



Northern Agriculture and Forestry Research Centre Strategic Framework Draft for discussion





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Centre Strategic Framework
Draft for discussion**

**National Agriculture and Forestry Research Institute
February 2008**

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Foreword

The Northern Agriculture and Forestry Research Centre (NAFReC) was established in 2003 and is the main centre under the National Agriculture and Forestry Research Institute in Northern Laos. NAFReC focuses on carrying out applied upland agriculture and forestry research that is demand driven, responsive to the farmers' needs and in-line with the emerging market opportunities occurring throughout Northern Lao.

NAFReC is directly responsible for implementing and coordinating NAFRI's research programme in the 7 northern provinces of Lao PDR (Luang Prabang, Sayaboury, Oudomxay, Luang Namtha, Bokeo, Houaphan and Phongsaly).

This NAFReC Strategic Framework is a sub-strategy of the NAFRI Research Strategy and is structured based on the vision, mission, goals, functions and research thrusts described in that document. It is presented as a guide for how NAFReC, as NAFRI's first regional research centre, can work to operationalise the aims of the overall NAFRI Research Strategy in Northern Laos.

The strategy was developed as part of the overall restructuring taking place at NAFRI as well as part of the Upland Research and Capacity Development Program (URDP) which is a partnership between Sida and NAFRI and focuses on building research capacity in Laos. The process to develop this strategy included assessing the overall capacities and resources currently available at NAFReC, and discussions with key development partners and international research organisations working with NAFReC in the North. In addition, a consultation was held with all seven Provincial Agriculture and Forestry Offices and other key stakeholders in the North to get feedback and inputs into this strategic framework.

This initial strategic framework is meant to be a draft to further discussion on how best to proceed in developing NAFReC's capacity to become a leading agent supporting change in the Northern Uplands.

We hope that you will take the time to read through the strategy and provide comments and suggestions for making the framework as relevant and practical as possible. It is hoped that later in 2008 the strategy will be finalized based on the comments and suggestions received.

1. Agriculture and forestry in the Northern Laos

In Northern Laos radical changes are taking place in long established agricultural production and natural resource management systems. Upland rice cultivation, which has traditionally provided the mainstay of household food consumption, is decreasing. Farmers are rapidly moving from semi-subsistence production to cash crops. Agricultural systems based on shifting cultivation are being replaced by permanent systems producing completely new crops, including maize, cassava, groundnuts and soybeans. In particular, the unprecedented and massive expansion of rubber production is creating an entirely new landscape. This is occurring despite a lack of reliable information about the suitability of rubber and these other crops to prevailing agro-environmental conditions. Even less is known about how rubber and the other new commercial crops will ultimately impact on the livelihoods of the extremely diverse communities in the North.

The impacts of these transformations on development and poverty alleviation will relate to how well producers, processors, investors and governmental agencies work together to understand and strengthen value chains. Joint efforts are needed to overcome existing obstacles to competing in international markets and attaining the standards of quality, quantity and timeliness that commercial markets demand. These crops are primarily being produced in contract farming schemes financed by international investors from the region. The dynamics of these investment forms and the impacts of all of these changes on the sustainability of land use and on food security are not yet clear. It is apparent that stronger farmer organisations will be essential if Lao farmers are to benefit from these new markets and products, but models and structures for how farmers can organise have not yet been assessed on a large scale. The unique historic and cultural factors in Northern Lao rural society suggest that approaches to farmer organisation and cooperation from other countries must be tailored to prevailing needs and conditions.

The changes underway in Northern Laos may provide great benefits for the rural population and may also replace practices that are degrading the environment and the productive resource base. In order to do so, there is a great need for scientific knowledge about how to best adapt these new systems to the prevailing conditions in Northern Laos and the needs of the rural poor. In addition, it will be essential to maintain a proactive dialogue between research and policy makers regarding emerging issues such as climate change and the upheaval in global markets for food, feed and biofuels. The government is promoting vast changes in Northern Laos with the aim of alleviating rural poverty by providing an alternative to shifting cultivation and opium production. The challenge facing the Northern Agriculture and Forestry Research Centre (NAFReC), together with the National Agriculture and Forestry Research Institute (NAFRI), is to support the Ministry of Agriculture and Forestry (MAF) to achieve its objectives in transforming agricultural systems and also to analyse how these changes are impacting on poverty, food security and sustainability. NAFReC's research will help both MAF and local partners from the Provincial Agriculture and Forestry Offices (PAFO) and District Agriculture and Forestry Offices (DAFO) to ensure that the profound transformation that are underway provide maximum long-term benefits for the rural population.

2. NAFReC's contribution to NAFRI goals

2.1 Background

This NAFReC Strategic Framework is a sub-strategy of the NAFRI Research Strategy and is structured based on the vision, mission, goals, functions and research thrusts described in that document. It is presented as a guide for how NAFReC, as NAFRI's first regional research centre, can work to operationalise the aims of the overall NAFRI Research Strategy in Northern Laos. Readers of this NAFReC Research Strategy are advised to refer to the NAFRI Research Strategy for more information regarding the background to the structures and direction described here. The vision, mission and goals outlined below are intended as a framework for NAFReC staff to organise and prioritise their work and as a guide for outside stakeholders regarding the basis upon which future collaboration with NAFReC should be built.

