REPUBLIC OF MOZAMBIQUE

MINISTRY OF AGRICULTURE
NATIONAL DIRECTORATE OF AGRICULTURAL EXTENSION

EXTENSION MASTER PLAN
2007 – 2016

MAPUTO, MOZAMBIQUE

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FOREWORD

The National Extension Master Plan is the result of a process of consultation and dialogue with both actors involved in the delivery of extension services, as well as in particular those who are expected to benefit, directly or indirectly from the services provided.

The contribution of all is acknowledged in this way, special mention should be made of all the extension provider participants in the National Agricultural Extension Meeting, which took place in October 2006 in Namaacha, as well as all those extension system stakeholders from both private sector, farmer organizations and NGO background, that have found time to provide written and oral feedback.

As such the present extension plan is expected to provide a framework for agricultural extension in the country which goes well beyond the national agricultural extension programme of the Ministry of Agriculture.

A final version of this extension master plan has been prepared based on the feedback obtained from public and private extension staff and producers that participated in the regional validation workshops that took place in the South, Centre and North of Mozambique in April 2007. Also the document was validated by Proagri donors group.

Finally, after analysis by MINAG Consulting Council on its session on 24th May, 2007, the current Extension Master Plan 2007-16, which must be revised after 5 years, was approved.

Maputo, May, 2007
National Director of Agricultural Extension
ACRONYMS AND ABBREVIATIONS

AIS Agricultural Innovation System
AKIS Agricultural knowledge and information system
CAADP Comprehensive Africa Agriculture Development Programme
CBOs Community Based Organizations
CdM Council of Ministers
CTA Federation of Economic Associations of Mozambique
DFDTT Department of Training Documentation and Technology Transfer
DNDR National Directorate of Rural Development
DNEA National Directorate of Agricultural Extension
DNSA National Directorate of Agricultural Services
DNSV National Directorate of Veterinary Services
DNTF National Directorate of Land and Forestry
EMP Extension Master Plan
EU European Union
IAM Institute of Cotton of Mozambique
IFAD International Fund for Agricultural Development
IIAM Institute of Agricultural Research of Mozambique
INCAJU Institute of Cashew
INE National Institute of Statistics
JVC Joint Venture Company
M&E Monitoring and Evaluation
MINAG Ministry of Agriculture
NEPAD New Partnership for Africa’s Development
NGOs Non governmental Organizations
PO Producers’ Organizations
PROAGRI National Agricultural Development Program
PRONEA Programa Nacional de Extensão Agrária (National Agricultural Extension Programme)
REPETE Periodic Technology Review Meeting
SDAE Serviço Distrital de Actividades Economicas
SIMA Agricultural Market Information System
SISNE National Extension System
SME Small and Medium Enterprise
SMS Subject Matter Specialist
SPER Provincial Extension Service
SUE Unified Extension System
T&V Training and Visit Approach of Extension
TIA MINAG’s Agricultural Household Survey
1 BACKGROUND

1.1 General

The long term goals of the agricultural sector in Mozambique are to improve food security and reduce poverty by supporting the efforts of smallholders, the private sector and governmental and non-governmental agencies to increase agricultural productivity, agro-processing and marketing, while keeping a sustainable path for the exploitation of natural resources. PROAGRI I, the first national investment program for the agricultural sector (1998 – 2004) has been instrumental for the fulfilment of these long term goals.

Extension Services was one of the eight components of PROAGRI and the first Extension Master Plan (EMP, 1999-2004) was formulated in line with the basic principles for extension in PROAGRI I: enhanced research-extension linkages, downward accountability to farmers on services delivered, multiple extension service delivery systems, social inclusion (in particular women, youth and PLWHA) and quality staff at different levels.

The EMP called for a twofold approach: the adoption of Unified Extension Services, SUE, encompassing crop production, livestock and natural resource management, and the development of an integrated National Agricultural Extension System, SISNE, with functional partnerships between public and private extension services, including the development of public contracts with non-government service providers. Moreover, the plan also calls for increased linkages with other institutions such as research, agricultural services and marketing institutions; and mentioned the possibility for cost recovery from farmers served by public extension services.

Following an extensive consultation and backed up by the formulation of the Vision for the Agricultural Sector, the second phase of PROAGRI was planned to begin in January 2005, with an inception year for addressing outstanding operational and procedural issues and a full-fledged start in 2006. Consistently with the aims of PROAGRI II, the EMP was also reviewed and a new EMP (2006-10) was drafted focusing more on: the implementation of different extension approaches in support of the deconcentration process; improved efficiency and increased multi-service provider coverage of the extension services.

Meanwhile, the Extension Services component of PROAGRI II was formulated, but for a period 8 years. The National Extension Programme, supported through PROAGRI's common fund is due to start in early 2007. This new final version of the EMP (2007-2016) is in line with the formulated National Agricultural Extension Programme, PRONEA, both in terms of vision, strategic objectives and timeframe and as such complementary to the basic documentation for the Extension Services component under PROAGRI II, which was developed with support from IFAD (ASP, 2005).

The Extension Master Plan provides the strategy of the Ministry of Agriculture for agricultural extension for the period 2007-2016. The agricultural extension strategy is based on the strategy for PROAGRI II 2006-2010, the draft Extension Master Plan and the National Agricultural Extension Programme 2007-2014, PRONEA, which is based on the Agricultural Support Programme documentation (ASP, 2005).

All referred documents have gone through extensive consultation process with stakeholders at district, provincial and central level, as well in the public and private sector. Farmers and their organizations have in particular been consulted on their demands for knowledge-based services in the coming years. The base documents for the current extension master plan have been further based on the positive and negative lessons learnt during the implementation of the Extension Master Plan 1999-2005 and indeed the lessons learnt during the implementation of PROAGRI I, such as the generally recognized need for a paradigm shift on agricultural extension in the country due to recent developments such as decentralization, participatory planning monitoring an evaluation and the wide-spread introduction of multi-stakeholder approaches in agricultural innovation systems and value chain developments.
On the basis of lessons learnt from PROAGRI II an in view of on-going processes such as decentralization, globalization of trade and the progress made in relation to the achievement of the Millennium Development Goals the presented Extension Master Plan will be updated after five years, which is towards the end of 2011.

1.2 Some basic data

Mozambique is a vast country with an area of about 799 380 km² sq. km and around 2 400 km of coastline along the Indian Ocean. Mozambique shares about 4 330 km of land borders with Tanzania, Zambia, Malawi, Zimbabwe, Swaziland and South Africa. The country is divided into 10 provinces and 128 districts. The total area of arable land is estimated at around 36 million hectares, of which only about 9 million hectares are currently under cultivation (PROAGRI II, 2004, p. 27). It is estimated that about 3.3 million hectares of land can be irrigated, but at present only about 50 000 hectares of land (0.13%) are under irrigation.

The population of Mozambique of 19 million is growing about 2.6% per year and it is predominantly rural (70% in the recent census). Agriculture is dominated by 3.2 million small scale farms (family sector) with an average size of 1.1 ha of farm land (PROAGRI, 2004, ASP, 2005). Agriculture plays an important role in rural employment generation as well as contributing to household and national food security and reducing the mainly rural poverty, and is central to the economy accounting for 20% of GDP and 80% of exports, while 80% of the workforce is in the agriculture sector, 90% of the women and 70% of the men, and poverty is greater in rural areas (55%) than in urban areas (52%). Rural poverty is primarily attributable to limited agricultural development, limited market development and poor productivity levels. Mozambique had a gross national income (GNI) per capita of USD 260 per year in 2004, according to the PARPA joint review, that is amongst the ten lowest in the world. The agricultural sector GDP is growing at 5-7% annually, but at a lesser rate than the overall economy, as the share of the agricultural GDP is gradually decreasing from 37% (1997) to 24% (2000) and to 20% in 2002, while the contribution from industry is rapidly increasing in the same period (from 22% to 31%) (IMF, 2003). Agricultural development is however fundamental for poverty reduction as rural families generate about 80% of their income from the agricultural sector, while the other 20% has a strong link with the local economy (TIA 2002, CAP, 2000).

Most crop yields in Mozambique are low (Table 1). The use of modern inputs and mechanization is almost nonexistent (less than 2% use fertilizers or pesticides, 5% use animal traction and less than 10% use some form of agricultural equipment) (PROAGRI I, 2004; p21, ASP, 2005).

<table>
<thead>
<tr>
<th>Crop</th>
<th>Yield in t/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>0.9</td>
</tr>
<tr>
<td>Cassava</td>
<td>5.5</td>
</tr>
<tr>
<td>Sorghum</td>
<td>0.6</td>
</tr>
<tr>
<td>Pulses</td>
<td>0.45</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>0.5</td>
</tr>
<tr>
<td>Rice</td>
<td>1.1</td>
</tr>
<tr>
<td>Coconuts</td>
<td>4.2</td>
</tr>
</tbody>
</table>


The common denominator of the family sector (small scale) is low productivity, limited ability of households to generate savings and food insecurity. These characteristics dominate small-scale agriculture which is geographically dispersed as well as culturally, technically and economically heterogeneous. Thus, given this overall situation, the challenge is to one of figuring out how to mobilize the latent productive capacity of 3.2 million family farms and medium and large scale farms and transform agriculture in Mozambique from a largely subsistence production system to a more market oriented production system while improving national and household food security.
2 POLICY CONTEXT

2.1 Poverty Reduction Strategy

The principal objective of Mozambique’s poverty reduction strategies (PARPA I and II) is reduction in the incidence of absolute poverty from 70% in 1999 to less than 60% in 2005 and to less than 50% by 2010. The priority areas for the promotion of human development and the creation of a favourable environment for rapid, inclusive and broad-based growth are; (i) education; (ii) health; (iii) agriculture and rural development; (iv) basic infrastructure; (v) governance; and (vi) macroeconomic and financial policies. In relation to agriculture two main pillars are envisaged; (i) empowering producers to increase the productivity of their activities; and (ii) transforming the role of public institutions.

The PARPA recognises the multi-sectoral nature of agriculture and rural development, stating that success depends on measures beyond agriculture, such as transport infrastructure, the expansion of markets, an adequate rural financial system, as well as education, training, health and nutrition. Agriculture development is a priority in the strategy for poverty reduction and broad-based growth. The principal objective of rural development is to increase income-generating opportunities, especially for the family sector.

The agricultural sector 1996/7 – 2002/3 contributed with 11 percentage points out of a total of 15 to poverty reduction; The agricultural sector is the single most significant sector for overall growth, and agriculture remains the single most important source of income for some 70% of the population in Mozambique (Birgegård, 2006)

2.2 Local Development

2.2.1 Decentralization strategy

The National Strategy for the Decentralised Planning and Financing Programme (PPFD) has the objective of placing the district at the centre of the development process. The Lei dos Órgãos Locais do Estado (LOLE - Lei 08/03) provides this vision for the role of the district within the hierarchical structure of the unitary state. The document was prepared by Ministry of Planning and Development / Direcção Nacional de Plano during June and July 2005 (MPD, 2005).

Decentralised planning and financing requires the channelling of public expenditure [despesa publica] to provincial and district levels. The Lei do Sistema da Administração das Finanças do Estado (SISTAFE - Lei 09/02) provides the framework for public financial management. The challenge for the PPFD therefore, is to link Lei 08/03 with Lei 09/02 in order to provide an overall vision for the implementation of decentralised planning and financing in the Órgãos Locais do Estado. This challenge is facilitated by the detailed regulamentos (respectively Decreto 11/05 and Decreto 23/04) that have been published following the promulgation of the primary legislation.

The PPFD strategy is based on four methodological tenets for decentralised planning and financing, which are: (i) Strategic Planning in the Órgãos Locais do Estado to develop and implement territorial development strategies; (ii) Annual plans and budgets based on these strategies that bring together state finance and the actions of others; (iii) Participation, consultation and dialogue with the community about strategies, plans and budget; and, (iv) A multi sector approach and a relationship between district and province in which the latter becomes mentor and facilitator to the former.

The PPFD strategy will be implemented according to three principles, which are: (i) “Gradualismo”, implementation of the PPFD strategy at a natural pace along with capacity development avoiding parallel structures; (ii) Harmonization or a common umbrella of manuals and guidelines that are based on the legislative reform, and (iii) Leadership by the ‘Comité de Supervisão’, which is chaired by the MPD and composed of all key ministries, i.e. MPD, MAE, MF and MOP.
2.2.2 Rural Development Strategy

The Rural Development Strategy, EDR, of the Ministry of Planning and Development, MPD, is meant to be an inspiration and mobilisation tool for all actors involved in rural development. The Rural Development Vision for 2025 is that “Human development in the rural areas of Mozambique will in 2025 be around three times higher than in the 2000-2005 period, in this way entering into the medium human development category based on transformation to a more pro-rural national economic development pattern, and through a rural economy that is more competitive, sustainable, environmentally balanced and socially stable and attractive (MPD, 2006)” Five main objectives have been formulated for the next 20 years (i) Increased competitiveness, productivity and rural wealth accumulation; (ii) Productive and sustainable management of natural resources; (iii) Growth in human capital, innovation and technology; (iv) Diversification in social capital, institutional efficiency and effectiveness; and, (v) Good governance and market planning. Rural Development at district level is part of the terms of reference of the District Service for Economic Activities, SDAE (BdR, Decreto 6/2006), agricultural extension is part of this same service. Agricultural extension has a specific role in addressing objectives 3 and 4, agricultural innovation and social capital development respectively, but also increasingly also in addressing other objectives, such as rural economy (objective 1: marketing and the value chain), sustainable natural resource management (objective 2), and strengthening district planning (objective 5).

2.3 Agricultural Sector

2.3.1 Agriculture and poverty

The PARPA I states clear targets for the agricultural sector under its framework for the five-year period ending in 2005, which is also the end of PROAGRI I. Agricultural growth should have increased from 7.3% in 2001 to 8% in 2005. The target for public extension was set at 164 000 direct contacts with households, while 460 000 producers in the family sector would have adopted improved techniques and 2 500 hectares will be added to land under small-scale irrigation. The production of cereals would grow from 1.471 millions tonnes in 1999/2000 to 1.725 million tonnes in 2003/2004. Although no targets were formulated, a reduction in the number of districts suffering from food insecurity will occur; in 2000, 38 out of 144 rural and urban districts were considered to have food insecurity.

The 2005 joint donor PARPA review observed that annual agricultural growth in 2004 was 9.0%, higher than the target, with substantial growth of 6% for basic food crops, basic grains 10.7%, maize 16% and cassava a normal 4%.

A second poverty reduction strategy for the 2005-2009 period (PARPA II) identifies new targets for the four main activities of public agricultural extension in the Ministry of Agriculture i.e. (i) to distribute and disseminate agricultural technologies (number of technologies distributed, % of households receiving planting material, number of producers assisted including through outsourcing, and number of hours on the radio with extension messages), (ii) to distribute vegetative planting material 9number of grafts distributed), (iii) to assist and strengthen producer organisations (number associations assisted) and (iv) to improve the provision of veterinary services (number of Newcastle vaccinations).

The progress is monitored through the Performance Assessment Framework, which has two main indicators for MINAG’s agricultural extension, which are the number of farming households that have been assisted by extension (including through outsourcing) and the number of households that have vaccinated their chicken against Newcastle disease. These are proxy indicators for the percentage of households that have adopted a new technology in the last twelve months, going-up from 15% in 2005 to 20% in 2009 (Revised PARPA II Matrix, 2006).
2.3.2 Agricultural sector strategy

MINAG formulated the vision for the agricultural sector as follows: “An agricultural sector that is integrated, sustainable, competitive, diversified, a basis for welfare and economic accumulation, articulated through value added chains with broadly shared benefits.” The formulation of the vision took into consideration the constraints to agricultural development, which are summarized in four pillars: (i) markets; (ii) financial services, (iii) technology, and (iv) access to natural resources. These pillars illustrate that the constraints to agriculture are multi-sectoral and go beyond a narrow sectoral definition of agriculture.

The Ministry of Agriculture is in the process of developing its strategic framework. A first step has been to establish the priorities for public sector intervention in the agricultural sector (MINAG, 2006), as well as developing strategies for subsectors such as research and extension. The main priorities established for extension are mainly focusing on the strengthening of the national extension system (SISNE), including strengthening NGO and private sector extension service providers, as well as establishing local extension promoters and facilitators. The unified extension system (SUE) needs strengthening in particular in animal husbandry extension and the strengthening of producer organisations in order to have better access to markets and agricultural and extension services, such as on technology packages developed by research, crop and livestock production, post-harvesting, natural resource conservation, marketing and services related to mitigation of the HIV/AIDS pandemic (MINAG, 2006).

