24. A detailed assessment of road construction quality and investment cost are shown below in Tables A6–3 and A6–4.

**Table A6–3.** Assessment of road construction quality

Feeder road	Class	Type	Road width (m)	Sub-base material	Erosion protection	Gradient	Culvert density	Finishing work
Thongpeung Municipality	IV	Rehab.	6	A	G	G	2	A
Done Keo – Mai Phattana	IV	Rehab.	6	A	A	G		G
Simuang Ngau – Houay Ngau Irrig.	V	New	4.5	G	G	G		G
Nam Keung Mai – Sidonxai	V	New	4.5	A	B	too steep	9	A
Nam Keung Kao – Nam. Gnao Irrig.	V	New	4.5	G	B	G		G
Nam Gnone Mai – Lao Luang	V	New	4,5	G	B	G	7	G
Pounglat – Houay Lieng Irrig.	V	New	4.5	G	B	G		G
Thinkeo – Houay Khong	V	New	4.5	G	B	G	5	G
Market – Thinkeo	IV	New	6	G	A	G	1.6	G

NOTES: A = Average; G = Good; B = Bad

SOURCE: Mission Findings

**Table A6–4.** Unit cost per kilometre of road development (USD)

Feeder road	Class	Type	Road width (m)	Actual (USD)	Appraisal estimate (USD)	EU/LPB (Pak Xeng) (USD)	MCTPC std. (USD)	IE Mission eval.
Thongpeung	IV	Rehab.	6	10 277	28 310			OK
Done Keo – Mai Phattana	IV	Rehab.	6	8 908	14 500			OK
Simuang Ngau – H. Ngau Irrig.	V	Const.	4.5	7 228	11 000			VG
N. Keung Mai – Sidonxai	V	Const.	4.5	35 605	11 000	33 000	35 000	OK
N. Keung Kao – Irri. N. Gnao	V	Const.	4.5	9 711	11 000			VG
N. Gnone Mai – Irri. Lao Luang	V	Const.	4.5	31 969	11 000	33 000		OK
Poung Lath – H. Lieng Irrig.	V	Const.	4.5	18 325	11 000			OK
Thinkeo – H. Khong	V	Const.	4.5	18 325	11 000			OK
Market – Thinkeo	IV	Const.	6	23 267	28 310			VG

NOTE: OK = Acceptable quality. VG = Very good quality.

SOURCES: EU Luang Prabang; MCPTC; Appraisal Report; Mission Assessment

## 2.5 Lesson Learnt

25. The appraisal cost (for feeder road Class V) was not realistic. A range of USD 25 000 to 35 000/km would be more in line with field-level reality.

## 2.6 Recommendations

26. The maintenance of the feeder road should be entrusted to the community, with the support of materials and tools from the project.

27. The design process should be improved, i.e., the design report and as-built drawings should be available to project staff.

## 3. IRRIGATION DEVELOPMENT

### 3.1 Project design

28. The Bokeo Food Security Project was originally planned in 1993 (original Appraisal Report) to develop 30 irrigation schemes on an area of 900 ha for the rural poorest in four districts of Bokeo Province. The development policy to be pursued was to be:

- (i) Rehabilitate or repair 9 existing weirs for a command area of 270 ha (30 ha/scheme, with an existing 25 ha and an extension of 5 ha).
- (ii) Upgrade 16 traditional wooden weirs by concrete or rock masonry to command an irrigation area of 480 ha.
- (iii) Construct 5 new irrigation schemes to command an area of 150 ha.
- (iv) Construct 25 km of feeder roads to the irrigation areas to improve market accessibility.

### 3.2 Achievement

29. By the time of the IE Mission, 7 irrigation schemes had been constructed, while work on 2 irrigation schemes was ongoing (a total of 9 schemes, of which 4 were upgrading, 3 were rehabilitation and 2 were new developments).

30. The performance of irrigation development had been delayed and the first upgraded scheme of about 80 ha was completed only in 1998. In the subsequent years, the pace of implementation improved and 3 schemes were completed in 1999 and 3 schemes in 2000.