NAFReC was formally created in 2003 through the merger of two forestry research stations and one rice research station, all of which are located in Luang Prabang Province. During the first years there has been a gradual process of adapting the agendas of these three stations to NAFRI's overall strategy and structure. NAFReC has also begun expanding the geographic range of work to the seven provinces of Northern Laos. The areas of greatest focus in research and seed production have been related to rice and teak, with increasing attention being given to work in integrated farming systems with support from the other NAFRI research centres. During these first years NAFReC has developed activities in four areas:

1. The stations have continued their work with the production of seed, seedlings and animal breeds for distribution in Luang Prabang and the other provinces in the North.
2. NAFReC has engaged in on-station and on-farm research in collaboration with two major international research programmes (Lao-IRRI and the Lao-Swedish Uplands Agriculture and Forestry Research Programme) and a number of smaller initiatives. These efforts have also engaged researchers from other NAFRI research centres.
3. Information activities of the NAFReC Information Service Unit have been steadily upgraded with the establishment of a library, installation of limited IT capacities and increasing contacts with extension, especially in provinces and districts where field activities are underway.
4. Management structures have been created linking NAFReC with the rest of NAFRI, with PAFOs and DAFOs, and with a range of research and development initiatives in the North.

NAFReC is generally sufficiently equipped for its current tasks with respect to basic facilities. Some problems still exist in IT infrastructure. Laboratory facilities are lacking, but this may be addressed in the future through either collaboration with Souphanouvong University (described below) or through proposed support from Swiss Development Cooperation.

2.2 Vision

NAFRI's vision

NAFRI envisions the future where poverty in rural areas is reduced through improvement of agriculture production systems which support a higher state of food security, increased income for rural farmers, and the utilisation of natural resources is managed sustainably.

NAFReC's vision

NAFReC's vision as a regional research centre is a future where different NAFRI research centres and stakeholders at field level are working together in a proactive manner to alleviate poverty through improved agricultural production systems, wherein increasing commercialisation leads to improved food security and sustainable management of upland resources.

2.3 Mission

NAFRI's mission

NAFRI aims to contribute to the goals of the Government of Laos by carrying out integrated 'research for development' to overcome specific problems limiting production and causing degradation of natural resources. NAFRI will also work closely with different levels of policy-makers to provide feedback and advice to ensure a more supportive policy environment. Finally, NAFRI will strengthen information and communication systems within Laos so that a range of actors have better access to information and knowledge to make informed decisions at different levels.

NAFReC's mission

NAFReC has a dual mission, (1) to link research to development efforts (particularly those led by PAFOs and DAFOs) in the Northern Uplands and (2) to feed back to Vientiane an understanding of how policies and technological changes are impacting on rural livelihoods. These tasks are fundamental to NAFReC role as a regional centre.

2.4 Implications for NAFReC of NAFRI's strategic goals

- 1. To develop appropriate methods and technologies to strengthen agriculture production systems for different regions in Laos and focus on ensuring food security as well as income generation opportunities for rural farmers.**

Special implications for NAFReC

The added value from NAFReC in NAFRI's research into these areas is primarily to ensure that the national research agenda (and the work of NAFRI's commodity research centres) is adapted to the special challenges of achieving food security and alleviating poverty in the Northern Uplands in light of the rapid commercialisation of production and natural resource management systems.

- 2. To develop alternative options for upland farmers to cope and adapt their production systems to the rapid changes occurring in the country.**

Special implications for NAFReC

NAFReC convenes analyses of new trends in rural development and land use in the North, including expansion of new cash crops, loss of forest cover and biodiversity, demographic pressures on limited natural resources, and climate change.

- 3. To support the development of improved methods to ensure the sustainable management of land and natural resources**

Special implications for NAFReC

NAFReC shall build on its current role in supporting NAFRI's work in developing and piloting land use planning modalities and addressing other methodological challenges.

4. To improve access to information and knowledge of different actors so they can make informed decisions at different levels

Special implications for NAFReC

Particularly through its role as a collaborating partner in many internationally supported projects and in providing technical support to PAFO research centres, NAFReC shall ensure that it is integrated into networks and responds to emerging demands for information within its areas of competence. NAFReC makes research results easily accessible to PAFOs and DAFOs and also to builds its information work on strong synergies with academic institutions in the North.

5. Strengthen the capacity of NAFRI and its local partners to undertake research and provide effective research support activities.

Special implications for NAFReC

Due to its linkage role, NAFReC has an important task in ensuring that NAFRI efforts contribute to strengthening the capacities of local partners. Training/backstopping of DAFO staff in particular is the primary modality by which NAFReC ensures that research impacts on development. This is complemented by provision of seed, seedlings and new livestock breeds for demonstration, multiplication and diffusion. Also, NAFReC has an important role in supporting PAFO research centres.

3. NAFReC in the NAFRI Structure

3.1 Functional areas of work and approaches

NAFRI has chosen four functional areas of work to guide its range of activities: adaptive research, think tank activities, methods and outreach and management of research. The tasks within these four functional areas a described below.