2.3.3 PROAGRI

The PROAGRI II (2006-2010) strategy document further elaborates an agricultural sector strategy for Mozambique, which involves not only a wide variety of actors from the commercial sector, small-scale farmers, civil society and the public sector, but also various ministries in the public sector. The main objectives of PROAGRI II are: (a) to build on the institutional strengthening achievements of PROAGRI I and complete the reform of the Ministry of Agriculture and the transformation of its operating modalities; (b) to improve the capacity at Province and District level for agricultural planning and programme implementation in connection with the interventions supporting District decentralization; (c) to encourage and foster the evolution of farmer groups and associations and their partnerships with appropriate public, private and NGO sector agencies as service providers and/or enterprise partners; and (d) to translate these improvements as effectively as possible into direct, tangible and meaningful benefits and impact, the highest priority being given to accelerating the implementation of directly productive interventions at the small and medium farm and household level.

Three categories of activities have been considered in PROAGRI II; (i) the minimal core functions of MINAG, which are largely supply-driven; (ii) internal demand-driven activities, which include everything from research, extension activities to strengthening of farmer associations; and (iii) external demand-driven activities, which are essential for agricultural development, but go beyond MINAG’s mandate such as markets, rural finance, rural infrastructure and enabling environment. The implementation of the last category of activities will be particularly coordinated with the Ministry of Planning and Development and the Provincial Planning and Finance Departments. Public agricultural extension is one of the main core functions of the Ministry of Agriculture and instrumental for the provision for other agricultural services at both central, provincial and notably district level.

The vision on decentralisation, community participation and intersectoral coordination, also underlined in the Agricultural Policy and Implementation Strategy, PAEI, was not operationalized in PROAGRI I, 1999-2004, which resulted in centralisation, slow progress in public support for community and farmer empowerment, as well as poor coordination with other sectors at local government level (MADER, 1995). The PROAGRI II strategy aims to correct these flaws in the PROAGRI I design with its emphasis on the role of farmer associations in participatory district planning, as well as in demand-driven multi-stakeholder services provision, coordinated and managed at district level.
2.4 Agricultural Extension

2.4.1 NEPAD

Many African countries are reforming their extension services to improve their relevance to farmers, and increase their efficiency, effectiveness, and impact. Extension services are moving from a supply-driven approach with government as the sole provider of advice, to a much more flexible and pluralistic demand-driven system. Key reforms include decentralising administration of field extension services; improving linkages among farmers, educators, researchers, extension agents and others; and increasing the independence and flexibility of extension services by creating small and semiautonomous units within government ministries. The following are the main elements in the on-going reform process in African extension systems (NEPAD, 2002):

- **Decentralising responsibility and funding for field extension services** - Decentralising responsibilities and resources for extension to local governments, communities, or producers’ organisations gives farmers a bigger role in designing, funding, governing, executing, and evaluating extension programmes. It also improves responsiveness and accountability of extension agents. The shift of responsibilities and accountabilities helps ensure that farmers receive the services they want.

- **Contracting or outsourcing some or all field extension services** - Contracting extension services from non-governmental organisations, and private groups, universities, input suppliers, or farmers’ organisations can improve efficiency of delivery and accountability of extension agents, especially where a choice of providers is available. Governments should set and enforce standards for qualifications and performance, establish a registration system of agricultural service providers as professionals, and provide training.

- **Sharing costs between national and local government and farmers** - Progressively shifting costs of extension services away from national budgets means sharing them among national governments, local government, farmers’ associations, non-governmental organisations, donors, and farmers, makes financing of extension services more sustainable and less dependent on national budgets.

- **Systematically monitoring and evaluating programmes and their impacts** - Careful tracking of agreed indicators to measure progress focuses attention on results; it should involve poor farmers to ensure that programmes meet their needs.

Most of the referred reforms are being addressed in the extension component of MINAG’s agricultural sector strategic plan: PROAGRI II 2006-2010.

2.4.2 National extension strategy

The PROAGRI strategy (I and II) established the need for a national agricultural extension system for the facilitation of the transformation of the smallholder agricultural sector through agricultural innovation. The agricultural extension policy and strategy within PROAGRI I envisaged the establishment of a national extension system that is composed of all of MINAG’s extension activities (Unified Extension Service, SUE, on crops, livestock and natural resource management) and the promotion of collaboration of other non-governmental and private sector agricultural service providers in one National Agricultural Extension System, SISNE (DNER, 2004).

MINAG’s agricultural extension addresses minimal core functions such as transmission of technologies, promote producer organizations, strategy development, coordination and mandatory vaccinations. Further strategic functions are producer organization empowerment (in planning, service provision, and value chains) and entrepreneurial skills and management.

Principal measures to be undertaken are listed as: (i) disseminate information on technology options for the various productive systems, and train producers to apply these technologies through a widening of the rural extension network; (ii) promote producers organisations to take on the responsibility of
managing available resources; (iii) establish ties between suppliers of agricultural inputs and users (producers and associations); (iv) establish clear ties with private companies and NGOs involved in providing extension services, strengthening the rural extension networks through outsourcing. Other measures include: (i) organise the extension network on vertical lines with the main operational coordination at the provincial level and basic execution at the district level; (ii) carry out information/extension campaigns based on participatory diagnoses; and (iii) develop methodologies for community participation in natural resource management.

Agricultural extension for smallholders in Mozambique faces some enormous challenges in reaching the poor, some of these are: (i) largely socio-economic, ecological and hence farming system diversity combined with relatively low population density; (ii) complexity of farming systems and the availability of new profitable technologies; (iii) low effective demand for extension due to, amongst others, level of education of farmers and the level of market-orientation. Based on these challenges the extension system is developing on the basis of three main principles; (i) deconcentration of the services to district level; (ii) enhanced participation of the target group in services provision; and, (iii) partnership with other actors, also through outsourcing.

The policy and strategy are founded on the principle of promoting the active participation of producers to ensure that extension effectively responds to farmer’s problems and needs. The Extension Master Plan 2007-2016 includes as its primary strategy the promotion of publicly financed extension that will be open to multiple financial and delivery arrangements. The arrangement includes partnership development with NGOs and other private extension agents through outsourcing, cost sharing with local extension structures and cost-recovery from farmers, farmers’ groups and associations. The extension services aim to raise the level of productivity in agriculture, animal husbandry, forestry and wildlife, increasing incomes and ensuring food security for rural families, as well as to prevent the degradation of natural resources.

### 2.5 Other key strategies

Other key strategic documents for public agricultural extension are: the national science, technology and innovation strategy of the Ministry of Science and Technology (MCT, 2006), the agricultural marketing strategy of the Ministry of Industry and Trade (MIC, 2006) and the priority setting exercise for research (IIAM, 2006). All these documents contribute to the definition of a role of agricultural extension, which is wider than just assisting producers in technology transfer, but airs a vision of extension facilitating agricultural innovation through stimulating interactive learning between all actors in the value chain.
3 LESSONS LEARNT

3.1 General

Agricultural extension went through several phases in Mozambique. Prior to independence agricultural extension was completely focused on commercial and export cash crop production, mainly financed by the corresponding crop sectors. After independence in 1975, priority was given to Government owned state and cooperative farms. The failing production led to a paradigm shift towards greater attention for smallholder and large-scale private production and in 1987 the public agricultural extension system was established (Ministerial Decree 41/87, 1987). The evolution of agricultural extension can be divided into three major phases: (i) establishment phase (1987-1992): first experience in some pockets based on T&V; (ii) expansion phase (1993-1997): introduction of modified T&V; flexible use of the approach; extensive donor support for public and NGO extension; (iii) master plan phase (1999-2004): adoption of pluralistic extension system.

The main observations of reviews on agricultural extension (MADER, 2002, Eicher, 2002, DANIDA, 2002, Finney, 2003, Walker et al. 2004) can be summarized as follows:

(i) although the unification of public extension increased the understanding of cross-cutting issues, there are still insufficient numbers of knowledgeable, trained extension workers and as a consequence extension has been unable to systematise recommendations to the producers;

(ii) although the top-down Training and Visit (T&V) approach to extension is on its way out few extension officers have the needed technological, market and agribusiness knowledge and technical skills, as well as the right attitude of a group facilitator;

(iii) limited attributable impact of extension in reduction of rural poverty, also due to poor monitoring system;

(iv) there is a lack of cost-benefit studies of present and new profitable technologies for smallholders also due to a weak relation with research, both institutionally as well as technologically; and,

(v) high turnover of personnel, due to the HIV/AIDS pandemic, but mainly due to poor incentives, since most extension workers are on contract; they have also no education benefits and consequently the most qualified leave for NGOs, with double pay, once they have gained experience.

The consensus of the reviews is that the actual model of Training & Visit should be abolished and that Mozambique should develop its own model for extension based on the three key principles highlighted in PROAGRI II: (i) deconcentration, (ii) participation and (iii) partnership and outsourcing. At the same time the incentive system, based on performance, for public extension staff needs improvement, and more attention is required for the profitability of the technology delivered. The demand structure for agricultural extension will be improved through farmer associations and extension management committees, while the extension approach will be more based on learning, endogenous value and knowledge, as well as on participatory planning, monitoring and evaluation of a programme with full involvement of the farmers themselves. The need to strengthen the business orientation in agricultural extension also places special priority on the involvement of commercial sector principles as well as the private sector itself.

3.2 Organisation of extension

Two main pillars for the organisation of agricultural extension in Mozambique have been the National Extension System (SISNE), in which different extension providers from public and private sector have a role and the Unified Extension System (SUE) of the Ministry of Agriculture in which all agricultural services operate through a single extension officer contacting farmers in a particular area of operation.
3.2.1 National Agricultural Extension System

The National Agricultural Extension System, SISNE, is the system in which all extension providers interact, such as MINAG’s DNEA, with support of SMS’s from DNSA, DNSV and DNTF and other public extension agencies, NGOs, Private Sector Extension, Producer Organizations and farmer communities themselves.

In the absence of a public extension system in most parts of the country and given the specific extension history, private and NGO extension service deliverers filled the gap to some extent, particularly since 1992. The pluralistic delivery of extension services was formally recognized in 1998 in the then approved extension master plan. It was anticipated that the pluralistic delivery of extension services will advance to attain greater cost effectiveness and enhance farmer responsiveness compared with the situation where public sector extension is the sole provider. District Agricultural Development Plans, however, are often of poor quality or non-existent and do not contemplate the often complementary role of different extension service providers, based on comparative advantages and principles of cost-effectiveness and sustainability.

Many national and international NGOs are operating in agricultural extension. The main contributions to the national extension system are: (i) increased geographic coverage and number of farmers reached; (ii) promotion participatory learning approaches; (iii) formation of farmer and community groups; (iv) promotion of best practices (food security, farmer organizations, market support and agricultural advocacy); and (v) combating HIV/AIDS. Some negative NGO lessons are the notion that some place more attention on community participation as the ultimate goal rather than a means to agricultural development. Most NGOs have promoted the involvement of “animators” and community members, but these often lack capacity. Other NGOs have provided incentives and hand-outs with short term goals and impeding the emergence of normal market forces for credit and seed distribution systems. (Gemo et al 2004, pp 38-39)

Most of the commercial private farms are involved in the production of cotton, tobacco and cashew under contract whereby they provide technical assistance and inputs to smallholders and the smallholders repay their loans at harvest time. This type of arrangement facilitates smallholder access to inputs, a secure market and payment in cash and farmers agree to sell their cash crop to the private firms at an agreed price. In some provinces such as Niassa there is good collaboration between the public extension service and the private firms in promoting tobacco production. The private sector provides agricultural extension services, through input supply stores and through farming, processing or marketing companies, as well as runs outgrowers’ schemes. The sector largely operates on the basis of contacts and support to individual farmers, but finances community extension workers for crop promotion. Seed production associations increasingly play a role in private agricultural extension. The public sector (with EU support) has contracted cotton concession holders to provide extension services on crop diversification in order to enable farmers in Nampula, Cabo Delgado and Zambezia to have a balanced crop rotation system. Similarly the cotton, cashew and sugar industries provide through levies a contribution to the Cotton, Cashew and Sugar Institutes, which can contract private companies for crop extension and research. Input supply companies have, despite the limited use of inputs, a keen interest in providing agricultural information on the use of the same inputs (fertilizer, veterinary drugs, seeds and pesticides). Local input shops and pharmacies in (peri-) urban centres cover large parts of the input using smallholders with technical information, often supported by the pharmaceutical companies (such as Novartis and Medimoc). Private entrepreneurs in commercial production support smallholders through outgrowers’ schemes.

One of the most common mechanisms for dissemination of information is through farmer-to-farmer extension. The public extension service itself aims to indirectly reach four times more farmers through direct contacts. An important mechanism in this is through farmer or community groups. The very principle of group formation at community level aims at information sharing between farmers. This information can enter into the community through different information links such as market contacts and rural radio. UNAC facilitates through its national union and provincial or district networks the
exchange of knowledge and information between farmer associations. Volunteer trainers at Provincial level are involved in farmer group formation and facilitation of exchange visits between associations. A similar mechanism exists within the Commercial Farmers Association Wing of Federation of Economic Associations in Mozambique (CTA, 2004). Many experiences do exist with farmer promoters (veterinary assistants, cashew spraying, value chain extensionists for sunflower etc.). Although NGOs keep donors informed of their problems and progress, there has been little NGO exchange of programmatic ideas and financial information with public extension managers. Since Mozambique has a pluralistic national extension system (SISNE), various attempts have been made to promote the collaborative effort of the main stakeholders. The degree of collaboration and coordination of activities varies from province to province. The MINAG, through the DNEA and provincial agricultural extension services, SPEA, has created a good environment to increase the exchange of information and experience. Most of NGOs and private for profit organizations in the provinces attend the annual technology review meetings (REPETEs) and budget preparations organized by the provincial extension services (SPERs). At the central level, MINAG through DNEA has organized a number of meetings with NGOs and private firms to coordinate the activities of MINAG and partner organizations. All stakeholders are invited to the annual national meeting of extension. Regular contact is made with the agricultural input suppliers and local merchants. However, much remains to be done to increase the connectivity between public, private and NGO extension in Mozambique.

3.2.2 Unified Extension System

The First Extension Master Plan emphasized the need to have one Unified Extension System of the Ministry of Agriculture, integrating crop, livestock, veterinary, as well as natural resource management advisory staff in one public system. At district level the integration of crop and livestock officers into one system has developed well, but this is more complicated for forestry officers, also because these also have a resource control function. The planned District Service for Economic Activities (SDAE) can provide further impetus to the integration of extension tasks in one public system at district level, as agricultural, livestock production, fisheries and wildlife, industry, trade, tourism and rural development will be brought together in one district service. (BdR, 2006).

3.3 Human Resource Management

The extension service under MINAG has in 2006 579 extension workers (including 83 supervisors and 8% female extensionists) (the total was 629 in 1999). The qualifications vary from a first degree (4%), diploma (59%), and certificate (32%) to others (5%). In 2005 only 23% of the staff were civil servants and the rest were contracted, but the percentage of civil servants has increase in 2006. The current system is organized in networks, presently within districts, each of which has several teams comprised of technicians, their supervisors and subject matter specialists. Subject matter specialists in agriculture receive training in technical areas and then impart that to the extensionists who in turn work with up to 15 groups of farmers of 15-20 members.

The number of NGOs operating in agricultural extension is gradually increasing from 42 in 1999 to 89 in 2006, employing 775 extension officers. NGOs can have multiple other functions such as lobbying and advocacy services, such as on marketing support, land use and tenancy. Others focus on specific services such provision of veterinary services on a cost-recovery basis. Officially there are 23 private firms operating in agricultural extension, mostly tobacco, cotton but also other commodity development companies for cash crop extension, employing a total of 216 technicians. Private extension organizations employ generally more staff than NGOs.

No figures are available on the number of farmer promoters, but just for the Newcastle Disease vaccination programme hundreds are involved. The FFS approach involves 110 facilitators in three provinces (DNEA, 2006).
A recent needs assessment for the public extension’s human resource development programme concluded that frontline extension officers need further upgrading to at least diploma level. Apart from this however additional special non-formal training is also urgently needed. The extension officers require training in new, participatory extension, and farmer empowerment approaches, but also in problem analysis and analytical thinking. On top of this the level of technical knowledge on smallholder agricultural knowledge in general requires special courses notably on livestock development and agro-forestry issues (Gemo, 2006).

Frontline extensionists work under difficult conditions, between two demands, from the communities and from local and provincial authorities, often in poor housing conditions, without proper transport apart from bicycles, without means of work and without much perspective to improve their situation in terms of career, performance-based incentives, and training or study opportunities.