31. The 7 completed schemes covered an area of 452 ha. This is about 50% of the original Appraisal Report target.

32. The list of the schemes completed and under construction at the date of Mission are given in Table A6–5.

**Table A6–5.** Status of irrigation programme implementation

Scheme	Type	District	Total command area (ha)	Construction cost (USD)	Cost effectiveness (USD/ha)	Status
Houay So	Upgrade	Thonpeung	80	77 300	966	Compl.
Houay Ngam	Rehab.	Thonpeung	120	7 411	61	Compl.
Houay Na	Upgrade	Thonpeung	42	31 992	762	Compl.
Nam Gnao I	Upgrade	Thonpeung	50	15 676	314	Compl.
Nam Gnao II	Upgrade	Thonpeung	70	26 612	380	Compl.
Nam Gnong	Rehab.	Thonpeung	35	48 602	1 389	Compl.
Nam Gnone	New	Houay Xai	55	43 273	786	Compl.
Houay Lieng <sup>(1)</sup>	Rehab.	Pha Oudom	205	221 749	1 082	Ongoing
Nam Gnou	New	Houay Xai	99	221 112	2 233	Ongoing
Special Zone						
Total			756	693 727		
Average					917.63	

NOTE: (1) Although design documents indicate 205 ha, the project finance documents for the same contracted amount indicate 100 ha, which would give a total of 651 ha and obviously a higher cost/ha. All other data on areas and contracts amounts are identical in both sets of documents.

SOURCE: Project design estimates

33. The mission noted that the topographical map of the command area of each scheme was not available in the Provincial Irrigation Section (PIS) and the mission was therefore unable to check the accuracy of these figures.

### 3.3 Findings in the field

34. The mission visited eight schemes, of which seven were completed and one under construction.

35. Generally, the quality of the concrete works (head-works system) was satisfactory. The construction work was supervised by Bokeo PIS and GTZ Technical Assistance staff. All hydraulic structures (weirs and related structures) successfully withstood the maximum runoff of the heavy rainfall recorded during 2000.

36. However, some problems were noted:

- (i) Erosion was seen on the left bank downstream of Houay Ngau weir. This was the weak point of the design.
- (ii) Erosion was seen on the right bank of Nam Gnong and on some paddy fields, caused by water overtopping.
- (iii) The earthen canal of Houay So Irrigation Scheme was leaking at places where the canal ran parallel to the hill and the river bank, and where the canal embankment had been built by the beneficiaries.
- (iv) In the Houay So scheme, the distribution of water between Thong Museu and Thong Paktha (Ban Khounbong ) was not fair. Thong Museu had a larger area than Tong Pakha but it received less water. The mission recommended strongly that PIS and GTZ Staff should cooperate with the Water Users' Group in order to solve this problem.
- (v) The conveyance water at Nam Gnao I irrigation scheme did not reach the tail end lands, and the Water Users' Group proposed modifying the size of the canal intake pipe or replacing it with rock masonry in order to get enough water. With respect to this problem, the mission recommended that PIS and GTZ cooperate with the farmers to find a solution. The mission has also recommended that the technical team should recheck the elevation profile, from the crest of the weir to the command area along the canal profile.

37. Water Users' Groups of the completed schemes have been established for operation and maintenance of the scheme after completion of construction.

38. The land allocation for the 20 ha of new land of Nam Gnone Mai scheme (Lao Luang village) had been implemented. The mission saw some of the beneficiaries, who were currently levelling land and developing paddy fields.

39. Although some irrigation schemes had operated for dry season cropping (about 15 ha in total), the irrigation schemes were mainly used for supplementary irrigation during the wet season, due to the limited water resource. However, the available water flow in Nam Gnone, Nam Gnao, Houay Na and Houay Lieng, as observed during the field visit, would be sufficient for a second rice crop during the dry season.

40. The data of the mean monthly river flow is crucial for determining the potential of the irrigation scheme. The river flow measurements have been taken but this has not been done regularly during the wet and dry seasons, so the data are insufficient to make a reliable estimate of water availability.