NAFReC's special role as a regional research centre

NAFReC is NAFRI's first regional centre and as such is a testing ground for determining the future role of regional centres within NAFRI. The strategies outlined here should therefore be seen as somewhat tentative, and should be revisited in annual review meetings to assess whether or not they are appropriate and also to draw lessons for the future development of the Southern Agriculture and Forestry Research Centre (SAFReC). Especially in light of the major role that project funding is expected to play in NAFReC's future development, these annual meetings can also provide an opportunity to inform and engage with donors regarding how well their collaboration with NAFReC reflects the commitments to national ownership and alignment made in the Paris Declaration on Aid Effectiveness.

Special implications for NAFReC regarding adaptive research

NAFReC's research primarily involves adaptation of the research of the NAFRI commodity research centres to the conditions in the North. NAFReC conducts its own adaptive research and also supports staff from other NAFRI centres who are involved in research in the North. NAFReC's adaptive research efforts have been very much dependent on donor-supported project financing, with consequent challenges in maintaining leadership in determining priorities. NAFReC adaptive research activities have been managed by different staff involved in these projects and other activities, with overall coordination being managed by the director. This range of activities related to donor funded initiatives and collaboration with other NAFRI research

centres has created fragmentation and weakened ability to maintain strategic prioritisation and continuity in adaptive research activities. Several steps need to be taken to reform how NAFReC manages adaptive research.

- NAFReC must use the NAFRI strategy, together with its own findings regarding the needs in the North, to better clarify for potential partners priority areas of adaptive research. The Administration and Research Management Divisions shall closely support NAFReC in this regard.
- NAFReC shall ensure that awareness and capacities are in place with which to adapt the research of others within NAFRI and in PAFO research centres to local needs, priorities and opportunities. The linking role of a regional centre implies the need for increased attention to supporting NAFRI as a whole to work more effectively when carrying out research in the North.
- NAFReC shall assign a deputy director with primary responsibility for coordination of all adaptive research activities.
- NAFReC shall also assign specific focal points to work with each of the six research thrusts. Project financed adaptive research activities should be managed by the most relevant focal point according to the research topic.

Special implications for NAFReC regarding think tank activities

This is a new area for NAFReC since most such activities have been organised by NAFRI Vientiane in the past. The current lack of understanding about market trends impacting on development in the North has created a very strong demand for think tank related discussions among PAFOs and other stakeholders. In addition, development projects are playing a major role in the North and these initiatives increasingly stress the importance of alignment with the priorities of local organisations around market demands, poverty alleviation and government policies. This is also creating strong demand, among a range of stakeholders, for new forms of dialogue around strategic issues within the Northern region.

- NAFReC needs to scale-up capacities for think tank activities and identify regional forums for evidence-based policy discussions in the North.
- PAFOs shall be engaged as equal partners in these discussions.
- NAFReC should assign a deputy director responsible for coordinating information, outreach and think tank related activities.
- NAFReC shall initiate a dialogue with a range of stakeholders on how to align aid efforts with government policies.
- NAFReC shall provide feedback to MAF regarding how development initiatives are impacting on poverty. This shall be carried out in close collaboration with the Agriculture and Forestry Policy Research Centre (AFPRC).
- NAFReC shall take a proactive role in convening discussions of the impacts of changes in land use, while drawing on technical knowledge from the rest of NAFRI and elsewhere. This will also involve coordination with the AFPRC.

Special implications for NAFReC regarding methods and outreach

NAFReC facilitates research initiatives to test and develop new tools. This is primarily done with NAFRI-led research initiatives. NAFReC is also involved in testing new extension methods and collaborates with NAFES in different initiatives with support from NAFRI Vientiane. The demand for further support in extension activities is strong.

- NAFReC shall place greater attention on scaling-up the use of methods for land use planning that are being developed by other NAFRI research centres.
- NAFReC shall use its role in collaborating with development projects and PAFO/DAFO land use planning to encourage this scaling-up.
- NAFReC shall ensure that this experience informs the approaches of all seven Northern provinces and shall use its Information Service Unit to coordinate with NAFES to promote wider learning.

Special implications for NAFReC regarding management of research

NAFReC has had a significant role in administering research on behalf of various donor funded projects but has had difficulties in capitalising on these roles to provide leadership in the Northern research agenda. One reason for this is that NAFReC is seen by many stakeholders primarily as a source of seeds, seedlings and new animal breeds. Its adaptive research activities are closely linked with this pre-existing role. Insufficient attention has been paid to ensure that research activities take into account the need for finding more sustainable (i.e., non-NAFReC) sources for inputs in the longer term.

- NAFReC shall proactively strive to restructure its collaboration with projects so as to provide greater leadership and coordination of agriculture and forestry research in the Northern Uplands.
- The Research Management and Administration Divisions shall provide close support for NAFReC and coordinate the dialogue with development agencies on behalf of NAFReC at Vientiane level.
- NAFReC shall assign individual focal points for each of the six strategic research thrusts who will manage contacts with all research projects within their focal area.
- NAFReC shall shift the balance of its activities to ensure that seed multiplication and related activities are a support function to research, and not vice versa.

3.2 NAFReC accountabilities and NAFRI integration

NAFReC is primarily accountable within NAFRI's internal management structures. It is accountable to NAFRI management and is considered an equal to the other research centres. This is appropriate as a formal basis for reporting and accountability and no steps should be taken to change this. It is also important to recognise that, as a regional research centre, NAFReC is also accountable in strong but informal ways to the seven provinces of the North. Indeed, it can be stated that NAFRI as a whole is accountable to the Northern provinces through its use of NAFReC.