### 3.4 Coverage

The unified public extension service, SUE, supported by provincial and national offices has been operating through farmer contact groups in a limited proportion of the villages in a District. Districts were selected based on the following criteria: (i) potential to increase agricultural production with the available technology; (ii) rural population density; (iii) ease of road access; (iv) presence of other extension, research and other support services.

The National Agricultural Extension Programme, PRONEA is operating in both rural districts as well as technically supports locally employed extensionists in the green belts of the municipal districts of the national capital and three provincial capitals. The public extension network further covers parts of 86 of the 128 rural districts, NGOs are present in 116 rural districts, while 57 districts have private extension. Very few districts, 2 recorded, have no extension workers at all.

The first extension master plan assumed that each extension worker could annually assist 200-250 farm households directly and about 750-800 farm households indirectly or roughly 1 000 households per extension worker per year. The 500 public extension workers could cover 500 000 households indirectly, or 125 000 households directly. If the same principles are applied to all extension workers then almost 2 000 000 households are indirectly covered and 450 000 households are in direct contact with extension. If the same public extension criteria are applied to all extension (public, private and NGO), then statistically 26 rural districts in Mozambique have sufficient coverage, and another 50 districts have 50% coverage. The total extension coverage in 2006 for the public, NGO and private extension services was reported to be 191 629, 322 700, and 259 346 respectively, statistically adding up to 773 675 households assisted (DNEA, 2006).

The actual total household coverage in 2003 for contacts with agricultural extension was 13.3% or 425 600 households (TIA, 203). Public extension, including the Newcastle Disease vaccination campaign approached 4.7% or 150 000 households in 2004, which was up from 122 000 in 2003. Total coverage varies sharply between provinces, being lowest in Zambezia (8.6%) and highest in Sofala (24%). At the community level, about one-third of the focus groups in the villages stated that they had access to information on agricultural extension and on commodity prices.

### 3.5 Producer and community organisations

Mozambique has, apart from the 33 urban municipalities (with full political decentralization), 128 Rural Districts and their 394 “Postos Administrativos” (sub-districts) and 1 071 “Localidades” (Localities) and a total of 10 025 “Comunidades” (“povoações”, communities and traditional chieftainship). Each community is a cluster of small hamlets and villages (“Aldeias”), of which there are an estimated 40 000 in the rural areas. In this structure and basis of the LOLE regulations, community priorities for district planning purposes are aggregated at locality level, but are based on an assessment by communities and their Community Development Committees, CDCs. Potentially there are some 10 000 CDCs or Local Development Committees, CDLs, with an average of 80 per District. In reality there are less, depending on province, presence of development agencies.
Rural Extension Management Committees. CGERs, have been established in four provinces in Mozambique (Gaza, Manica, Tete and Nampula) (see Figure 1). CGERs or Nucleos in Nampula, have 12 to 26 members, which are selected by the community. The CGER’s objective is to connect service provision with the community, to promote rural development activities and to guarantee participatory planning, monitoring and evaluation, as well as downward accountability. CGERs have been established by DNER, but also by NGOs, such as Save the Children in Gaza. In an example provided by DNER, a CGER draws representatives from associative groups on maize production, charcoal burning, beekeeping, cassava processing, cattle breeding, fishpond production, as well as from the teachers association, from an agrochemical retail shop and from extension. CGERs can be similar to CDLs, when involved in community activities or CGRNs, when focusing on soil conservation and post-harvest issues. The main identified needs of CGERs are registration and training, as well as information requirements for HIV/AIDS. The district level equivalent, District Extension Management Committees, with different extension service providers and others, are not operational. Up to the end of 2004 DNER had established 44 CGERs, with a total of 647 group representative members.

Figure 1 Extension management committee composed of local farmer group representatives and other actors (MINAG, 2004)

Different types of farmer associations can be distinguished in Mozambique, as was done by Bingen et al., 2000: (i) simple commodity contract associations, which are based initially on the financial investment capital of a company or traders; the services available to smallholders are supply driven (e.g., associations set up by cotton traders to facilitate input delivery and marketing); (ii) delivery system associations have been established to help deliver or transfer technology; the services available to smallholders are largely mediated by an agency or program outside the community (e.g., “extension groups” set up by NGOs to provide agricultural technology and training); and, (iii) marketing and development Associations have emerged from a continuing investment in human and social capital; the services available to smallholders are largely demand driven (e.g., CLUSA-assisted groups that receive intensive training in group organization and management skills). Formal and registered farmer associations are mostly operational at community level, but sometimes also at higher Posto and District level. Examples of this are the 64 District Unions of Farmer Associations that are registered by UNAC. Groups and associative groups are mostly found at village level and can graduate into associations or unions of associations, which are officially registered. The National Extension Service, through its National and Provincial Farmer Organization Units promotes the establishment of farmer groups, while it is mostly NGOs and UNAC that are involved in the facilitation of group registration into associations, requiring business plans and statutes development.

Many of the associative groups are of a social nature, for instance for managing peak labour demands, credit and savings associations and community development activities; others have an economic nature,
for example for input supply and produce marketing. In 2004 DNEA reports working with 3,996 farmer groups with 140,923 members and 1,434 associative groups with 44,724 members, leading to an average (informal) group size of 35 and membership-based associative group size of 31. The number of groups has gradually decreased since 2001 (7,412 groups), while the number of associations more than doubled in the same period (from 575). Groups have merged, since group size has increased from 21 to 35, while others have graduated to associations. Most of the producer associations are strengthened with the assistance of NGOs. A NGO such as OLIPA works with 333 associative groups in Nampula only, with 53 forums of associations actually registered.

The Farmer Field Schools, FFS, form a special category of farmers groups, which are highly relevant for agricultural extension. Till 2006 157 Farmer Field Schools had been established in three provinces and 12 Districts. FFSs can through a participatory learning approach graduate into strong players in participatory planning, monitoring and evaluation. Expansion of the present programmes will further increase the number of these groups to 1,000 to 2,000 in a few years time, as well as stimulate the formation of FFS networks at District and Provincial level.

3.6 Financing and funding of extension

3.6.1 General

The New Partnership for African Development (NEPAD, 2002) calls for major new investment funding in agricultural research from development agencies, the private sector and African governments. The goal is to double the current annual spending on Agricultural Research, Technology Dissemination and Adoption, which a mere 0.69% of AgGDP to 1.4% of AgGDP in 2015. NEPAD recommends that funding for extension services will come from government budgetary allocations, private firms, and users’ fees, while research can be partly financed internationally.

Agricultural GDP in 2004 was 1,080 million (20% of GDP), which means that total government investment in agricultural research, and extension needs to increase to USD 15,000,000 annually in 2015, based on the current AgGDP and the NEPAD recommendation.

3.6.2 Public sector

The public extension service is financed through PROAGRI and its common fund of government and donor contributions. Large fluctuations in the size of this fund have caused financial continuity and disbursement problems for agricultural extension. These problems underscore the need for an increased share of the government financing and financial decentralization. The public extension budget during PROAGRI I has been around USD 15,000,000 for five years, which is based on funding from the CFFM (Agricultural and Livestock Services, Land and Forestry Services) and parallel projects. It is assumed that Districts, Provinces and Central level all got an equal share of this amount. Based on the number of districts in which agricultural extension was operational during PROAGRI I, this means a statistical average of USD 16,700 per district. In terms of expenditure per year per assisted household it would mean an investment of USD 20/household or 4,500 - 5,000 USD/extension officer.

3.6.3 Private and NGO sector

Little is known about costs and benefits of NGO agricultural extension. Also, it would be helpful to know how much farmers would be willing to pay for extension services. Most evaluations of NGOs are usually prepared for donors and they frequently have not been shared with public extension managers.

Private extension is mostly financed by the respective sectors such as cotton, cashew and tobacco, and input suppliers, such as seed, chemical input and drug supply companies; while NGO extension is largely financed by bilateral donors, directly or through international NGOs. Farmers themselves are also directly involved in extension, such as farmer promoters employed by private companies on a cost-
recovery basis, farmer promoters involved by NGOs and District Agricultural Offices for veterinary assistance, chicken vaccination and crop spraying, but also by association and group facilitators of the farmer unions. Farmer contributions to the cost of agricultural extension have been limited to at best a contribution in kind, but the value of the informal farmer-to-farmer extension is large, although difficult to estimate.

3.6.4 Outsourcing

Outsourcing is taking place through the Ministry of Agriculture both managed at national and provincial level, while increasingly some small-scale outsourcing arrangements are developing at local level e.g. through farmer promoter contracts.

MINAG started a pilot outsourcing activity in two districts (Nicoadala, Zambezia, and Murrupula, Nampula) with the two following objectives (i) comparing effectiveness and efficiency of different extension services; (ii) gradually substituting public extension if contracted providers are more efficient and equitable. The annual and mid-term reviews indicate that: (i) coordination between all partners is reasonable; (ii) monitoring and supervision by District and Provincial staff needs strengthening; (iii) poor exchange exists with other outsourcing experiences; (iv) it is too early to make conclusions on effectiveness, efficiency and value for cost analysis. The DNEA considers outsourcing to be an expensive method of service provision, but its convenience as a means of extending coverage or meeting specific needs without long term financial commitment is clear. It also may well be that its effectiveness justifies the cost, if service contracts are properly performance-based, time and cost bound and explicitly targeted. Outsourcing requires strong monitoring and evaluation, a capacity presently not available at DNER. A total three year budget amounted to USD 1.9 million for extension services in the two districts to 11,000 households or about USD 60 per household, three times higher than through direct public agricultural extension. MINAG’s National Directorate of Agricultural Services started an outsourcing programme in Inhambane, Niassa, Nampula and Zambezia provinces. Experiences on the production of fruit grafts, and replanting of coconuts, as well as livestock restocking, veterinary services (health posts, dipping services, drug supply), vaccination campaigns and the promotion of animal traction are recent and not yet evaluated. In 2006 PRONEA assisted 30,559 households, or 16% of the total, through outsourcing, of which 10,494 through the Murrupula and Nicoadala contracts.

The European Union is supporting a massive outsourcing programme in agricultural development in general and cashew and cotton extension in particular, although outside PROAGRI. Ownership of these contracts, (financed by EU) including monitoring and evaluation has shifted from the Cotton and Cashew Institutes to Provincial authorities. Recent internal evaluations suggest that the targets to be achieved in the contracts need to be more realistic and business oriented and monitoring and partnerships at district level need to be improved.

An outsourcing capacity is also developing at district level, but of a more modest kind. District Agricultural Offices have signed contracts with associations and individual farmer promoters for services such as seed and planting material multiplication and dip tank management and the contract spraying of cashew and groundnuts, as well as chicken vaccination.

3.7 Extension Approach

3.7.1 Training and Visit

The Training and Visit Approach, T&V, to extension was introduced in 1988 with the establishment of the National Extension Programme, but modified in 1992. In 1998 the concept of a Unified Extension System was introduced, which combined frontline workers in different agricultural sub-sectors including crops, livestock and natural resource management into one system. The still applied modified T&V approach has the following key target indicators: (i) an extension officer works with 10-16 groups of 15-20 smallholders, amounting to roughly 200-250 households directly contacted, (ii) the extension officer visits and trains these groups twice a month, following a rather linear transfer of technology
approach. With the move to a pluralist agricultural extension system and the deconcentration of public service delivery to the District level, an alternative and also more holistic and participatory approach to extension developed. The newly developing paradigm emphasizes this need for bottom-up approaches, public-private partnerships in extension and deconcentration of services provision, this in combination with the emphasis placed on demand-driven services provision, downward accountability, community extension management committees, learning and discovery-based extension approaches such as farmer field schools and farmer-to-farmer extension approaches, strengthens the calls for a complete, but gradual withdrawal from the traditional T&V approach.

The public extension system has a variety of different categories of on-farm demonstrations with a wide range of potential technologies. Available categories for on-farm testing are on: (i) appropriate technology for intensive agriculture, (ii) small-scale irrigation, (iii) livestock production, (iv) post-harvest and agro-processing technology, (v) natural resource management such as forestry, soil conservation, soil fertility management, (vi) fish culture, (vii) integrated pest and disease control, (viii) fruit tree multiplication, and, (ix) HIV/AIDS mitigation. Within each category different options are available, which can also generate a differential interest, based on farmer, poverty and gender categories.

Agricultural technologies agreed upon by the various committees are disseminated through on-farm crop demonstrations, CDRs of 1 000 m$^2$ each, managed by extension and farmers and on-farm trials managed in collaboration with IIAM. Some larger sized CDRs of 5 000 m$^2$ are established with farmer and other local leaders involved in dissemination, while Demonstration Units (UDs) are focusing more on thematic issues, such as improved kraals, crush pens, dryers, fishponds, irrigation, and erosion control. Seed multiplication fields (CMSs) and 5 000 m$^2$ incentive fields (CIs) are used as incentive for extension officers, while evaluating the performance of the, often contracted, officers.

3.7.2 Alternative extension approaches

NGOs generally strongly emphasize group formation in order to improve the delivery of services, but more so to improve demand for services as well as link up with markets. The area of operation is also more targeted both geographically and thematically with focus on specific themes such as food security, natural resource management, HIV/AIDS mitigation, or the development of a specific commodity chain with strong private sector involvement. NGO extension operates through farmer groups and associations, also for the promotion of farmer-to-farmer learning. CARE Nampula aims at communities contracting extension, in order to provide a certain package of services, on the basis of clear roles and obligations of the community itself.

MINAG’s extension service has widely experimented with Farmer Field School approaches. The district extension offices have in this way gained experience with farmer group formation, farmer-to-farmer extension, farmer groups monitoring the performance of the extension workers, farmer groups holding the extension office to task for the agreed programme. Farmer groups have developed capacities for monitoring and evaluation, holding the extensionists accountable, self-learning capabilities, and financial management capabilities because of the small grant attributed to the group. The costs of the programme have forced the approach to become innovative, such as involving farmer facilitators to start other groups with support from contracted NGOs, but also by improving the cost-sharing with the group and developing links with the market for self-financing of the graduated groups.

The public extension will take stock of all the approaches and develop a new approach grafted on previous experiences and harmonized with the different main actors in the pluralistic extension. Special points of attention for harmonization and analysis are: group and association building approaches, farmer learning approaches, cost-efficiency of Farmer Field School and outsourcing pilots. The implementation of the new extension paradigm needs to be accompanied by a strong capacity building programme for extension staff.
3.8 Research and Extension linkages

At central level the formal interaction between research and extension has been limited to annual research and extension meetings and the Consultative Council meetings of MINAG.

Different formal mechanisms exist for the coordination between research, and different extension providers, farmers and other local stakeholders on the demand for and availability of technology. The Periodic Technology Review meetings (REPETEs) meet at least once a year at Provincial level, and sometimes District level to analyse best practices in technology supply based on demand. Increasingly provinces decide to contact and contract directly some research support from zonal centres for provincial extension programmes. A practice which was pioneered by a variety of NGOs, such as OLIPA and CARE, contracting research services for the enhancement of the production of new cash crops in Nampula.

The traditional approach in extension is to demonstrate improved technologies to farmers on farmers’ fields. Public and private sector extension have been establishing demonstrations with farmers on crops, livestock and natural resource management in all areas of operation. Research staff is expected to provide the necessary technical back-up to this programme, but have inadequate capacity to do so. As an alternative ZRC Sussundenga, in close collaboration with public, private and NGO extension has come up with demonstrations in a limited number of farmer fields, representing the different agro-ecological zones, of all available technologies. Farmer groups and other actors, who select technologies for subsequent on-farm demonstrations in the following season, visit the ‘on-farm technology market’.

Agricultural technologies agreed upon by the various committees are disseminated through on-farm crop demonstrations, jointly managed by extension and farmers and on-farm trials managed in collaboration with IIAM.

Apart from formal contacts many informal contacts exist, although mainly at national level, although there are also field days at Zonal Centres and in the context of the CDR demonstration fields researchers and extensionists also interact...

3.9 Monitoring and Evaluation

The performance of the Ministry of Agriculture in the context of the PARPA mainly depends on four proxy indicators, relating to extension, irrigation services, veterinary services and land and forestry services. Data relating to these indicators need to be collected at all levels and will provide information of the performance of each service. For agricultural extension data on theumber of farm households assisted and the percentage of these households, which are adopting a new technology.

The District Agricultural Officer monitors the role of public extension and NGOs in extension implementation, on the basis, for instance, of number of farmers assisted, number of demonstrations established and number of groups established. Communities have a very limited role in the monitoring of the performance of agricultural service providers. Coordination and planning as well as supervision of the outsourcing contracts are mainly done at Provincial level.