41. The irrigation water requirement used to determine the size of the canal is 2.93 litre/second, which is a reasonable figure. Design reports and irrigation scheme layout maps covering the command areas, which are necessary for scheme evaluation assessment, were not available to the mission and might not exist.

42. The preliminary survey was done by the GTZ Team in collaboration with PIS in 1996. The survey and design were done by the GTZ Team, together with PIS staff (on-the-job training).

43. Several PIS staff has been trained in the use of advanced survey equipment and associated technology, such as SoftDesk Civil/Survey Application Software and AutoCAD Design Software.

### **3.4 Assessment and evaluation**

44. The cost-effectiveness, i.e., the unit cost per hectare, of the schemes has been reasonable, with a maximum of USD 2 233/ha for a new scheme. The overall average of the cost per hectare was USD 917.6/ha.

45. For the new schemes (new weir and new paddy area) like Nam Gnou Special Zone, the cost of land clearing and levelling at about USD 500/ha should be added to the construction cost. As a whole, the development cost of such a scheme would therefore be USD 2 733/ha. Although this is 25% higher than the original design cost, this amount is reasonable if compared with similar projects in Lao PDR. For example, in the ADB-supported Community Management Irrigation Project (CMI), in a mountainous area the cost was USD 3 500/ha, and in the lowlands it was USD 1 800 to 2 000/ha. In Luang Prabang Province, for the LAO-EU Microproject Luang Phabang, the cost was on average USD 2 200/ha, while the lowest was USD 1 100/ha and the highest was USD 3 600/ha.

46. The quality of the design was just acceptable, given that the irrigation staff had been trained and equipped with high quality tools for survey and design, as well as AutoCAD design Software (NOVA CAD, S8 Civil/Survey Applications).

47. The right bank erosion downstream of Houay Ngam weir was caused by the eroding force of flowing water. This was the result of hydraulic miscalculation and therefore the length of the protection of the river bed downstream of the stilling basin was not sufficient.

48. In Houay Xo, water leaking from the canal caused the collapse of the bank of the canal. This was due to faulty design, which did not consider the stability of the canal and placed the embankment along the slope of the river bank.

49. The performance of the irrigation component was delayed due to insufficient experience of irrigation staff to plan, survey, design, select construction material or supervise field work. Moreover, inadequately experienced contractors had insufficient technical equipment (bulldozers) and employed insufficiently qualified construction supervisors. As a result, work overall has been sub-standard.

50. Some contracts, e.g., Nam Gnou Special Zone, were being weakly managed. Unacceptable delays were occurring without justification, and no action had been taken so far by the contracting authority to review the situation.

51. Evaluation of the quality and the cost-effectiveness compared to other projects is summarized in Table A6-6

**Table A6–6.** Unit cost and quality of irrigation development

Scheme	Type	Head work			Down-stream protection	Canal		Unit cost (USD/ha)
		Weir	Intake with gate	Sand flushing gate		Concrete	Earth	
H. Xo	New weir	A	G	G	A	G	Partially B	966
H. Ngam	Rehab. weir	A	G	G	B	G	A	61
H. Na	New weir	A	A	A	A	G	A	762
N. Gnaol	Rehab. weir	A	A	A	G	G	A	314
N. Gnaoll	New weir	A	A	G	G	G	A	380
N. Gnong	New weir	A	G	G	G	G	A	1 389
N. Gnone	Free intake	G	G	G	G	G	A	786
N. Gnou	New weir							2 233
H. Lieng	Rehab. weir			G				1 082
<b>Comparative values for similar schemes</b>								
Appraisal (rehabilitation of weir)								397
Appraisal (new scheme)								1 536
Lao-EU Microproject Luan Prabang (new scheme)								1 200 - 3 600
ADB (Community Irrigation Management Project)								1 800 - 3 500

KEY: A = acceptable; B = bad; G = good (IE Mission gradings).

SOURCE: Mission Findings

### 3.5 Lessons learnt

52. Insufficient staff and low capacity in the irrigation section were major issues constraining effective implementation.

53. The quality of construction was satisfactory and the actual costs per hectare reasonable. Appraisal estimates were reasonable.