A significant proportion of the NAFReC budget is provided by Luang Prabang Province, which implies a degree of direct accountability. Through weekly meetings, NAFReC is also integrated into the planning process of the Luang Prabang PAFO. NAFReC is also very much devoted to supporting the other six Northern provinces in their work and it will be important to ensure that these multiple accountabilities are managed in an appropriate manner.

In order to support horizontal exchange among the NAFRI centres, the NAFRI leadership shall arrange quarterly meetings where NAFReC (and perhaps SAFReC) present their activities and the support they require from the rest of NAFRI during the coming six month period.

NAFReC shall prepare an activity report in preparation for each quarterly meeting and the minutes of these meetings should record the responses of the other NAFRI centres to the NAFReC requests. If needed support from the centres is not forthcoming the NAFRI leadership should raise this issue for discussion in the Scientific Council.

NAFReC shall consistently strive to be seen as a research centre that provides support equitably to all provinces in the North.

3.3 Monitoring and rewarding research performance

Past management structures at NAFReC were built strongly around the tasks of producing seed, seedlings and new animal breeds for distribution. Research, most notably the preparation of research proposals, analysis and reporting, has at times been seen as a task of lesser importance.

Explicit efforts shall be undertaken to better establish a 'culture of research' within NAFReC, which reflects the priorities and tasks laid out in the NAFRI Research Strategy.

Monitoring systems shall be created, with support from the Research Management Division, which gather information on how staff are performing with regard to the preparation of research proposals and the implementation and reporting of research results.

There are currently few opportunities for providing performance based incentives within NAFRI as a whole, but if and when these are put into place it is important that these are used to provide benefits to those who can demonstrate that they are carrying out activities directly related to the NAFRI Research Strategy.

3.4 NAFReC's linkages with other NAFRI centres

NAFReC and the NAFRI commodity research centres

Clarity is needed regarding how much NAFReC capacities should be strengthened to undertake research itself, and how much it should aim to mobilise and collaborate with NAFRI's commodity research centres. A balance is necessary but the nature of this balance will vary according to the specific skills required for different research activities. Furthermore, one of NAFRI's greatest challenges in implementing its strategy will be to ensure that more systems oriented research activities are given due priority. The linkage role of NAFReC with respect to the adaptive research of the commodity research centres can contribute to increased attention to the integration of their research efforts.

Decisions about how to best maintain the balance between strengthened NAFReC capacities and greater mobilisation of support from other centres need to be made by the Research Management Division, with advice from the Administration Division regarding capacity development.

NAFReC can contribute to the work of the research management division in promoting integrated research thinking by feeding back information about systems related research needs and also by hosting the implementation of these research activities by several commodity research centres.

NAFReC and the AFPRC

NAFReC's work in think tank activities and in support of PAFOs needs in many respects to mirror the work of the AFPRC in bringing together a dialogue between researchers and policy makers.

NAFReC shall work jointly with the AFPRC to bring policy discussions to the North and ensure that information about the field level realities of policy implementation is fed back to NAFRI as a whole, to MAF and to development agencies.

NAFReC and the ISC

A detailed plan has been prepared for the development of a dedicated NAFReC Information Service Unit. These plans will not be restated here. The following are key aspects of how NAFReC should strengthen the capacities and effectiveness of its information efforts, with support from the ISC.

- Information activities shall focus on a support role for the extension activities undertaken by PAFOs, DAFOs and the private sector in the seven Northern provinces.

- Researchers at NAFReC shall have convenient access to the research and data that they require and the results of research should be effectively fed back to NAFRI researchers at other centres.
- Discussions shall be initiated regarding how to establish closer information links with the PAFO research centres as part of the process of deciding how these centres will function in the future. These should be supported to become major information nodes for extension.
- The ISC shall support NAFReC to develop materials and methods with which to inform northern stakeholders about NAFReC activities. This could include a NAFReC Bulletin or procedures and presentations for handling study visits of provincial and district staff to NAFReC research stations.
- The ISC shall also help NAFReC to develop materials to publicise and inform development agencies about its work.

NAFReC and the ALRC

NAFReC collaborates with the Agricultural Land Research Centre (ALRC) in its work with land use planning and related issues. In the future this should be strengthened in the following ways:

- NAFReC shall assign a focal point for land use issues (research thrust two) to manage related project-financed activities, promote exchange of experience and act as a liaison with the ALRC.
- NAFReC shall provide a Northern base for project-financed ALRC and other NAFRI land use planning and land suitability zoning activities that are being used for methods development. This experience shall be shared with the PAFOs and DAFOs with which NAFReC works.
- NAFReC shall provide feedback to ALRC/NAFRI on the effectiveness of methods that have been developed, especially when they are disseminated for wider use without major support from development projects.
- NAFReC shall provide technical advice and training for PAFOs and DAFOs in implementing land use planning and land suitability zoning.
- NAFReC shall collaborate with the ALRC team supporting the preparation of district development plans for agriculture in the poorest districts in the North.