Little experience exists with participatory monitoring and evaluation, but some experience has developed through the Farmer Field School Approach. Villagers value the services provided by the extension officer and the extensionists will be provided an incentive accordingly. DNEA reported an 85% adoption rate for the technologies disseminated through the Farmer Field School approach.

The number of adoption studies is extremely limited. The Centre for Socio-Economic Studies (CESE) of IIAM has started working on this, as well as on impact assessment. According to the PARPA, the TIA agricultural household survey is expected to collect data on the percentage of households that have adopted a new technology in the last twelve months. Criteria for proper estimation of this figure still have to be developed. A few adoption experiences are available from projects and NGOs. Few examples exist of adoption studies, which should also take place at this level, let alone joint studies by various stakeholders. CARE reported increased adoption of agricultural technologies and practices in...
CARE’s extension programme in Nampula. Technologies adopted were: use of botanical insecticides, manure, mulch, planting holes, rotation, line planting, spacing and seed storage, as well as crop varieties and crop diversification, for instance the vitamin A-rich yellow pulp sweet potato varieties. Increased adoption was accomplished by 20% direct extension coverage, but has however not led to measurable impact yet.

Several national extension impact studies are available on the basis of data analysis of the national household survey, the agricultural household survey and PRONEA’s own data collection. Studies by Finney (2003), Eicher (2002) and Walker et al. (2004) have been largely inconclusive about the impact of extension on agricultural productivity. A recent World Bank commissioned study has backed up the existing databases with a focused additional household survey. The data suggest that extension, both public and non-public; have indeed had a positive effect on the adoption of technology, access to inputs such as tools and seeds, as well as markets.

Impact studies on the interventions of NGOs in agricultural extension are occasionally available, but mostly not to the District or Provincial authorities; examples are the VETAID impact study in Gaza; UDC/SNV impact study in Nampula; and, the CARE review in Nampula. No data are available on the cost of NGO extension, let alone the relation with the benefits. General evaluation of NGO performance indicates that NGO extension: leads to increased extension coverage (3 x higher); new approaches such as participatory learning and farmer group-based extension were introduced; best practices are promoted e.g. Farmer Field Schools, Farmer Organizations, market-orientation; agricultural advocacy is improved; new technologies are imported; and increased attention is paid to HIV/AIDS.
4 EXTENSION STRATEGY 2007-2016

4.1 MINAG’s Vision

Since extension is one of the main activities supported and guided by PROAGRI II, it is important to spell out MINAG’s vision and mission. The PROAGRI II vision for MINAG is to assist in the long term development of

“An agricultural sector that is integrated, sustainable, competitive, diversified, a basis for welfare and economic accumulation, and articulated through value-added chains with broadly shared benefits” (PROAGRI II 2004, p.35).

The Vision defined four critical pillars for agricultural development: (i) Markets; (ii) financial services; (iii) technology; and (iv) access to natural resources.

The long-term mission of the Ministry of Agriculture is

“To contribute to improved food security and poverty reduction by supporting the efforts of smallholders, the private sector and governmental and non-governmental agencies to increase agricultural productivity, agro-industry and marketing within the principles of sustainable exploitation of natural resources”.

Mozambique aims at improving family and national food security, generating employment, and achieving sustainable economic development. The main goal of PROAGRI II for 2006-2010 is to contribute to this ongoing effort by transforming Mozambique’s predominantly subsistence agriculture into commercial agriculture on a sustainable natural resource base.

4.2 Vision for Public Agricultural Extension

The vision for agricultural extension in the next ten years is based on the Extension Master Plan 2006-2010 (2nd version) and the documentation for the operationalization of the PROAGRI II extension programme (ASP, 2005). In the National Agricultural Extension meeting in Namaacha, 9-13 October 2006 the key elements of this vision were analysed and discussed, resulting in the following expectations for the next ten years.

(i) Decentralization. District agricultural extension programmes will be based on integrated District Development Plans and Budgets, which will allow for human and financial resources at the disposal of the District administration. Endorsement and coordination for these district extension programmes will take place at central but mainly provincial level.

(ii) Deconcentration of MINAG service provision. Planning, implementation, monitoring and evaluation of extension activities will take place at District level. At provincial level district planning will be consolidated with national and sector strategic plans and province-level programmes will be implemented. The role of the central level is mainly policymaking, strategy development and regulation of the sector and sub-sector.

(iii) Multiple service provider system. Public agricultural extension defines the agricultural extension policies at central level and coordinates extension in general at both provincial and district level. Public extension can contract extension services from the private sector, NGOs, producer organizations and others based on needs and comparative advantage.

(iv) Producer empowerment. Producer organizations are partners of the extension service in planning, implementation and monitoring and evaluation of activities. Producer organizations should preferably also be involved in the extension public resource allocation, but capacities will take time to develop.

(v) Outsourcing extension services. Private extension services will be contracted at provincial a district level based on comparative advantage. The capacity at district level does not yet allow contracting out all extension services and the complementarity of the public extension service remains important.
(vi) **Partnerships.** Partnerships and linkages between the public extension service and other extension service providers as well as with others partners in the agricultural innovation system such as agricultural research, entrepreneurs (farms and firms), financial and infrastructure services and market actors, including consumers.

(vii) **Extension approach.** The approach is expected to be based on the agricultural knowledge and information system (AKIS) at both provincial and district level based on interactive learning with a role of the extension officer as facilitator of interactive learning a both horizontal level as well as in the value chain with all relevant actors. The extension officer will be downward accountable to the producer.

### 4.3 Agricultural Extension Strategic Objectives

The general objective of the National Agricultural Extension Programme, PRONEA, is in order to achieve MINAG’s overall objective, to contribute to (Annex 1):

“Improved food security, economic growth and poverty reduction, especially for male and female subsistence farmers, including female-headed and disadvantaged households, by increasing agricultural productivity and production through a steady uplift in production efficiency and the provision of new technology and institutional innovations while promoting participation and sense of ownership among producers”

The specific objectives that contribute to the general objective are to:

- “Improve the capacity to implement extension programmes within a pluralistic and participatory framework”,
- “Increase the technical and managerial capacity of producers in the planning, monitoring and evaluation process and in service provision”
- “Provide extension services at provincial and district level for the promotion of agricultural productivity and sustainable use of resources”

In order to achieve the stated specific objectives of the public extension system, the following components, subcomponents and target areas of intervention have been identified that will require collaboration and working relationships with institutions that make decisions on investments in rural infrastructure and the provision of marketing and financial services.

### 4.4 Main components of the extension master plan

#### 4.4.1 Components and sub-components

The framework of proposed components, sub-components, or result areas, and main activities of the Programme is summarised and described in brief below:

**A. Supply-side Development (for extension and technical services) addresses the first specific objective**

**A.1 Public Sector Reorientation and Support**

The main activities will address:

(i) **Central Agency Reorientation and Support; and**

(ii) **Provincial and District Development through:**

- reorientation of public sector ethos and reform at Centre, province, district, and downstream; emphasis on participation, facilitation and service delivery cost effectiveness;
• building of public awareness and consensus around the National Agricultural Extension Programme - and provision of training, resources and systems for public sector extension and research performance improvement;
• assistance to national/provincial agencies to develop service provider Code of Practice and regulation of contracting terms, conditions and performance factors; and
• specific strengthening of district and province agricultural planning, implementation and supervision capacity; arrangement, oversight and quality control of contract service provision;

A.2 Private Sector/NGO Promotion and Support
The main activities will address:
(i) Service Provider Development,
(ii) Private sector/NGO Service provider Promotion and,
(iii) Establishment of Farmer-promoters, through:
• encouragement, refinement and expansion/deepening of the outsourcing process already underway, in particular for extension, training, information and technical services;
• facilitation, professional advice, financial assistance for emerging service providers;

B. Demand-side Development addresses the second specific objective.

B.1: Farmer Organization and Empowerment
Activities of inventory, group strengthening, networking, participatory planning and graduation and registration of associations separated for Category 1, 2 and 3 Districts, depending on potential, capacity and priority.

B.2: Group, Association and Enterprise Development
Activities are on business plan development, management training, linkage development, service provision capacity and initial association investment separated for Category 1, 2 and 3 Districts through:
• grouping of farmers around common interest or affiliation for purposes of interlocution;
• clarifying and strengthening real demand - balanced for gender, HIV/AIDS or other disadvantage - for agricultural production/productivity services, and means of provision;

C. Agricultural Services Provision addresses the third specific objective:

C.1: Provincial-level Services Provision
Strategic/thematic and/or consolidated contracts, for instance for seeds multiplication, disease prevention and NRM activities at provincial level;

C.2: District/Local-level Services Provision
Activities that are separated for Category 1, 2 and 3 Districts are on advisory, study, information, technology application contracts at district/local level.
4.4.2 Supply-side Development

**Public Sector Reorientation and Support.** The ASP will use participatory approaches to develop and consolidate a public-private sector partnership for improved and pluralistic service delivery to farmers and groups by a mix of contractors. In line with Government policy and PARPA objectives, the aim will be for extension performance to be enhanced by reducing Government direct implementation in the field, and replacing this with a focused central institutional capacity to guide, support, back-stop and monitor the provision of services. This will depend on evolution of the national extension approach, with acknowledgement of the new paradigm and preparation of the systems, guidelines and documentation to put it into practice. DNEA and the advisory services (DNSA, DNP, DNTF) will also become a centre of expertise and resources for province and district consultation. In the field, the key building blocks will be the District Agricultural Development Plans, part of DDPs, developed on the basis of community plans, through PRA techniques, with inputs provided by district-based and provincial actors. DADPs will indicate the roles of different actors in agricultural advisory and technology services delivery.

**Central Agency Reorientation and Support.** This activity will be directed principally at the PROAGRI Unit itself and the National Agricultural Extension Directorate within MINAG.

**Provincial and District Development.** This activity will provide direct support to the agricultural aspects of district and province development planning and implementation. New institutional arrangements will improve and strengthen local government, contributing directly to the decentralization process. At the same time, private and NGO sector services providers will be encouraged and supported, and individual farmers and farmer institutions empowered and facilitated, to play an increasingly active and continuing role in management and provision of demanded services. District extension will be part of the agricultural section of the District Service for Economic Activities (BdR, 2006) with an average of 4 district agricultural staff and 3-6 extension workers, but growing towards and average of one team of eight per district headed by an extension supervisor. The terms of reference of the extensionists will be revised to reflect, the introduction of the new extension paradigm and the new responsibilities for management of extension services and in particular the commercialization of services provision and private sector support. One agricultural extension team member will be charged with improving planning capacity and ensuring that the concerns of farmers are effectively expressed in DADPs, as well as reinforcing capacity in the monitoring and evaluation of service delivery. The Head of the SDAE will be charged with ensuring that private sector operators are informed of activities in the district, helping to develop tenders and in the management of the resulting contracts and facilitating relations between farmer organizations and local government entities. Implementation by districts of institutional reform of their field extension capacity may entail a rationalization of staff numbers and competences. It will also involve review and development of outsourcing of goods and services supply; stronger province support for district planning; and the significant improvement of DADPs, such that a demand driven service provision and provider agenda will be created, with deep community participation and assistance in formation of farmer representative bodies. With increasing private sector participation and the facility of modern communications and improved systems of operating, emphasis in field level reform will be: on the promotion of farmer-promoters, including women, that emerge from the farmer consultation and organization and vocational training processes as grass roots resource persons, communication channels and, eventually, advisers; and on farmer groups and associations as the principal carriers of messages, both to and from the extension officer or service provider, and from group to group.

Apart from the technical assistance which will be provided centrally - but principally be pre-occupied by support at provinces and districts - the activity will encompass: human resource development for province and district staff, including long and short term academic training; practical farmer consultation training; most importantly, a campaign of stakeholder consultations, seminars and workshops; provision of vehicles, equipment and communication and office facilities; incremental staffing at district level; and assistance with financing of incremental costs, mainly for field activities. The key output of this activity will be the inculcation of an outward looking and pro-active approach to
technical services provision; and the establishment of the capability within the public sector to meet the expectations of farmers through provision of their own, or the arrangement of other, services.

**Private Sector Service/NGO Promotion and Support.** In parallel with developments in the public sector, a key focus of transformation of service delivery will be the mobilization and support of private and NGO/CBO services providers. This sub-component will deal with these developments. The potential incumbents that are likely to be involved in non-public service provision include private research institutions; national and international NGOs; university and academic institutions; individual consultants, extensionists and scientists; private sector consulting companies; and contractors. On the basis of established criteria, registered farmer associations can also play an important role in technology dissemination and adoption through farmer learning approaches.

Existing experience indicates that four categories of private sector service providers can be distinguished: commercial agricultural enterprises, such as cotton concession holders, tobacco firms, input suppliers and commercial out-grower schemes; local NGOs, which are often supported by international NGOs; small enterprises involved in agricultural extension, which are just starting up, such as input supply shops, veterinary drug pharmacies and local seed producers; and, lead farmers involved in extension, both female and male, including association representatives assisting other organizations on a cost-recovery basis. Different contract modalities for these different categories will be worked out with particular emphasis on capacity building elements such as mentoring, business planning, advice, vocational and literacy training for the last three categories.

Public agricultural extension will involve lead farmers in agricultural extension, directly or through outsourced contracts. Experience exists with farmer-promoters, who can graduate to farmer-to-farmer extension workers through training and exposure to different experiences. Other options are the involvement of community extension workers on performance-based incentives and/or on a cost-recovery basis; and local farmer association networks in agricultural extension on the same basis.

Some of these services will include the facilitation of professional advice and financial assistance for emerging service provider enterprises. Attention is particularly required for each extension contract to include a plan to monitor the performance of the consultant or consultant firm, NGO, or private company. Evaluation records will be kept to maintain a record of available consultant firms for extension work and to record the assessment of performance of the firm or provider. Capacity to monitor and evaluate contracts is crucial. Given the limited outsourcing experience, time-bound milestones will be included in contracts, and contract objectives need to be clear and backed by verifiable monitoring indicators. The three main activities of the sub-component are described below.

(i) **Service Provider Development.** This activity will comprise the mounting of a media campaign focused on districts but with a national perspective to create Programme awareness and interest in ASP opportunities and modalities; this will be followed by the award of three contracts, one for each region (North, Centre and South), for consultants or development agencies to foster and support service provider emergence and development.

(ii) **Private Sector/NGO Service Provider Promotion.** This activity will consist primarily of vocational training and the provision of business planning and management advice for established or emergent small and medium enterprises - SMEs - and local NGOs in the service provision field including that for public service staff who may be retrenched or who may voluntarily opt to transfer to the NGO or private sectors. Professional technical and business advice and mentoring of business development and promotion of a professional association of competent contractors and services providers will be supported. The activity will also include availability of and possible facilitation - or provision - of financial assistance by matching grant or lease/hire arrangement, for initial investments for small business establishment and development in these types of businesses and agencies: such grants might cover the purchase of a means of transport or a computer or office furnishings and supplies as a start-up package.

(iii) **Establishment of Farmer-promoters.** The third activity in private sector/NGO service provider support will arrange for the vocational and functional literacy training, in close coordination with District Education Services, for aspiring farmer-promoters, based at district and downstream levels. The Programme will also make available incentives for the formalization of farmer-promoter businesses by
providing matching grant funding for initial investment by farmer individuals or groups in the same way as for SMEs and NGOs.

4.4.3 Demand-side Development

**Farmer Organization and Empowerment.** Existing, nascent and potential community and farmer groups will be contacted, consulted and assisted to: organise and network into committees and forums; improve their legal status; and be provided with learning and guidance for definition of potential and means of attainment and uplift. Existing social capital in agricultural production at community level can be mobilized and strengthened for participation in Community Development Committees, CDCs, which must properly represent the different household categories in the community. The main subsequent activities for this farmer mobilization will be:

- district-based inventory of female and male farmer groups and associations, to include the number and stage of development of the existing agricultural groups and associations, the level of inclusion of different poverty categories and vulnerable groups and the main actors involved in supporting farmer empowerment at district level;
- participatory learning, group dynamics, self-reliance and inclusion, in a programme for the support of existing groups through existing service providers and new groups through District Technical Team or service contract inputs, using PRAs, agriculture potential assessments and well-being rankings;
- networking of groups into CDCs and locality forums, capacity building and linkage formation, using Extension Management Committee experience with Farmer Field Schools (FFSs), District Association Unions and other groups, for participation in local government agricultural planning;
- role strengthening of committees and forums in agricultural priority setting and planning, by involvement in priority activities and sub-projects and training in participatory planning, M&E and downward accountability to member groups and their different household categories; and
- support for graduation and legal registration of farmer associations, through the district system and with the assistance of NGOs and service providers.