### 3.6 Recommendations

54. Improve screening by PIS of project proposals in order to focus on poorer villages.

55. Recruit additional experienced irrigation engineers to PIS in order to facilitate and improve scheme preparation (preliminary study, survey and design).

56. Improve contract management to accelerate the implementation of small irrigation schemes in order to ensure that the achievements meet the Appraisal Report targets.

57. Promote community awareness concerning forest conservation in the catchments of irrigation schemes.

58. GTZ should share design documents with other parts of the project and with PIS.

## 4. OTHER INFRASTRUCTURE

### 4.1 Housing and offices

59. The project had constructed 8 houses (2 staff houses, 1 project office, 1 field office and 4 promotion centres) and also provided facilities for these buildings. The quality of work was good but the cost of some of the facilities was very high compared to the design cost. The quality and cost-effectiveness for each construction work is shown in Table A6–7.

### 4.2 Schools

60. Appraisal premised 24 primary schools being built, 16 of which would be new and 8 rehabilitation. At the time of Mission, 22 had been completed and 2 were under construction. The quality was satisfactory and the cost-effectiveness was the standard price, below USD 85/m<sup>2</sup>.

**Table A6–7.** Cost of construction or rehabilitation of housing and offices

Type	Description	Contract amount (USD)	Design cost (USD)	Area (m <sup>2</sup> )	Cost/m <sup>2</sup>	Remarks
New	Water well + Pump Houay Xo	4 755		9.00	528	
New	Office Houay Xo	143 653	105 187	349.50	411	very high
New	Staff Housing Houay Xo	124 381	61 620	247.68	502	very high
New	Field Staff Housing Thongpeung	72 043	59 985	250.80	287	OK
New	Field Office and water well	69 303	59 781	387.10	179	OK
New	Simuang Koun Thongpeung Promotion Centre	18 536		51.00	363	very high
Rehab.	Nam Gnou Special Zone Promotion Centre	3 594		120.00	30	
New	Pak Tha Promotion Centre	17 734		120.00	148	OK
New	Pha Oudom Promotion Centre	21 039		120.00	175	OK

## APPENDIX A6-1 SITES VISITED

Site	Building	District
Project office		Houay Xai
Staff housing		Houay Xai
Field office		Thongpeung
Field staff housing, water well and electricity		Thongpeung
Promotion Centre B.Simuang Khoun office		Thongpeung
Promotion Centre B.Kokteun office		Pak Tha
Promotion Centre B.Pounglat office		Pha Oudom
<b>Irrigation</b>		
Houay So		Thongpeung
Houay Ngau		Thongpeung
Houay Na		Thongpeung
Nam Gnao I		Thongpeung
Nam Gnao II		Thongpeung
Nam Gnong		Thongpeung
Nam Gnone		Houay Xai
Houay Lieng		Pha Oudom
<b>Road and Feeder Roads</b>		
Main road Houay Xai – Nam Keung Kao		Houay Xai, and Thongpeung
Thongpeung Feeder road (Portion A, B & C) Rehab.		Thongpeung
SMG – Houay Ngau Irrigation Feeder road		Thongpeung
Done Keo – Mai Phattana (Rehab.)		Thongpeung
Nam Keung Kao – Nam Gnao Irrigation		Thongpeung
Sidonxai – Mai Phattana		Thongpeung
Nam Keung Mai – Sidonxai		Thongpeung
Nam Gnone Mai – B. Lao Luang		Houay Xai
Market – Pounglat – Houay Khong		Pha Oudom
Pounglat – Houay Lieng Irrigation		Pha Oudom
Market – B. Thinko		Pha Oudom
B. Kokteun – H. Khot		Pak Tha
<b>Schools</b>		
B. Nockachock		Thongpeung
B. Thongpeung Primary school		Thongpeung
B. Thongpeung Pre-Primary school		Thongpeung
B. Simuang Ngau		Thongpeung
B. Na Ngam		Thongpeung
B. YangTai		Thongpeung
B. Nam Keung Kao		Thongpeung
B. Nam Gnone Mai		Houay Xai
B. Houay Ngau		Pak Tha
B. Mock Plai		Pha Oudom