Using links with donor funded activities to integrate NAFRI research

It is a regrettable fact that NAFReC's collaboration with other NAFRI centres is very heavily dependent on donor funding. Sometimes this support brings centres together on joint activities related to the NAFRI Research Strategy. Sometimes projects have been managed in such a way that discourages opportunities for broader collaboration due to a focus on the working only with the NAFRI staff that have been assigned to them. NAFReC, as a linking organisation, needs a specific strategy to address this issue. Donors must be encouraged to contribute to integration within the NAFRI system. In accordance with this situation, NAFRI/NAFReC needs a two-fold approach to using donor resource flows to build integration. In close coordination with the Administration Division, NAFReC should undertake the following:

- Where funds are channelled through NAFRI for direct implementation of the NAFRI Research Strategy in the North, NAFReC shall ensure that its researchers have an appropriate working environment and job descriptions to encourage them to develop, present and report on their research plans to other researchers at the different centres.
- Where international research and development agencies take the lead in designing programmes with envisaged NAFReC participation, clear terms of reference shall be prepared which detail mechanisms by which research results will be fed back to NAFReC on a regular basis (for further dissemination among PAFOs/DAFOs). The Administration Division should highlight to these partners the importance of

mobilising cooperation from NAFRI as a whole, even if NAFReC has been designated as the direct 'implementing partner'.

- NAFReC shall work with every internationally financed project to prepare a detailed 'integration plan' as part of any project which uses NAFReC as an 'implementing partner'. This plan shall outline how research results will be used to inform NAFRI as a whole, with specific reference to relevance of these activities to the NAFRI Research Strategy and NAFRI's capacity development. Implementation of this integration plan shall be reported on a quarterly basis.

4 NAFReC's network in the North

4.1. Integration with Provinces and Districts

NAFReC has a constructive and collegial relationship with PAFO and DAFO offices. The regularity of contacts, however, has been limited due to human resource constraints and reliance on projects to fund joint activities. Furthermore, past uncertainties about field level research-extension linkage structures have been an obstacle to structured cooperation. Even now, the practical implications of relationships between PAFO research centres and NAFRI/NAFReC are not clear, as are the ways that research will interact with the restructured public extension services. The following are preliminary proposals for how integration should be improved:

- NAFReC shall use its presence in a range of districts to promote shared learning about how to best manage technical service centres at cluster level, together with NAFES.
- NAFReC shall attend interagency coordination meetings in all districts where it has significant ongoing activities.
- NAFReC should learn from the current support from GPAR to Luang Prabang PAFO in monitoring equity of access to services (as part of a rights-based approach to service provision) and look for ways to share these lessons in other provinces (as well as providing feedback on the findings regarding the equity of service provision to the AFPRC).
- NAFReC shall ensure that NAFRI as a whole is more aware of how PAFOs are collaborating in development projects in order to see how NAFRI can provide maximum added value to these efforts within its strategic priorities.
- NAFReC shall provide advice on land suitability zoning based on the experience that has been gained by ALRC in developing these methods.

Special guidelines are required regarding NAFRI/NAFReC's relations with the PAFO research centres. The following are preliminary proposals for this:

- NAFReC's support to the PAFO research centres shall consist of advice, training and some degree of research supervision, including supervision of students doing their practical internships.
- NAFReC shall facilitate greater access to similar support from other NAFRI research centres and from institutions in other countries in the region.
- NAFReC shall help the research centres to become more aware of opportunities for cooperation with development projects and regional research initiatives.
- NAFReC shall help research centres to organise the data and research they are engaged in so as to promote understanding of the wider context of development in the North. This should include information about best practices, market trends and comparative analysis of agro-meteorological data so as to understand the impacts of climate change and suitability of new crops.
- If PAFO research centres decide to focus their efforts on a specific crop (e.g., rubber, maize, jatropha), NAFReC should provide technical support and arrange workshops and other networking activities to ensure that these specialised centres provide a service to the Northern region as a whole. If

PAFO requests joint management of these specialised centres this should be considered.

- NAFReC shall host an annual workshop for all Northern research centres for exchange of experience and discussion of strategic issues facing the rural areas.
- Each PAFO research centre should be urged to assign a focal point for cooperation with NAFReC and NAFReC should have one staff member assigned fulltime responsibility for overall coordination with PAFO research centres.
- NAFRI already has 'special relationships' with provincial centres in Sayabouri, Bokeo and Luang Nam Tha. NAFReC should investigate opportunities to build on these relations to use these centres as additional nodes of operation in other provinces.
- NAFReC shall not become a channel for funding of the research centres. The PAFOs themselves should pursue the financing they require.

4.2. NAFReC strategies and public-private partnerships

DAFO and PAFO research and extension activities are increasingly conducted as part of public-private partnerships as they collaborate with a range of private firms and state-owned enterprises from neighbouring countries. This trend is likely to continue and expand in the future. NAFReC's strategy should reflect these changes in the agricultural and knowledge information system in the following manner:

- NAFReC shall choose research priorities carefully so as not to duplicate, but rather to complement the work being carried out in these public-private partnership agreements.
- This shall be planned through participation in the dialogue that is currently underway between PAFOs/DAFOs and these firms.
- NAFReC research priorities shall reflect how best to monitor the outcomes of these initiatives to determine if MAF policy objectives are being met, especially with relation to poverty alleviation, food security, prevention of land degradation and suitability of land use.
- NAFReC should also take advantage of opportunities for staff training and study visits arising from these new initiatives.
- NAFReC may at times enter directly into tripartite agreements with firms and PAFO/DAFO offices to ensure the quality of these efforts and to develop Lao capacity for stronger leadership in the rural sector.