**Group, Association and Enterprise Development.** Farmer associations will be supported and guided to become sustainable market-oriented agricultural production groups, with equitable and inclusive access to benefits by females and males, pursuing common technical and commercial interests, as well as to interact with public and commercial service providers and to be involved in agricultural services provision with the local government. Main activities will be:

- transforming producer groups into profitable associations, using NGO/private sector expertise;
- training in business-orientation, administration and financial management;
- facilitation of linkage and access to other sources of assistance, including related projects in rural finance and assistance for enterprise development and NGO schemes for crops and livestock improvement and ownership;
- preparation of associations for agricultural services provision, including training of lead individuals as facilitators for other groups; and
- provision of limited matching grant funding for feasible and well-founded group enterprise or scheme development, where no other source is available.

These activities will be regarded as being successful when farmers, through their groups, associations and networks, are able to determine and articulate their own needs and aspirations; assume the authority, resources and capability to contribute to and influence the content of DDPs and the consequent funds allocation; hold accountable public and private services providers; and thus construct real partnerships for development with Government and private and NGO sector players.
4.4.4 Agricultural Services Provision

This third component of the master plan will comprise delivery of the transformed and improved services, translating the reforms and capacity building provided to farmers and service providing agencies; and delivering services for agricultural extension, information, technology application and other technical topics. The services will encompass a range of farming and related activity. Farmers groups and associations - not extension workers, local administrations or Central Ministries, or donors and consultants - will determine what advice, support or technology is needed. It is therefore not possible to determine exactly what will be required. It is a fundamental principle that the Programme allows farmer group and association clients to have significant control over agricultural services resource allocation and management. This will be initiated by gradually shifting budget resources from direct funding of public extension and agricultural development activities to specialised funds disbursed through districts and downstream agencies and controlled by the clients.

Agricultural extension for smallholders essentially still entails the delivery of public goods, although increasingly it is becoming subject to considerable out-sourcing. The traditional manner of financing extension services involves a flow of funds from the Government or donor to the service provider. With few exceptions, the chain of accountability is upwards to the financier and manager. Service users are thus excluded from the chain. Reversing the financial flow by providing funds directly to the producer to contract services from providers changes the entire incentive and accountability structure, as well as efficiency of delivery. Though this is a long-term target, it is important to keep it in mind in the context of PROAGRI II. Similarly options for farmer contributions and community contributions in agricultural service provision, in kind or cash, will be pursued.

Extension and information/technical services contracts will be of two main types, delivered through two sub-components:

(i) **Provincial-level Services Provision** - these will be longer term assignments, of from one to two years, on thematic topics such as land management and watershed protection, adaptive research on specific topics, development of marketing operations or the provision of ongoing technical or farm business management advice to a large, partly commercial producer group; and

(ii) **District/Local-level Services Provision** - for shorter term assignments, of from a few days to several months; these contracts could be awarded by a fast track method that would not require competitive tendering but still embody enforceability, for occurrences such as disease outbreaks or pest infestation problems, where investigation, reporting and curative action might be completed in an input of a week; or under a normal procedure, for instance for research on exploitation of a specific market opportunity; for ad hoc practical advice and assistance to a group in application of a new technology, which might involve inputs, possibly periodic, of several weeks or even over a few months; or annual agreements for periodic technical and management advisory sessions to an individual association or cluster of farmer groups, for example for Farmer Field School (FFS)-type activities.

At local level - and as required by client farmer and groups - the PROAGRI II will fund: establishment of a District Fund system for demand-driven agricultural services provision; the generation, dissemination and adaptation of relevant technology and knowledge; acquisition of advisory services, capacity building and a contribution to operational costs for client-controlled farmer groups and associations, including demand-driven research, extension, information and communication facilities; and increased private sector service provision.
5 TARGETING

5.1 General

The public extension service will focus on smallholder agricultural production with an emphasis on improving food security as well as transforming the mainly subsistence characteristics of smallholder farming into a more market-oriented production system. Public agricultural extension used to concentrate on the districts with higher agricultural potential and will continue to do so, but will increasingly play a complementary role to NGO and private sector extension, both thematically and geographically, in order to have extension services in all districts. Public agricultural extension will give specific priority to strengthening the demand for and access to agricultural extension services, based on principles of producer empowerment and inclusiveness such as for female farmers, female headed households and disadvantaged groups such as HIV/AIDS affected households.

At the same time agricultural extension recognizes the need to involve medium and large scale farmers as partners in agricultural development, as a source of knowledge and experience and as market-oriented actors with access to markets and centres of outgrowers’ schemes as well as providers of agricultural services.

Several levels for the targeting of agricultural extension need to be distinguished for the priority setting of the corresponding activities:

(i) Thematic areas, which are relevant for the smallholder target group
(ii) Gender categories and vulnerable households
(iii) Categories of smallholders
(iv) District categories

In order to achieve the stated goals of the extension service, there are five target areas of intervention (livelihood and value chain development, as well as three crosscutting issues) that require collaboration and working relationships with institutions that make decisions on investments in rural infrastructure, and the provision of marketing and financial services.

5.2 Main thematic areas

5.2.1 Improving the smallholder livelihood system

The focus of the public extension effort is to help increase family food security, generate new income streams and employment from traditional and non traditional food, livestock and export crop production, as well as off-farm and non-farm income generating activities. The bottom line is that the generation of a reliable family food surplus has a critical role to play in improving rural livelihoods. But generating new income streams is also of paramount importance to generating rural employment, improving rural livelihoods and reducing rural poverty.
Extension officers have a crucial role in facilitating the development of local livelihood strategies that go beyond the mere agricultural production (see Figure 2). Farmer empowerment is considered to be one of the major aspects that contribute to the improvement of the livelihood of farm families. Farmers and farmer groups will be encouraged to organize and network into producer associations, extension management committees and forums. In addition to outside support, existing and potential social capital at community level will be mobilized to finance local self help initiatives/projects.

5.2.2 Value chain approach

There is awareness that a growing rural economy will provide jobs and incomes to build improved houses, purchase bicycles and create jobs in trading, processing and marketing (MPD, 2006). Extensionists with expertise in marketing should be recruited by DNEA to help expand the growth of micro enterprises, food processing and marketing.

Figure 3 The value chain and agricultural marketing (CdM, 2006)
The 2006-2009 agricultural marketing strategy (CdM, 2006) provides a framework for the application of the value chain approach in which innovation in different steps in the chain takes place through interactive learning in the value chain and empowering the producer organisations in this chain. Extension officers will not only focus on production but will interact with other actors in order to improve value chain efficiency. Based on the agricultural sector priority setting (MINAGa, 2006, MINAGb, 2006) key value chains will be prioritized at provincial and district level for further development (see Figure 3).

5.2.3 Crosscutting issues

In addressing rural livelihoods as well as value chains special attention is required for a number of issues that cut across all activities and results. These relate to attention for balanced attention for categories determined by age and gender and the vulnerable, such as those affected by the HIV/AIDS pandemic, the handicapped, orphans and others. Sustainable use of the natural resources is another element requiring special emphasis in all extension activities.

(i) Gender and women

More than 95% of women in Mozambique are engaged in agriculture compared with 66% of men. Most women involved in agriculture do not have off-farm income. The extension service will make sure that small, female-headed, marginal and less advantaged farm households are adequately included and get benefits from the program. Gender issues will be incorporated into PRONEA because gender influences socio-economic and cultural opportunities of women and men in ensuring their livelihood within a determined economic, cultural, and political environment. Gender determines the roles and social status of both women and men. The extension service will address the differing needs, constraints, resource endowments and share of responsibilities between women and men for household wellbeing and in poverty reduction and improvement of food security. Gender issues will be included into policies and programs for agricultural development. Extension personnel will be trained to understand the role of gender in relation to the decision making process within families and societies and access to resources and markets. Acceptable levels of female participation in groups, associations, forums and activities need to be established in order to be monitored.

(ii) HIV/AIDS

The effect of HIV/AIDS on agriculture is far reaching because it affects the largest sector in society and it will affect the composition of the labour force in agriculture for generations to come. HIV/AIDS affects more women than men as a result of biological and social factors. For example, the HIV infection rate in young women can be three to five times higher than among young men. In addition women carry the greatest burden in rural communities. The forecasted impact of HIV/AIDS on labour availability is of extreme concern since seasonal labour shortages are constraining agricultural production (PROAGRI II, p.91). PRONEA will collaborate at all levels with concerned public and private bodies to combat the HIV/AIDS pandemic. A continuous awareness program will be carried out in order to keep extension personnel informed with up to date information about measures to combat HIV/AIDS. DNEA will guide its staff to implement agreements made with relevant bodies such as the Ministry of Health, NGOs and others.

(iii) Sustainable natural resource management

Maintaining the natural resource base is key to sustainable development. Natural resource management require both strong linkages with applied research, land registration, as well as enhanced community action. Producers will be encouraged to actively participate and to be responsible for the sustainable management of the resources in their respective areas. Natural Resource Management is also foreseen to be an important task of the District Services for Economic Activities of which district extension is part.
5.3 Target Beneficiaries

5.3.1 Categories

In Mozambique there are three main groups of farms: small, medium and large holdings. Table 2 illustrates the key characteristics of the three types.

Table 2 Mozambique: Key Characteristics of Types of Farms (TIA, 2003)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Holdings Farm Types</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td>Medium</td>
</tr>
<tr>
<td>Number of Farming Households</td>
<td>3 172 598</td>
<td>36 997</td>
</tr>
<tr>
<td>Total Cultivated Area (ha)</td>
<td>4 554 128</td>
<td>292 276</td>
</tr>
<tr>
<td>Land Area per Farming Household (ha)</td>
<td>1.4</td>
<td>7.9</td>
</tr>
<tr>
<td>% of cultivated area in basic food crops</td>
<td>84.4</td>
<td>74.2</td>
</tr>
<tr>
<td>% of cultivated area in cash crops</td>
<td>4.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

The primary target group of the public extension services will continue to be the smallholder (family sector) or 99% of the producers. In this context smallholders are characterized as those that have less than 10 hectares of arable land, less than 10 heads of cattle or less that 50 heads of small stock or 5000 chicken (TIA, 2003). The principal thrust will be on delivering the means to raise productivity of crop and livestock enterprises by using appropriate techniques and technologies that are within the capability and resource endowment of the farmer. Specific and targeted activities will be included that address the needs and requirements of the medium commercially oriented producers. The medium and large-scale producers will be used as partners in the public delivery of extension activities because they are able to take more risk than the family farms and try out new technologies and tap new markets. But the large farmers tend to focus on profitable crops and enterprises in well-endowed areas.

5.3.2 Direct beneficiaries

The Agricultural Household Survey, TIA, measures the actual adoption of a new technology across all smallholder farming households, which is expected to rise from the established 15% in 2005 to 20% in 2009. The PARPA II and PROAGRI II 2009 targets for direct public agricultural extension are, including outsourcing, assistance to 500 000 smallholder farming households. The target for 2007 is 222 300 households. The increase will be mainly achieved by involving other service providers through contracting NGOs and private sector service providers but also through involvement of farmer promoters. The quality of this assistance will also increase through an adoption rate which goes up from the established 28% in 2005 to 36% of assisted households that have adopted at least one new technology (PARPA, 2005). The increase in adoption due to direct assistance comes on top of the referred TIA baseline adoption. For 2014 a target of 700 000 assisted households by the public extension service is foreseen of which an additional 20%, will have adopted at least one new technology, cumulative for the beneficiary group this would amount to 40% (ASP, 2005).

Table 3 Number of households assisted for each smallholder farm category

<table>
<thead>
<tr>
<th></th>
<th>Poorest</th>
<th>Poor</th>
<th>Emerging</th>
<th>Total households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivated area</td>
<td>&lt; 1 ha</td>
<td>1 – 2 ha</td>
<td>&gt; 2 ha</td>
<td></td>
</tr>
<tr>
<td>Total number of households</td>
<td>1 440 000</td>
<td>1 06 000</td>
<td>700 000</td>
<td>3 200 000</td>
</tr>
<tr>
<td>Assisted households</td>
<td>317 000</td>
<td>242 500</td>
<td>155 000</td>
<td>700 000</td>
</tr>
<tr>
<td>Additional households adopting the technology (20%)</td>
<td>63 400</td>
<td>46 500</td>
<td>31 000</td>
<td>140 000</td>
</tr>
</tbody>
</table>
The agricultural vision distinguishes three categories of smallholder farming families, poorest, medium poor and emerging smallholders (Table 3). The size of the categories can be estimated through a proxy indicator such as size of the farm, but the real categorization can only be made during the participatory planning process. The main objective of the categorization is to plan activities for all categories. The categories will not be used for monitoring, but only for impact evaluation.

Within the PARPA context and in PROAGRI II, the monitoring of the performance of extension is based on aggregated extension input indicators. The PARPA I had a target of 460 000 smallholder farming households adopting at least one new technology by 2005, which represents 14.4% of the total number of rural households. The proxy variable for the monitoring of this indicator has been the number of households actually in direct contact with extension, but set at higher levels, e.g. in 2004 the target was 20% in total, with a special combined target for the public extension and veterinary services of 5% or 164 000 households, raised to 222 000 in 2007 and further going up to 500 000 direct contacts in 2009 and 2 000 000 indirect contacts. In 2009 20% of the contacted households or 500 000 households adopt at least one new intensive production technology, either through public extension or through other sources of technology. The objective is to promote farmers from one category to another. In line with the vision of transformation of agriculture from subsistence to market-orientation, the number of farmers in each category will change in such a way that there will be more households in the emerging farmers’ category.

5.3.3 *Indirect beneficiaries*

Farmer-to-farmer contacts supported by mass media communication are one of the primary means of lateral diffusion of information. It is envisaged to develop necessary capacity and skills to reach a large number of producers indirectly. Extension campaigns, farmer listening groups, theatre and other means of communication will be used to support the extension effort; and extensionists will be trained in communication skills including promoting farmer-to-farmer information dissemination. The purpose of organizing groups at community level is to assist in promoting the sharing of information between farmers. The extension services will promote the lateral diffusion of technology in order to cover a wide range of producers indirectly. The activities that would promote the lateral diffusion of information among farmers include field days in which farmers themselves will demonstrate and explain their practices, exchange of visits to share experience and information, providing support for farmer-promoters to spend time in selected village(s) to demonstrate a technological option which they have found to be productive, and the training of farmer-leaders (promoters) in order to improve their skills and effectiveness in transmitting their knowledge to others. In addition, another important activity is the organization of agricultural fairs where producers and extension services can demonstrate the results of their efforts. The indirect access to agricultural extension is targeted at four times the number of directly assisted households and will therefore amount to 2 000 000 households in 2009, or 2 800 000 HH in 2014 or reaching virtually all households in one way or another in 2016.

5.4 *Target area and geographic coverage (2007 – 2016)*

Basically all rural districts have some extension coverage by either the public, private or NGO extension providers. The municipal districts with peri-urban agriculture also have extension staff, as well as municipal budgets for agricultural extension. Under PROAGRI II MINAG is providing technical support to these municipal districts. The public agricultural extension service is expected to increasingly come in the role of coordination of all agricultural extension activities by different actors at provincial and rural district level. The coverage of the core function agricultural extension programme will as such soon cover all 128 rural districts in the country, but capacity in terms of number and quality of extension teams at district level will remain relatively weak.

The public extension service faces an enormous challenge to increase effective coverage, in terms of households assisted in actual adoption of new livelihood improving or income generating technologies and practices. The implementation of the new paradigm for extension (participatory extension based on district level participatory planning, multi-stakeholder service delivery and downward accountability to
empowered farmer organisations) will be gradually introduced at district level. This gradual introduction of the new approach is necessary in view of the emphasis on capacity development at district level. For this purpose three categories of districts can be distinguished based on the stage of development, propensity to accept and implement reform and the physical, agricultural, economic and social characteristics of individual districts, their downstream agencies and constituent communities. An estimated 60 districts that have benefited from substantive assistance through decentralization and/or agricultural projects, in locations of high potential and, to a degree, less urgent need are referred to as category districts, category 2 is another 40 districts that because of needs or potential justify priority ranking for both mobilization and services reform and provision have a limited capacity, while category 3 are about 28 districts whose natural resource base, paucity of population or special conditions, such as arid lands and national park areas, renders them less potential, but may still have need for assistance in terms of livelihood support, notably food security enhancement. Based on this categorization provinces will decide on a phased assistance to priority districts (see Table 4), while the on-going overall extension programme will continue as a core function in all districts. In the first year all training programmes, participatory planning guides, contracting guidelines etc. will be developed and in subsequent years the new extension paradigm will be introduced through capacity development and resource allocation.

Table 4 Phasing of number of Districts addressed for additional support by programme year

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0</td>
<td>10</td>
<td>30</td>
<td>54</td>
<td>34</td>
<td>128</td>
</tr>
</tbody>
</table>

The above mentioned rough categorization of districts will be fine tuned by provinces and used for phasing based on priority setting and resource allocation.
6 INSTITUTIONAL AND ORGANISATIONAL CONTEXT

6.1 General

The organization of agricultural extension at district, provincial and central level needs to be seen in the context of the Agricultural Knowledge and Information System, as well as in terms of the role of extension in the agricultural innovation system.

6.2 Agricultural Innovation System

An agricultural innovation system framework takes as its point of departure the importance of innovation in competitiveness today. Innovation is defined as the application of knowledge and consists of the ‘process by which actors master and implement the design and production of goods and services that are new to them, irrespective of whether they are new to their competitors’, their countries or the world. Many small improvements in product design and quality, changes in the way production is organized and in management routines, creativity in marketing and modifications in production processes and techniques can collectively make production and marketing more cost effective, increase efficiency and ensure environmental sustainability. In this manner they could contribute to the attainment of long-term economic and social benefits as well as to competitiveness (Mytelka, 2000, CdM, 2006, Council of Ministers, 2006).

Figure 4 Main clusters of actors in an Agricultural Innovation System

As the above indicates, innovations are not solely the product of organized research and development activities undertaken within universities and research and development institutes. Nor should it be expected that the results of research or increased investment in science and technology will automatically be put into economic use. The main actors in agricultural innovation systems can be clustered in five groups: (i) Demand sector (consumers, markets, agro-processing actors), (ii) research sector (actors in the national agricultural research system); (iii) enterprise sector (farmers and firms); (iv) infrastructure sector (Policy makers, financial services, transport, communication, regulatory services, etc); (v) diffusion sector (Extension services (public/private) NGOs and CBOs, Farmer and trade organizations, Input and service suppliers). Figure 4 indicates the crucial role of extension services in facilitating linkages and interactive learning for innovation in the Agricultural Innovation System, AIS.

6.3 Agricultural Knowledge and Information System

Agricultural extension operates within a broader knowledge system that includes research and agricultural education and producers, which is referred to as the Agricultural Knowledge and Information System for Rural Development – AKIS/RD (FAO/WB, 2000). The essence is again that the actors (both public and private) interact with each other in a system rather than in a linear process.

Strengthening the collaboration between farmers, research, extension and institutions of higher learning in the generation and the dissemination of appropriate technologies is a fundamental issue that needs to
be taken into consideration in the implementation of research and development that will address the needs of farmers.

**Figure 5 Agricultural Knowledge and Information System (AKIS)**

![Diagram of AKIS]

**6.4 Research-Extension Interaction**

The Mozambican Agricultural Research Institute (IIAM) will contribute to the strengthening of linkages between extension and research. IIAM’s Directorate for Training, Information and Technology Transfer (DFDTT) is responsible for socio-economic assessment of technologies, transfer and documentation. The assignment of at least one social scientist to each of the Zonal Centres will contribute to the development of partnerships between extension, national and international public and private research institutes and agricultural training schools, faculties of agronomy and other agricultural training facilities. A strong partnership between DNEA and IIAM is relevant for the following reasons: (i) access to technically feasible, economically viable, environmentally friendly and socially acceptable agricultural technology; (ii) joint access to private sector and international technology and, (iii) lack of basic data on the economics of technology and farm practices.

The research-extension interaction will be at all stages of the whole process of problem identification, priority setting, planning, implementation and M&E (Figure 6). The pluralistic extension system at provincial level will increasingly involve IIAM’s Zonal Agricultural Research Centres based on priorities set at district level. The provincial multi-stakeholder agricultural forums, but in particular also the Zonal fora based on agro-ecological zones, will increasingly influence the research agenda of Zonal agricultural research centres based on the needs of local agricultural innovation system actors.

At central level there will be besides the strategy meetings such as the Consultative Council of MINAG, meetings for the establishment of priorities in the National Stakeholder Forum (at IIAM level) and the National Agricultural Extension Annual meeting (for extension), also annual technical meetings for each priority value chain as well general technical meetings, such as the REPETEs (Periodical Technology Review Meetings) at Provincial level. The provincial REPETEs, which will take place at least once a year, has the participation of farmers, researchers and other stakeholders (NGOs, input suppliers, etc.), will be organized. The Provincial Agricultural Directories, and notably extension services, will also be in the position to contract agricultural research services, not only from IIAM but also from other providers based on the priorities identified in district plans. Joint research and extension, such as joint diagnostic surveys (PRAs), adoption and impact studies, will also take place. Thematic working groups at provincial level can be established in order to analyse specific issues in value chain development, including issues such as post-harvest losses, storage and agro-processing. Researchers will also be involved in the training of extension workers, both at provincial, as well as in the Farmer Field School programmes and in the On-farm demonstration programmes, at both Zonal and local level.
IIAM, and in particular the Department of Training Documentation and Technology Transfer, DFDTT, and the Communication Unit of DNEA, will work together on information and communication management, e.g. for the further development of the IIAM website (www.iiam.minag.org.mz) and the development of the extension site (www.dnea.minag.org.mz), as well as the support for the provincial radio programmes and the preparation and distribution of printed material.

6.5 Extension Organization and Management

6.5.1 National Directorate of Agricultural Extension

The National Directorate or Agricultural Extension, DNEA, is one of the 6 directorates of the Ministry of Agriculture. It operates in close coordination with the other directorates, a coordination which is effectuated in the consultative council (internal regular meetings) and the coordinating council, which involves provinces and external stakeholders, and meets at least annually.

MINAG has after the public sector reform six directorates (Agricultural services, Forestry and lands, Agricultural extension, Economics, Human Resources, Administration and Finance), as well as a number of institutes and centres (BdR, 2005). Simultaneously the deconcentration to provinces, districts and sub-districts aims at ensuring a reorientation from the former top-down planning and monitoring model to a more participatory planning model which involves downward accountability, which also implies a more facilitating function by the public sector.

The objective will be to develop institutional framework that will enable provinces, districts and lower level entities to assume greater role in planning, managing and monitoring of public as well as community resources and services.
The overall responsibility at the central level will include the functions of formulation and regularly updating of national policy issues, regulation, coordination, supervision and monitoring; and quality control of service delivery. The directorate (national and deputy), assisted by an administration and finance unit leads two departments, technical support and planning monitoring and evaluation. The Technical Support Department, with ten staff members, includes four units on technology, producer organizations and marketing, communication and training. The technical support department has vacancies for a gender expert, and a marketing officer). The Planning Monitoring and Evaluation Department, has nine staff members, and is responsible for orienting, preparing and consolidating the annual work plan and budget preparation, for monitoring the implementation of these plans, and for implementing and coordinating extension evaluation studies and supports the monitoring and evaluation units of the provinces. The administrative and finance unit is answerable to the director and has ten staff members.

6.5.2 Provincial Rural Extension Services

At provincial level agricultural or rural extension is one of the services or departments of the Provincial Directorate of Agriculture, DPA, as there are also other services such as Agricultural and Livestock services and Land and Forestry Services. The provincial extension service will operate in close coordination with the Provincial agricultural service, livestock service, irrigation service ad forestry and land services, all in the Provincial Agricultural Office. The SPER Head will serve as the provincial head of the extension service and lead the provincial team. Technical staff comprises communication, training, farmer organization, marketing, and monitoring and evaluation expertise. The current staffing needs at provincial level are being reviewed. The minimum technical extension staff required at the provincial level is seven (7). The provincial level is also responsible for coordinating and consolidating of activities that cover more than one district, such as contracts and training and research linkages. In the case of provincial level projects, the provincial extension service in collaboration with district extension will be responsible for project identification and formulation and submit for approval to the Provincial Department of Agriculture.
6.5.3 District Agricultural Extension Teams

In line with the decentralization approach of PROAGRI II, the district will be the basic unit of the extension service of the Ministry of Agriculture. District extension will be part of agriculture section of the proposed District Service for Economic Activities (SDAE) (BdR, 2006). The SDAE agriculture office will have a typical staff composition of four (not including extensionists). The SDAE extension staff will have an average size of four extension officers, but will aim at a team of eight extensionists, which means an average of 1-3 extensionists for each ‘Posto Administrativo’. With the further involvement of non-public extension providers through coordination and outsourcing local public-private extension networks can be formed with extension coordination at District and Posto level.

The district extension service is led by the district extension supervisor and will contribute to the development of participatory planning with accompanying implementation, monitoring and evaluation capacity. The supervisor is responsible for leading, supervising, and programming and implementing extension activities to ensure that the district’s extension program achieves its planned impact. The supervisor should spend at least 15 days a month in field visits to organize the regular training sessions and take part in the regular meetings at the district and provincial level. He/she will also contribute to the coordination in the agricultural section to all extension activities in the district. The district supervisor is responsible for organizing meetings of the district extension management committee that brings together representatives from the agricultural services, NGOs, the private sector and producers to discuss problems, priorities and coordinate activities in support of the agricultural and rural development in the district.

The districts will be staffed with frontline extension workers who will be responsible for the implementation of extension services, for the organization of farmers, through a participatory approach and through the empowerment of the producers. At least one extension team will operate in a district; a team will have eight extensionists and one supervisor. The total number of required public extensionists is therefore 1024 and 128 supervisors. The extensionists will be based in or near the communities they are expected to service. The provincial authorities, and increasingly also the district government will be responsible for the recruitment of the required additional extension workers.
Figure 9 District organic structure (BdR, Decreto Lei 6/2006)

7.1 Introduction

This section discusses the implementation of the second extension master plan. The extension master plan has been operationalized in the context of PROAGRI II, through the National Agricultural Extension Programme 2007-2014, PRONEA, of MINAG. This programme has been developed with support from the IFAD (ASP, 2005 under a loan agreement between the GoM and IFAD. PRONEA will extend to 2014 well beyond PROAGRI II. Other public extension programmes outside the context of PROAGRI II have been in operation through collaboration with FAO, DANIDA, World Bank and other donors. The EMP 2007-2016 intends to provide a framework for implementation of public extension programmes and beyond through a common implementation strategy. Key elements in this implementation strategy are: (i) multiple agricultural extension service provision; (ii) agricultural extension approach; (iii) planning, monitoring and evaluation.

7.2 Multiple Agricultural Extension Service Provision

7.2.1 Outsourcing

As advocated in the PROAGRI II strategy the outsourcing of extension services will result in publicly financed extension, which is sustainable, demand-led, more accountable and responsive to farmers’ needs and more operationally efficient. Several levels of outsourcing or contracting out extension services on public funds may be distinguished. Many of the NGO extension activities are a form of outsourcing services through international public funds (various mostly bilateral donors). PROAGRI II aims to bring part of these funds into the overall programme. Outsourcing is also taking place through the Ministry of Agriculture both managed at national and provincial level, while increasingly some small-scale outsourcing arrangements are developing at local level e.g. through farmer promoter contracts.

In relation to the contracting out of extension services the public sector so has a role in contracting registered extension providers. Provinces and Districts can contract extension service providers, although the mechanisms are not yet in place. Extension providers can be registered at Provincial level on the basis of technical, financial and organizational criteria, still to be elaborated, and categorized in classes of providers that can operate at District, Provincial or National level. A system similar as is used by the Ministry of Public Works has been suggested. Service providers can be contracted at District and Provincial level depending on the respective plans and based on presence of quality service providers that have a comparative advantage over the public sector in particular geographic areas or on specific themes, topics or skills.

7.2.2 Role of the public sector

The second extension master plan will utilize a pluralistic approach based on the principle of multiple delivery mechanisms with the state functioning as a provider and financier of extension services, as well as a coordinating role in agricultural extension provision. The unified extension system, SUE, brings together all the technical capacity of MINAG under one umbrella to deliver extension services, requiring good coordination within MINAG as well as provincial and district level. The coordinating role in SUE and SISNE will be made possible through strong monitoring and evaluation mechanisms at local level both enhancing downward accountability to producers and local processors as well as upward accountability to District and Provincial authorities.

Over time, the share and role of the public and private extension will change in Mozambique. Even though the direct delivery of extension by the state may be reduced over time, the state will continue to be financier for a long time to come. Public extension will however shift from focusing on the more
potential districts and leaving the poorer ones to NGOs to a more complementary role in which public service are filling the gaps left by others service providers. NGOs and private extension service provision will be complemented by public extension services and will not replace it a service provider and financier within the time-frame of the extension master plan 2007-2016. The state needs to be informed what other extension providers are doing and needs to play the role of a coordinating body at both central, provincial and district levels. The state needs to make sure that each NGO has an appropriate ‘exit strategy’ in according with the respective district and provincial development plans. Coordination is equally required for adequate coverage and complementary and avoidance of competition in a knowledge market which is still in its infancy.

7.2.3 Producer Organizations (PO)

Producer organizations are often the key to strengthening the demand for extension services, as they can reach more farmers (increase efficiency), facilitate participation in extension activities and learning (increase effectiveness), and develop human resources and social capital. The roles of producer organizations vary from that of client (receiving services) to partner (helping to deliver services) to executing agency (providing services to members) to financier (financing services). Producers will be helped to support the formation of associations and local extension management committees in order to promote the participation of communities in rural economic initiatives and in having a voice in managing extension activities. Producers’ organizations (POs) and indeed all forms of social capital at community level can contribute to the aggregation and formulation of farmers’ demands for agricultural services. The objective is to lay the groundwork that will enable farmers, through their groups, associations and networks, to determine and articulate their own needs and aspirations; to assume authority; and capability to contribute to influence the content of the district extension plans, their funding and implementation; hold accountable public and private services providers; and thus establish real participatory system that involves farmers, the Government, NGOs and the private sector. Farmer organizations will also be instrumental in promoting and identifying as well as training farmer promoters or community extensionists. Limited amounts of fund will be made available as matching grant funds for feasible and well-founded group schemes or initiatives in the case in which there are no other sources are available for funding. PRONEA needs to develop appropriate guidelines and procedures to make use of the fund. Harmonization of approaches and coordination of activities of the various organizations that are involved in promoting the formation of farmer organizations is needed, especially in relation to empowerment and avoidance of the dependency syndrome of farmer associations. This will require the preparation of appropriate guidelines and training of extension technicians; and the collaboration of all stakeholders (public, private and NGOs).

7.2.4 The Role of NGOs

Historically, most of the international NGOs engaged in extension work in Mozambique formerly provided humanitarian assistance. In 1993, many international NGOs started to develop the capacity to implement rural development, extension, farmer organization, and health projects. The philosophies, objectives, approaches and methodologies of the national and international NGOs currently delivering extension services in Mozambique vary considerably. Some NGOs support the establishment and growth of producer organizations; others support general rural development and some focus on research and natural resources management.

The lessons and experience show that there are opportunities for NGOs and public extension to join forces and work together in a mutually reinforcing manner. For example, the NGO experience in forming producers’ organization and human resource development programs could complement the technical skills of the public extension service.

At present, international new NGOs who plan to work in Mozambique must secure clearance from the Ministry of Foreign Affairs on their preferred provinces and districts in which they would like to operate but they do have to secure informal or formal approval or guidance from DNEA. New NGOs
should be required to discuss their preferred location of operation with DNEA, Provincial Department of Agriculture and eventually District authorities for opportunities for joint activities.

Given the above situation, it is envisaged to promote the participation of the NGOs (especially Local NGOs) in the delivery of extension services. Thus the public extension service will employ, on a contract basis, the services of local NGOs and will support their development.

7.2.5 The Role of Private Service Providers

The private sector has a crucial role in providing credit to producers and investing in the manufacture of small-scale equipment and processing machines, construction of fishponds, small-scale irrigation, and provision of animal health services, storage and related areas. Some private firms have their own extension personnel and some are using the extension staff of NGOs or of the state. Since the stage of development of the private sector is relatively low in rural areas, the public extension service will take steps to promote the creation of enabling environment for this sector to grow and contribute its due share in the development of agriculture. Private sector organizations such as in the main cash crop market chains (tobacco, cotton and cashew) have a major role to play in contributing to the national extension effort. Thus the public extension service will provide matching funds for vocational training and business management advice in order to further strengthen private sector service providers; as well as for contracting the private sector service providers with especial emphasis on small and medium enterprises (SMEs).

7.3 Extension Approach

7.3.1 General

The traditional Training and Visit approach to agricultural extension has been modified and is still being modified (DNEA, 2006), up to a point when it is no longer T&V. PRONEA is through capacity development at district level replacing the T&V with another extension approach which is based on principles of learning, demand-drivenness, downward accountability and empowerment. All districts will have received capacity building support till 2011 to implement the participatory learning extension approach. The approach has to be gradual in order to avoid disruption but also to go along with participatory development and addressing resistance to change.