4.3. NAFReC's niche in production of seeds and other materials

NAFRI has been assigned responsibility for supporting seed multiplication and production of other materials such as new animal breeds and tree seedlings. NAFReC plays a major and active role in undertaking this task and its work is much appreciated at provincial and district levels. The extent and nature of NAFRI's mandate, in relation to PAFO/DAFO/private sector multiplication has not been clearly defined. The scale and demand for quality seed and other materials is so great that expanding production has in the past been seen as a priority that supersedes the need to define roles. Furthermore, NAFReC has a particularly large role in providing these materials within Luang Prabang Province. Since the province provides a significant proportion of NAFReC's core funding, it is natural that NAFReC should respond to these demands. In the mid- to long-term, as private sector investment grows and as the PAFO research centres become fully operational (presumably focusing to a significant extent on seed multiplication), a more strategic perspective is needed.

NAFReC shall focus its organisational development efforts on transferring a greater proportion of its management and other human resource to leadership and technical support, rather than direct production of these inputs.

NAFReC shall contribute to greater networking among the many actors involved in seed and input production.

In the future NAFReC may also consider assuming responsibility for certification of quality seed.

A reduction of involvement in seed multiplication should be used to encourage staff to devote more work time to research and training.

An in-depth review of the respective roles of NAFRI/NAFReC, PAFO/DAFO and the private sector in production of seed and other production material should be conducted as soon as possible (with short-term technical assistance inputs through URDP).

4.4. Building synergies with academic institutions in the North

NAFReC has two primary Northern academic partners, Souphanouvong University, with excellent facilities and an important educational mandate (but with strained human resources), and Luang Prabang Agriculture and Forestry College, with competent staff and a well established training programme. In the past there have been difficulties in ensuring that engagement of students leads to practical support for NAFRI research activities, rather than being a drain on staff resources. There are growing opportunities for further building a synergetic relationship with academic institutions in the North in the following ways:

- A more focused and defined approach is needed to using students from Souphanouvong University and Luang Prabang Agriculture and Forestry College at NAFReC stations and also in on-farm research. Information about the NAFRI and NAFReC Research Strategies shall be presented at the University and the College to encourage students to choose topics of relevance to these priority research areas.
- NAFReC should be supported in this task by the Research Management Division.
- Students should also be presented with opportunities to undertake specific research tasks as part of donor-funded research activities, with the Uplands Research and Capacity Development Programme (URDP) providing an initial pilot for new modalities.
- NAFReC should explore opportunities to supervise student practical studies undertaken in collaboration with PAFO research centres as well. This would serve both the students and could also strengthen links between NAFReC and the PAFO research centres.
- Souphanouvong University has excellent but under-utilised laboratory facilities. They lack qualified staff to use this equipment and to train students. NAFReC should establish agreements for collaborative use of these laboratories together with coaching of Souphanouvong staff and practical training of students.
- As new technical colleges are opening in the North, NAFReC should consider collaboration with other potential academic partners as well, for example by providing practical experience for business students to help with developing cost-benefit analyses and calculating gross margins of different farm enterprises.

4.5. NAFReC as a partner in Northern development efforts

NAFReC has a responsibility to become a central actor in providing information to the large-scale rural development activities getting under way in the North. NAFReC should also learn from these initiatives. This will not happen if NAFReC is primarily perceived as being a seed multiplication unit or an organisation that can second staff to projects. NAFReC, supported by the Administration Division, should take a

proactive position to change its relationship with development projects through the following steps:

- NAFReC shall select senior staff and assign them specific responsibilities as focal points for different thematic areas according to the six NAFRI research thrusts (see chapter 5 below).
- These focal points should be the primary points of contact for assessment missions visiting NAFReC and NAFRI Vientiane should bring these researchers into planning of new research and development efforts at an early stage to ensure that NAFReC's unique competencies in understanding the regional context are fully utilised.
- When interacting with projects these focal points should manage contacts according to how the projects relate to their thematic responsibilities. The person primarily responsible for a given project should be the focal point with the thrust that most closely relates to the project focus, but other staff should also engage in accordance with their focal point status.
- The current de facto secondment approach to project collaboration should be gradually phased out.
- NAFReC shall invite planning and assessment missions for new programmes to be briefed on NAFReC activities and to provide information about planned initiatives. NAFRI Vientiane should actively support this by making initial contacts on behalf of NAFReC.
- The ISC shall support NAFReC to develop materials to publicise its work to development agencies.
- NAFReC should brief the Upland Working Group on its work and discuss how NAFReC can play an intermediary role in linking findings from the future programme to provincial level policy discussions. The AFPRC is likely to be involved in similar ways at national level and should strongly support NAFReC in this.
- Where appropriate, NAFReC should continue and expand on its current engagements in tripartite agreements with PAFOs and development projects.
- NAFReC management shall ensure that staff engaged in internationally funded programmes have sufficient time available within their daily responsibilities to effectively undertake their research duties. This shall be reflected in new job descriptions for all NAFReC personnel and staff assessment procedures that stress feedback of externally funded research findings into NAFRI's ongoing research for development.