7.3.2 Participatory learning extension

The implementation will be based on testing and using extension model(s) that suit the requirements and conditions of commodities and national, regional and different circumstances. The models and approach can vary within and between provinces. The imposition of a blanket extension model/approach will be avoided, thus allowing each province to have the opportunity to experiment and adopt approaches that suit their particular circumstances.

NEPAD (2002) has recommended four approaches for encouraging smallholder farmers to adopt new technologies, which relate to the agricultural innovation systems approach requiring interaction not only with a variety of technology providers, but also with rural finance, markets and through producer organisations. Mechanisms are: (i) Promote the development of financially sound rural financial services; (ii) Support voluntary producers' organisations that reduce risks and costs of adopting; (iii) Share risks and costs of adopting new technologies by offering matching grants to producers' organisations and other; and (iv) Enabling farmers to access knowledge from diverse sources.

The new extension master plan and PRONEA will promote a participatory extension approach that includes, among other things, a process of helping individual farmers and groups of farmers based on their specific circumstances, needs and farming systems. It is envisaged to continue with the
implementation of the SUE approach and at the same time promoting the national extension system (SISNE) and components of decentralization.

The extension service will promote participatory planning and implementation with strong grass roots involvement, through the mobilization and organization of producers. It is intended to make every effort to bring target beneficiaries into a coherent force of change and self-reliance. The voice of these farmers will be given priority in local level planning, monitoring and evaluation process and thus necessary measures will be taken that their needs are properly prioritized and met. The emphasis is on facilitation of learning by doing through interaction with a variety of knowledge providers.

7.3.3 Extension communication

Different opportunities for mass media communication (television, radio, pamphlets, posters, radio listening groups) will be used to connect rural people in order to mount extension campaigns targeted at specific issues such as control of bush fire, post-harvest technology, and conservation tillage. Close links will be developed with SIMA and the Ministry of Trade to prepare and disseminate market and farming information in local languages. Mass media will focus on radio programs because the ownership of radio sets is high in rural areas (DNER 1997). Radio listening groups can create an interactive situation whereby producers will be able to give their opinions and provide feedback on the messages transmitted during the campaign. Other communication tools such as pamphlets, posters, leaflets, theatre, etc. will also be used (DNEA 1997b). The communication unit of the extension services will create close working relationships with IIAM’s Directorate of Training Documentation and Technology Transfer. The communication unit also needs to take advantage of new technological options provided by the information and communication technology (ICT). The use of Internet and email facilities will be encouraged and promoted within the extension system so that the extension technicians can be connected to the electronic mass media. DNEA will have its own web page (www.dnea.minag.org.mz).

7.3.4 Collaboration with Rural Schools

The collaboration with rural schools will be consolidated through a protocol that has been signed between MINAG and the Ministry of Education. Each extensionist will work with at least one rural school. The extension service will participate in training students, demonstration of technological options, and the preparation of training materials. This approach of working with schools will give an added advantage to the extension service in the transfer of technological options to producers. The students will help in the transfer process and some of them, as future farmers, will acquire an understanding of improved agricultural practices. The number of schools which are being assisted by extension will increase from 349 (2005) to at least 1024 schools and possibly more if private and NGO public extension officers can be involved. The school programme will also learn from the FAO-supported Junior Farmer Field and Live Schools, 28 established in Manica and Sofala. The JFFLS not only provide an innovative approach for family agricultural learning through children, the future farmers, but also provides options for orphans.

7.4 Planning, Monitoring and Evaluation

The decentralization process, the recognition of the need for demand-driven service provision, the role of farmer organisations and other local actors are to go hand in hand with participatory planning, monitoring and evaluation. The Government has established the decentralization legislation with regard to local level finance and administration which is expected to be implemented by bringing into operation the associated by-laws and guidelines. This will help to address the needs of producers through the activities that are designed and delivered with their full participation at the lowest level of local governance, in which performance and accountability can be readily assessed and assured. These measures will pave the way for a degree of devolution that can over time provide appropriate conditions.
for strong local level planning, implementation; and monitoring and evaluation. Emphasis is required for the development of the agricultural extension planning and M&E system at all levels. A major challenge is to get sufficient attention for agricultural extension in the local development agenda’s which are initially easily dominated by the social sectors.

7.4.1 Planning

Within the decentralized approach of extension delivery, the planning processes will be participatory and involve producers and other stakeholders. Extension staff at all levels will be trained in participatory techniques and principles. In addition, the planning guidelines of the extension service needs to be revised and updated on a regular basis. Extension groups, farmer associations and extension management committees that are directly working with the extensionists will be the starting points for initiating the planning process. Enough time needs to be allocated for the planning process to ensure the participation of local stakeholders before submitting the plan to higher levels in the planning process for endorsement. The plan of activities of the extensionists will be consolidated at the district level and then submitted to the provincial extension services for further discussion and consolidation. Budgeting of the activities will start at the district level since the district is the lowest cost centre. This is in line with the current Government’s policy of moving towards participatory district planning as a means of attaining improved local governance and transparency. The district plans should not be rigid and need to be flexible enough to accommodate reasonable measure of changes during implementation. The plans will be prepared on the basis of community plans, through participatory rural appraisal techniques. The district extension services will receive technical support either from the provincial extension services or the extension service may use the service of private service provider on a contract basis. The provincial extension service will present the consolidated plan of activities and budget to the provincial office of agriculture for endorsement. At the same time, the provincial extension service will participate in PRONEA’s annual national meeting of plan and budget harmonization. In the district, provincial and national meetings, other stakeholders will participate. The decentralized planning process will also create the basic conditions for a functional monitoring and evaluation system starting from the districts, and moving to the provincial extension service/provincial office of agriculture and then to the central level.

7.4.2 Management Information System, Monitoring and Evaluation

Monitoring and evaluation capacity of the public extension service will be strengthened and consolidated at all levels and will be integrated into MINAG’s Monitoring System for PROAGRI II performance. Although key indicators have been established for public agricultural extension in the PARPA and PES, more detailed agricultural extension indicators have to be further developed and quantified, in order to allow proper and realistic monitoring and data collection at province and district level, data that can also be verified and checked. The number of assisted households includes all other indicators, which are just illustrative and are not cumulative e.g. households in assisted associations are part of the total assisted households.

Within the PARPA context and in PROAGRI II, the monitoring of the performance of extension is based on aggregated extension input indicators. The PARPA I had a target of 460 000 smallholder farming households adopting at least one new technology by 2005, which represents 14.4% of the total number of rural households. The proxy variable for the monitoring of this indicator has been the number of households actually in direct contact with extension, but set at higher levels, e.g. in 2004 the target was 20% in total, with a special combined target for the public extension and veterinary services of 5% or 164 000 households, raised to 222 000 in 2007 and further going up to 500 000 direct contacts in 2009 and 1 500 000 indirect contacts. In 2009 20% of the contacted households adopt at least one new intensive production technology, either through public extension or through other sources of technology. For 2016 a target of 700 000 households, that will be assisted by the public extension services has been established. These contacted households will show an additional 20% adoption of
technology, which will result in a cumulative adoption of single technologies of 40% of the contacted households (ASP, 2005).

### Table 5 PARPA II indicators for public agricultural extension, including outsourcing

<table>
<thead>
<tr>
<th>Activity</th>
<th>(Proxy)Indicator</th>
<th>From 2005 to 2009</th>
<th>EMP 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuse and disseminate agricultural technologies</td>
<td>Number of new technological packages disseminated annually</td>
<td>7 in 2007</td>
<td>Not yet established</td>
</tr>
<tr>
<td></td>
<td>Number of smallholder households assisted by public agricultural extension</td>
<td>177 000 to 500 700</td>
<td>700 000</td>
</tr>
<tr>
<td></td>
<td>Number of hours of radio broadcasting with extension messages</td>
<td>80 to 260 hours</td>
<td>Not yet established</td>
</tr>
<tr>
<td>Adoption of agricultural technology</td>
<td>% of all households adopting at least one new technology (verified by TIA)</td>
<td>15% to 20%</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>% of assisted households adopting one new technology (adoption studies)</td>
<td>28% to 36%</td>
<td>40%, 20% as result of PRONEA</td>
</tr>
<tr>
<td>Distribution of vegetatively propagated material</td>
<td>Number of plants (grafts, seedlings distributed)</td>
<td>115 000 000 in 2007</td>
<td>Not yet established</td>
</tr>
<tr>
<td></td>
<td>% of assisted families that received planting material</td>
<td>16 000 to 50 000</td>
<td>70 000</td>
</tr>
<tr>
<td>Assist producer organisations</td>
<td>Number of producer associations assisted by MINAG¹</td>
<td>2 476 to 4 250</td>
<td>Not yet established</td>
</tr>
<tr>
<td>Improve the provision of veterinary services</td>
<td>Number of chicken vaccinated against Newcastle Disease</td>
<td>1 988 000 to 3 600 000</td>
<td>Not yet established</td>
</tr>
</tbody>
</table>

A management information system, which is part of the MINAG’s system for PROAGRI will be established and will generate timely and relevant information and data for management decision making and evaluation of the intervention of extension. The M&E system will provide data required for the preparation of periodic reports, for conducting annual impact evaluation studies and for periodic review of activity implementation. At the Central and Provincial levels, there will be Planning, Monitoring and Evaluation Units. The monitoring system needs to be useful by managers at all level of operation. The system will promote a two-way flow of information. The data and information generated by routine monitoring of extension activities will be used for management and functioning of extension activities, review of past performance and identification of improvement measures needed in management. Thus the monitoring system will:

- Make available up-to-date information on extension activities in order to enhance timely decision making at all levels and generate feed-back;
- Improve the flow of information and communication between the various agencies involved in extension activities in order to promote coordination of activities; and
- Establish a database for easy reference and for periodic and ex-post evaluations of the impact of extension activities.

The system will track extension interventions on a timely basis to ensure that key implementation targets are achieved such as farmer visits, demonstration, staffing, training, reporting schedule and related activities. The provincial extension service will maintain an inventory of service providers, which will be updated regularly. The inventory will include basic information, such as qualifications, human resources, agricultural development skills, experience in the use of participatory skills and methods; natural resources management, HIV/AIDS activities, gender analysis and mainstreaming; training and capacity building; participatory planning, M&E.

¹ Need for further breakdown in associative groups and real associations, as mostly recorded in provincial extension service reports.
The monitoring and evaluation of the PRONEA will be integrated into MINAG’s M&E system for PROAGRI II at national, province and district level, as follows:

- At the Overall Objective level, the indicators will measure the impact in terms of aspects related to the Millennium Development Goals, as already included in the overall PARPA and PES review systems through the Performance Assessment Framework, PAF, and the Poverty Observatory, complemented by specific impact studies.

- At the Programme Purpose level, the indicators will capture the changes within the agricultural sector, through the National Statistics Institute, INE; Household Survey, IAF; and the MINAG periodic Agricultural Survey, TIA and Agricultural Census, CAP, as well as overall adoption studies.

- At the Results level, the indicators will be related to the intended outputs of the PRONEA components and sub-components:
  
  (i) Public Sector Reorientation and Support will be measured by indicators obtained from existing sources in MINAG, including the TIA and periodic reports from provinces and central departments;

  (ii) Private Sector/NGO Promotion and Support will be measured by indicators from the reporting system from district to central level as well as from periodical ad-hoc analyses for value-cost audits of outsourced extension programmes;

  (iii) Demand-side Development will require indicators focusing on farmers groups and associations, their composition and representativeness as well as their capacity to run and manage a profitable economic activity; and

  (iv) Agricultural Services Provision will mainly use indicators already included in the PAF and the TIA, complemented by mechanisms for participatory monitoring and evaluation and location-specific adoption studies.

- At the Activities level, the monitoring will be embedded in the MINAG’s PROAGRI tools for planning and accounting, as well as complimented by participatory monitoring of activity results and service provider performance.

Participatory monitoring and evaluation will be developed as a learning tool for extension service providers at the activity level. Producers will monitor the performance of service provision on the basis of established performance indicators, but additional performance indicators will be developed by farmers themselves. The participatory assessment by farmers combined with the self-assessment by service providers will provide important learning points for service quality improvement. Lessons from the Farmer Field School experience as well as from tools such as the Community Score Card and Community Based Performance Management (CBPM) will be used.

The main activities of the extension system need to be documented and made available to all concerned on a timely basis. The existing reporting system and formats should be improved and updated. The planning, monitoring and evaluation units at the Provincial and central levels are responsible for coordinating and compiling the reports. The reports need to measure the physical and financial progress of the extension program. Impact assessment and adoption reports are also part of the reporting system. The reports, in addition to activity aspects, will also include information on the source, flow and use of funds. The reporting system will also include information about major activities of the stakeholders in the extension service in order to facilitate the flow and exchange of information within the national extension system (SISNE).

In close collaboration with the Centre for Socio-Economic Studies (CESE) of IIAM adoption studies as well as participatory assessments will be undertaken in order to determine the adoption rate as well as get feedback on the technological knowledge disseminated. The adoption rate for all assisted households has been set at 20%, independent of technologies provided and independent from the provider, validation of adoption rates is crucial for planning, as well as resource allocation. Provinces will create the institutional and manpower capacity to carry out simple adoption studies and analysis while the central level will be concerned mainly with evaluation and impact assessment.
The extension system needs to develop the evaluation and impact assessment capacity of the extension system. The evaluation and impact assessment activities will be done in collaboration with relevant units within the Ministry such as the National Institute of Agricultural Research (IIAM) and the Directorate of Economy. The evaluation system will focus on in-depth evaluations and impact assessment to be carried out by multidisciplinary external teams with the active participation of extension staff. An internal “ongoing evaluation” will be carried out involving mainly the staff of M&E and other extension technicians. As the need arises, the activities of the ongoing evaluation could be supported by external teams. The ongoing evaluations will consist of rapid field surveys of a small number of randomly selected farmers while the in-depth evaluation will include case studies, a baseline survey and end-of-program evaluation. The impact evaluation study is expected to generate data needed to assess the institution building achievements of the program, the adoption rate of producers, its impact and its cost effectiveness relative to the extension objectives and strategies. The impact evaluation study will assess performance against overall plan and resources allocated; and identify constraints and solutions; and make recommendations. The system also will study the reaction of farmers to extension delivery. The impact evaluation system will, in addition, assess women’s involvement and impact of the extension service with regard to their well-being.

7.5 Extension Capacity Development

7.5.1 Terms of Reference for extension workers

The extensionist is the point of contact with the farmers and will work as a catalyst/facilitator within the participatory extension approach. His/her main responsibilities will be to work with groups of farmers, train farmers, conduct regular visits, assist in identifying their problems, conduct demonstration fields, and field days, explain new technological options, farm practices, and market information, encourage farmers to test and compare these options with their current practices, and promote the exchange and dissemination of information among farmers and feed back to SMSs and Zonal Research Centres.

The performance target for an extensionist is to have extension activities, based on the identified needs, and regular interaction with some 250 households annually. Farmer groups and associations will be used as the principal carriers of messages, both to and from the extension officer or service provider, and from group to group. It is also envisaged to establish farmer-promoters that will work closely with extensionists to serve as communication channels and, in the long run, as advisers in extension and agricultural development process. The extensionist will arrange regular visits with groups according to a schedule that has been developed in close collaboration with the members of the groups, but will be at least once a month. The groups will monitor the performance of the extension officer in criteria to be partly established by the groups. As far as possible, the extensionist will work with existing groups, based on the district inventory made, instead of forming new groups.

Extensionists will help farmers diversify their farms by adding new income generating activities such as the production of small animals, bees, fruit trees, processing and off farm jobs in house construction and marketing. District extension work also includes support to producer organizations and community groups managing natural resource. Provincial technical officers will support the formation of local extension management committees through which the producers themselves can take an increasing role in the management of the local agricultural extension programs.

7.5.2 Competencies of the extensionist

With the changing of the extension paradigm to more participatory learning extension, the multi-stakeholder environment and with the more facilitating roles of extension officers in the decentralization process, the required competencies for extension officers are changing. At the same provincial and district extension services face the challenge of extension management, not only because centrally introduced models will be slowly abandoned, but also since public extension will be increasingly in the coordinating role of a multiple service delivery system.
Apart from employing high level staff the extension service will need to prepare competency profiles, training need assessments, training guidelines and materials to assist in the implementation of short term training programs for extension technicians at all levels. The curriculum for the pre-admission course that is being used to train newly recruited staff will be revised and updated. Guidelines and training materials on important issues (participatory approaches, group dynamics, management of demonstration plots, farmer organization, marketing, natural resources management, participatory monitoring and evaluation, facilitation skills, etc.) will be prepared in order to be used, especially by frontline extension technicians. The extension service needs to collaborate with research and agricultural faculties to develop training materials.