5. NAFReC research priorities

NAFReC operates within the same six research thrusts that are outlined in the overall draft NAFRI strategy. Short, medium and long term research priorities for NAFReC reflect both NAFRI's own identified objectives, and also needs and requests that have come from the provinces and districts in the North. In the long-term, most funding will ultimately come from the provinces and from the district authorities, so it is essential that NAFReC's research priorities mirror the concerns of its partners in the North, as well as conforming to the strategies of NAFRI and the policies of MAF. NAFReC is a service institution as is NAFRI as a whole. Its priorities must frame its operations within the services which research is expected to provide to farmers, entrepreneurs and local authorities. At the same time, NAFReC must be able to respond quickly if research back-up is requested from government line agencies and field offices, and also from donors who request and finance research.

5.1 Maximising return from land through productivity improvement

In the midst of increasing demand and competition for land, it is crucial that research influences and changes people's attitudes and farming practices by promoting a more proactive and systematic approach to land utilisation. NAFReC's research shall

stimulate farmers to look for the best possible options in their locality, from which they can achieve maximum returns and increase income from poverty reduction oriented agriculture and forestry production.

Research efforts will focus on the development of environment-friendly technology options for improving productivity of crops, livestock, fisheries and forestry, both for commercialisation and food security. Important areas that research will focus on include: efficiency in water use; soil improvement and soil conservation technologies; farming systems; post harvest technologies and processing for value enhancement.

Special attention will also be given to research on technologies to improve locally adapted production systems that help the poorest of the poor and most vulnerable to achieve food security and to efficiently mitigate risks from natural disasters. In addition, research activities to promote an enabling environment for improved production will form an integral part of this research thrust.

5.2 Improving land use planning and management procedures

This research thrust will focus on devising and consolidating tools, methodologies and procedures for multi-level integrated land use planning to promote and support sustainable use of agriculture and forest lands. An important aspect of research is to identify measures that will ensure systematic integration of land use planning into socio-economic development planning at these different levels. A key area of focus will be on consolidation of methodologies and procedures to support planning and decision-making at the district, cluster village and village levels, as they are the main implementing levels. Likewise, special emphasis will be placed on devising supportive land use management systems and mechanisms to mainstream management procedures and practices from district down to cluster and village levels.

A final area of focus will be on understanding agricultural and forestland utilisation and its impacts. Collaborative arrangements and networking with other authorities (e.g. the National Land Management Authority) and other projects will be developed and strengthened.

5.3 Mechanisms to support production for increased land use effectiveness

NAFRI and its partners have developed many appropriate technologies, lessons and recommendations in recent years, but their application and replication are often constrained by non-supportive institutional structures. In order to address this, research will seek to understand the various existing systems influencing the application of promising technologies in order to improve the environment and find appropriate mechanisms to improve efficiency in agriculture and forestry production. The focus of research will be on improving microfinance systems and practices that will foster local production; developing mechanisms for community mobilisation and methodologies for agri-business development and management; providing feedback and recommendation for formulation of policies and legal frameworks governing agriculture and forestry production; and developing and streamlining incentive systems.

For greater impact, important consideration will be given to designing research based on an understanding of indigenous knowledge systems in farming and natural resource utilisation and management, together with analysis of how these factors influence local livelihoods.

5.4 Marketing and quality requirements for agriculture and forestry products

Marketing and quality standardisation to support agriculture and forestry commercialisation are important issues that will be addressed. This will encompass comprehensive value chain studies on a number of specific high priority products. Methods to better link farmers to markets will continue to be tested and adapted.

Trade policies and quality requirements at regional and international levels are important aspects where research is needed to provide better information and recommendations to different concerned parties so as to help them to quickly react to market demands. Trans-boundary issues relating to the trade of agriculture and forest products and management and conservation of natural resources will receive close attention.

5.5 Sustainable conservation and utilization of biodiversity

Balancing rapid development with the sustainable conservation and use of Laos' rich natural heritage is a priority of the government. This thrust focuses on understanding how biodiversity can best contribute to local livelihoods. In this sense, biodiversity includes both forest and agriculture based biodiversity. Research will address both conservation and also utilisation aspects of biodiversity and natural resource use. Management systems and domestication techniques will be important aspects of research.

Local systems of knowledge are important aspects, as it is recognised that rural Lao farmers are responsible for much of the agro-biodiversity found in the 'farm-scape' as well as in swidden fields. With particular high priority species/varieties (e.g., rice, etc.), where extensive knowledge already exists, evaluation and adaptation to agro-ecological conditions will be the focus. Factors will be identified that can contribute to a more integrated approach to biodiversity conservation and utilisation.

5.6 Sustainable utilisation of natural resources for increased benefits

The Government of Lao PDR intends to significantly increase forest cover to 70 percent by the year 2020. Research on sustainable management of both the state and locally managed natural resources is essential to ensure a continuous flow of benefits to improve local livelihoods and contribute to socio-economic development.

The research programme will identify appropriate methods for participatory sustainable management of different types of resources under different kinds of resource tenure. It will also encompass several other aspects of sustainable management of natural resources. These include incentive mechanisms, options for generating short-term benefits, efficient utilisation of forest products, appropriate land use zoning and management, trade and marketing, policy and legal frameworks, and other supportive mechanisms.

6. Action plan for NAFReC integration and capacity development

6.1. Strategic priorities and major capacity gaps

This strategy will be difficult to implement. Significant time and investment will be required for NAFReC to develop sufficient capacity to undertake these changes. Some of the existing capacity gaps can be filled with short-term training, whereas others need to be addressed through on-the-job training and coaching by technical advisors and NAFRI staff from other centres and divisions. The following are the major gaps that will need to be addressed in order for NAFReC and NAFRI as a whole to carry out this strategy.

- Above all NAFReC must strive to encourage a culture of research among its staff in order for all to see that their professional role is as producers of knowledge, rather than as producers of seeds or administrators of development projects.
- NAFReC staff need skills and an enabling environment that can enhance their ability and motivation to convene discussions among a range of stakeholders. This includes training in communication and facilitation skills, combined with a deeper understanding of how to use research to stimulate a debate on the challenges of implementing MAF development policies.
- Leadership skills are needed to increase knowledge of how to move from strategic plans to organising actions in the field among a range of stakeholders.
- Leadership skills are also needed to be able to push for harmonisation and alignment of aid efforts in the North, based on the NAFRI Research Strategy.
- NAFReC researchers need capabilities to evaluate research results and distil the implications of findings in such a way that development actors have a clearer understanding of Lao rural development.
- These skills should be developed among the leadership of NAFReC and also among the six focal points for the six research thrusts.

In addition to these generic areas of weakness, there are certain topics that NAFReC researchers urgently need to increase their understanding of in order to provide leadership and identify future priorities in research for development.

- NAFReC researchers need to be aware of the risks and opportunities facing farmers when they engage in different forms of contract farming.
- Greater understanding is needed of the wider impacts of radical changes underway in land use and commercialisation on food security, poverty alleviation and land degradation.
- The enormous scale of expansion in rubber production in the North suggests that skills related to rubber production are a high priority.
- NAFReC needs to have a better understanding of international norms and experience regarding the organisational and legal aspects of how to prioritise involvement in production, quality control and eventual certification of seeds and other inputs.
- NAFReC staff need improved knowledge regarding the standards of quality, quantity and timeliness that market actors demand for commercial production.

Furthermore, NAFReC suffers from the same gaps in sustainable financing that afflicts NAFRI as a whole. For the most part, NAFReC should be part of NAFRI's overall strategy to attain greater fiscal sustainability. There are, however, also some additional opportunities for NAFReC to increase its revenues:

- NAFReC receives significant revenue from research and development programmes. Expansion of these forms of collaboration in such a way as to

contribute to achieving NAFRI and NAFReC strategic aims is possible, but will require a clearer focus on producing quality research with strong reporting and links to extension.

- As part of the shift to increased harmonisation and alignment of development cooperation in Laos, and with the increase in aid being provided in the North, there may be opportunities for NAFReC to obtain multi-donor pooled support in recognition of the important back-up function that NAFReC plays to development initiatives. This should be actively investigated by NAFRI in Vientiane.
- NAFReC should investigate opportunities to undertake some contract research and evaluation of new varieties for private firms. This could be a significant source of revenue and could provide an alternative activity for the NAFReC research stations when seed production is reduced. Caution is required to ensure that NAFReC retains its reputation as an institution which produces objective assessments of new technologies.
- New and large sources of financing for the types of issues that NAFReC addresses are appearing in connection with carbon credits and other financial mechanisms associated with climate change mitigation and adaptation. Most notably, these mechanisms will require local partners with skills in conducting baseline studies and monitoring changes in biodiversity and other factors. NAFReC is well placed with respect to its mandate and structure to contribute to these efforts and to finance its activities from related revenues. However, this will require a significant strengthening of staff capacities.
- The growing focus of NAFReC's work on the other northern provinces beyond Luang Prabang should be used to leverage funding from other provinces through new joint agreements for core funding among all of the northern provinces and/or by contracts to undertake specific research tasks demanded by PAFOs.
- Support from PAFOs through provision of human resources should also be encouraged as a way to lessen the financial burdens faced by NAFReC.
- NAFReC has obtained some revenue from the production of seeds and other inputs, but these are often distributed free of charge and it seems unlikely that this will generate significant net revenue in the future.

6.2. Initial steps for implementation

NAFRI and NAFReC should finalise and begin implementing the NAFReC strategy as soon as possible. This document should be discussed, edited and adopted as a 'working draft'. In order to finalise the strategy there are several key outstanding issues that require further analysis, discussion and confirmation:

- The 'working draft' NAFReC Strategic Framework should be translated and circulated to stakeholders for comments.
- Short term technical assistance should be contracted to review and suggest a structure for NAFReC's role in production of seed and other inputs, drawing on international and regional experience.
- Opportunities should be assessed to collaborate in laboratory activities at Souphanouvong University.
- Once the overall content of the strategy has been agreed, new job descriptions should be drafted for all NAFReC staff.
- A workshop should be convened during the latter half of 2008 to review the final draft of the NAFReC strategy.
- In addition, training to fill some priority gaps listed above should be initiated, in particular training on communication and facilitation skills, basic policy analysis and contract farming.