At the district level the minimum educational requirement for extensionists will be diploma level (‘Técnicos medios’), and for district supervisors, a first degree level. The input of technical specialists will be required to assist and provide technical backstopping to supervisors and extensionists. At the provincial level, the head of the provincial extension service, technology officer and planning and monitoring technician should all have a first degree. The rest of the technicians will be diploma holders. The extension technical staff need to apply the technical knowledge they acquired to specific socioeconomic, cultural and agricultural conditions, rather than trying to use pre-packaged messages. In addition to the technical training, the extension technicians need training in participatory techniques and methods of working with farmers, as well as new skills and changed attitudes.

To summarize, extension agents must be able to comprehend an often complex situation, have the technical ability to spot and diagnose problems, and have economic-management skills to advise on the profitability of new technology on a recurring basis and at an acceptable level of risk. In short be able to advice on all aspects of a simplified business plan. In order to equip the extension technicians with necessary skills and knowledge and attitudes, short and long term training are important in maintaining well motivated and quality staff. Career development based on life-long learning principles is an important incentive for extension officers. In general an incentive system for extension workers based on performance rather than on fixed incentives in cash or kind needs to be developed with some urgency, as it was already recommended in the first extension master plan. Experiences of the FFS approach with community based performance management of extension officers need to be considered.

7.5.3 **Career development**

The majority of extensionists works on contract and has not entered into the civil service scheme for agricultural staff. For the service scheme extensionists no awarding of regular increments or general salary development has taken place, not on the basis of the number of years in the profession not on the basis of competency development. On the basis of the new vision for the role of extensionists, new competencies will be needed by the extension worker, and it is on this basis that that a new service scheme specific for extensionists will be developed.

At the same time it will be necessary to implement the existing Statutes for Civil Servants, which foresee the use of field allowances and performance incentives. In general a performance-based incentive system for public extension workers based on fixed incentives in money or in kind needs to be developed with some urgency, as it was already referred in the first extension master plan. Experiences in the context of the FFS approach with community based performance management need to be considered for the establishment of such an incentive system.

7.5.4 **Working conditions**

Apart from the fact that extension workers need a reasonable pay, it is also important to create better working conditions in order to attract and maintain extensionists in the public service in the rural areas on the Postos Administrativos and near the communities that require their services.
(i)  Housing

Extensionists are the MINAG staff members that operate closest to the producers in rural areas. They will need reasonable housing in these work locations. Extension workers work at district level and respond to the district government for administrative matters. In this case, districts have the responsibility to make housing available for their staff, and therefore also for extensionists. However the origin of the budget for housing can either from district budget either from MINAG through various programmes or even from other partners from several levels. In any case it is necessary to create good conditions at district level for extensionists. At the moment not all extensionists have a proper house, but at least the to be recruited new ones will require a total of 500 houses at the rural level.

(ii)  Transport

In an ideal situation one foresees one four-wheel-drive vehicle for each district extension team or for the extension supervisors. The extension workers themselves will need a motorbike in order to fulfil their terms of reference. On the basis of a local inventory of the existing numbers of transport means the need for replacement or addition can be developed. Farmer promoters will require bicycles.

(iii)  Equipment and tools

Extensionists require working tools, which is even foreseen in the Statutes for the Civil Servants. A complete KIT will include amongst others: spraying equipment, tents, uniforms and protective clothing, backpacks, boots etc. In view of the required improvement in connectivity of extension workers it needs the purchase and work-related use of mobile phones by extension workers needs to be considered.
8 INVESTMENT FOR THE EXTENSION MASTER PLAN 2007-2016

8.1 Introduction

The investment plan is indicative and will be subject to revision and modifications. Each province in consultation with DNEA will make adjustments by taking account of the conditions within their respective areas of operation during the preparation of the provincial operational plan. Resources will be allocated for technical coordination, supervision, monitoring and evaluation, and institutional and technical support at the central level and respective resources for provincial extension technology transfer and coordination activities, and for implementation of extension activities at district level. The duration of the program is ten years, but funding in the context of PRONEA has been planned for 8 years.

8.2 Financing

8.2.1 National Agricultural Extension Programme, PRONEA

The public extension budget during PROAGRI I has been around USD 15 000 000 for five years, based on data from the Common Fund and from different off-budget projects. Based on the size of Districts and the presence and functioning of the extension network the budget available for district level activities would vary between almost zero and USD 40 000, with an average of USD 17 000. The budget for public extension as part of the minimal core functions component of PROAGRI II has been set at USD 29 800 000 for the five years of PROAGRI II, not including the actual demand-driven activities. The full period of the present Extension Master Plan will consequently need at least USD 60 million for the ten year period.

The National Agricultural Extension Programme, PRONEA, formulated for the 2007-2014 has a planned budget of USD 50 million for the referred period. In the PROAGRI II period of five years this amounts to USD 30 million. IFAD will contribute a total amount of USD 20 million, or 39.3% of total Programme costs, in the form of a highly concessionary loan, of which almost 50% is for services provision at district and provincial level; some 25% for demand-side development, namely for support to farmer associations and groups; another 20% for support to private sector service providers; and about 5% for direct support to MINAG, mostly in the form of technical assistance to PROAGRI II. The Government (and other donors through untied support to PROAGRI II) will contribute a total of USD 0.1 million, or 59.2% of total Programme costs, of which USD 3 million is for taxes and duties and the remaining USD 27.1 million mainly to sustain the current level of public expenditure on extension, with some limited investment in capacity building of the public sector, namely for vehicles and equipment and training of extension staff. The Government contribution comprises all government resources for extension under PROAGRI II other than the IFAD loan, including funds contributed as general budget support and allocated by Government to MINAG for extension as well as funds provided by other donors through the CFFM for extension. The beneficiaries of the Programme activities are expected to contribute USD 0.7 million, from private sector enterprises/NGOs or farmer associations as matching contributions to the Programme support for investment. It is assumed that farmer associations will be required to contribute 20% of the total investment, while for private sector service providers the contribution will be 50% of the total investment (ASP, 2005).

8.2.2 Financing outside PROAGRI II

Apart from his direct funding to agricultural extension, both investment and current budgets at national level and investment and recurrent costs at provincial level, there is also a budget available for each

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2 Elaborated with support from IFAD, which refers to its input as the Agricultural Support Programme.
District\(^3\). This budget for local economic activities will be partly used for investment in agriculture, mainly infrastructure improvements (irrigation, storage, cattle crush pens etc).

Special pilot programmes such as Farmer Field Schools and Junior Field and Farmer Schools are funded off-budget by PAN II (supported by FAO and Italy) and will continue to do so in the immediate future, while aiming at reaching 100 000 people in 2008. Provinces can also have special development programmes with extension components, funded by a variety of donors, such as the WB funded Vale de Zambezi Programme, as well as FINIDA support to extension in Zambezia’s Mocuba District (DNEA, 2006). Apart from this all the NGO extension programmes and extension by large commodity chains such as tobacco, cotton and cashew are funded outside the referred budget for the National Extension Programme. All these programmes might be funded separately or outside PROAGRI II but are following an extension approach, similar to what is advocated in the present extension master plan.

8.3 Justification of the investment

The viability of PRONEA at the level of the whole economy has been estimated through an economic cost-benefit analysis and measured by the Economic Rate of Return (ERR). The calculations were based on farm models enhanced through technology adoption, assuming costs and benefits over 20 years. The flow of economic costs and benefits for the calculation of the Economic Rate of Return (ERR) has been detailed in the supporting documents for PRONEA (ASP, 2005). In the base scenario, the PRONEA investments generate an acceptable ERR of 12.1\%, which is good considering: (i) the nature of the programme, that is, to provide mainly services with limited productive investment and (ii) the conservative assumptions on the number of beneficiaries and uptake rate.

The Programme will contribute to a production increase in different commodities, based on the adoption of productivity increasing technologies by the beneficiary groups.

The crop output increase is highest for sunflower, which is a new cash crop, also because national production in 2003 was lower than previous and subsequent years due to drought. Sunflower production is rapidly expanding in Manica, where there are few alternative oil crops and a large demand exists for sunflower press cake as animal feed. Other incremental cash crops production such as sesame and cashew can easily be marketed. Of the food crops, maize, common beans, groundnuts and rice are already significantly and the additional output will offer no major constraint to sale; in addition, it will be partly improving the household food security situation, since much of the additional production will be home consumed.

Post harvest loses are reported to be as high as 30\% of the total farm output in rural areas. The introduction of post harvest management technologies in the Programme areas will also have a marked incremental effect. They will improve farmers’ storage and allow households to store their products for longer periods, including value-adding by the introduction of some agro-processing methods and enabling producers to seek out and find good markets. They also aim to improve product differentiation and to allow farmers, particularly women, to save time and labour for processing farm products. The projected outputs resulting from the primary beneficiaries of the Programme are set out and compared with national 2002 levels of production in Table 6 below.

\(^3\) In 2006 this amounted to USD 300 000 for each district but in 2007 this will be based on population data, poverty incidence.
### Table 6 Programme Incremental Production (tones/numbers sold)

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Whole PRONEA Resultant Outputs in tonnes/year</th>
<th>National Production in tones and increment as %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>TIA, 2002</td>
</tr>
<tr>
<td>Maize</td>
<td>31,618</td>
<td>1,178,792</td>
</tr>
<tr>
<td>Common Beans</td>
<td>4,990</td>
<td>40,120</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>1,481</td>
<td>87,368</td>
</tr>
<tr>
<td>Sesame</td>
<td>1,234</td>
<td>13,587</td>
</tr>
<tr>
<td>Cotton</td>
<td>3,703</td>
<td>75,098</td>
</tr>
<tr>
<td>Cashew</td>
<td>3,768</td>
<td>44,400</td>
</tr>
<tr>
<td>Sunflower</td>
<td>1,294</td>
<td>3,997</td>
</tr>
<tr>
<td>Rice</td>
<td>18,128</td>
<td>117,483</td>
</tr>
<tr>
<td>Goats</td>
<td>61,512</td>
<td>4,747,901</td>
</tr>
<tr>
<td>Chicken</td>
<td>638,704</td>
<td>17,646,679</td>
</tr>
</tbody>
</table>

The increased chicken and goat output presented is partly used for household consumption: 20% for goats; and 40% to 75% for chicken, and partly for local marketing. The incremental off-take resulting from the Programme can easily be absorbed by the local market.

Technologies such as sweet potato and cassava production through improved planting material and enhanced chicken production through Newcastle Disease vaccine use will mainly contribute to improved family nutrition. Small surpluses that enter the market are negligible in relation to the total market volume.

### 8.4 Medium Term Cost Scenarios

A medium term expenditure cost framework (Cenários de despesa de médio prazo, CDMP) will be introduced in the Ministry of Agriculture in line with the Medium Term Expenditure Framework in 2007 forward financial planning beyond the annual work plan and budget planning (PAAO).
Table 7 Summary National Extension Programme Costs 2007-2014 by Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Local</th>
<th>Foreign</th>
<th>Total</th>
<th>(%) Foreign Exchange</th>
<th>% Total Base Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Supply-side Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Public Sector Reorientation and Support</td>
<td>8 144</td>
<td>3 858</td>
<td>12 002</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>2. Private Sector/NGO Promotion and Support</td>
<td>3 256</td>
<td>1 474</td>
<td>4 730</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal Supply-side Development</strong></td>
<td>11 400</td>
<td>5 332</td>
<td>16 732</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td><strong>B. Demand-side Development</strong></td>
<td>3 161</td>
<td>1 499</td>
<td>4 659</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>1. Farmer Organization and Empowerment</td>
<td>1 389</td>
<td>739</td>
<td>2 128</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>2. Group, Association, Enterprise Development</td>
<td>1 772</td>
<td>759</td>
<td>2 531</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td><strong>Subtotal Demand-side Development</strong></td>
<td>3 161</td>
<td>1 499</td>
<td>4 659</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td><strong>C. Agricultural Services Provision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Provincial-level Services Provision</td>
<td>5 826</td>
<td>1 134</td>
<td>6 960</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>2. District/Local-level Services Provision</td>
<td>15 162</td>
<td>3 138</td>
<td>18 300</td>
<td>17</td>
<td>39</td>
</tr>
<tr>
<td><strong>Subtotal Agricultural Services Provision</strong></td>
<td>20 988</td>
<td>4 272</td>
<td>25 260</td>
<td>17</td>
<td>54</td>
</tr>
<tr>
<td><strong>Total BASELINE COSTS</strong></td>
<td>35 549</td>
<td>11 102</td>
<td>46 651</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>Physical Contingencies</td>
<td>63</td>
<td>42</td>
<td>104</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>Price Contingencies</td>
<td>3 121</td>
<td>943</td>
<td>4 065</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total PROGRAMME COSTS</strong></td>
<td>38 733</td>
<td>12 087</td>
<td>50 820</td>
<td>24</td>
<td>109</td>
</tr>
</tbody>
</table>

Before this annual CDMP planning can be introduced some measures have been recommended (MINAGc, 2006): (i) review of the list of priorities in order to develop a logical framework with objectives, results, activities in line with the PARPA; (ii) select a baseline year (2007 or 2008) budget investments costs and recurrent costs in the two following years; (iii) estimate the off-budget revenues and costs; (iv) estimate the revenue of the government budget (own revenue and external revenue).

The budgets elaborated for the National Agricultural Extension Programme, PRONEA (Table 6, Table 7 and 8) will be crucial for the development of the three year CDMPs, but will have to be consolidated with the investment proposals for other sub-sectors in the Ministry of Agriculture.

The on-going MINAG expenditure for extension in Table 6 s been placed under recurrent costs, as it is considered to be the cost, based on results in past years, of the existing minimal core programme.

Table 8 Summary National Agricultural Extension Programme Costs by Expenditure Account

<table>
<thead>
<tr>
<th>Expenditure Account</th>
<th>(USD '000)</th>
<th>% Foreign Exchange</th>
<th>% Total Base Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local</td>
<td>Foreign</td>
<td>Total</td>
</tr>
<tr>
<td><strong>I. Investment Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Means of Transport</td>
<td>979</td>
<td>1 239</td>
<td>2 218</td>
</tr>
<tr>
<td>B. Equipment &amp; Materials</td>
<td>124</td>
<td>128</td>
<td>252</td>
</tr>
<tr>
<td>C. Training and Workshops</td>
<td>6 791</td>
<td>2 910</td>
<td>9 701</td>
</tr>
<tr>
<td>D. Technical Assistance and Studies</td>
<td>165</td>
<td>1 481</td>
<td>1 646</td>
</tr>
<tr>
<td>E. Contracts for Service Provision</td>
<td>6 009</td>
<td>4 006</td>
<td>10 015</td>
</tr>
<tr>
<td>F. Investment Fund</td>
<td>1 176</td>
<td>504</td>
<td>1 680</td>
</tr>
<tr>
<td><strong>Total Investment Costs</strong></td>
<td>15 244</td>
<td>10 269</td>
<td>25 512</td>
</tr>
<tr>
<td><strong>II. Recurrent Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Ongoing MINAG Extens. Expend.</td>
<td>18 455</td>
<td>-</td>
<td>18 455</td>
</tr>
<tr>
<td>B. Salaries and Allowances</td>
<td>600</td>
<td>-</td>
<td>600</td>
</tr>
<tr>
<td>C. Operation and Maintenance</td>
<td>1 250</td>
<td>834</td>
<td>2 084</td>
</tr>
<tr>
<td><strong>Total Recurrent Costs</strong></td>
<td>20 305</td>
<td>834</td>
<td>21 139</td>
</tr>
<tr>
<td><strong>Total BASELINE COSTS</strong></td>
<td>35 549</td>
<td>11 102</td>
<td>46 651</td>
</tr>
<tr>
<td>Physical Contingencies</td>
<td>63</td>
<td>42</td>
<td>104</td>
</tr>
<tr>
<td>Price Contingencies</td>
<td>3 121</td>
<td>943</td>
<td>4 065</td>
</tr>
<tr>
<td><strong>Total PROGRAMME COSTS</strong></td>
<td>38 733</td>
<td>12 087</td>
<td>50 820</td>
</tr>
</tbody>
</table>
The agricultural extension budget of PRONEA is rapidly increasing over time due to the gradual expansion of the implementation of the new extension paradigm in an increasingly larger group of districts, until covering all districts in 2011, after which the budget will decrease. The increased budget reflects the major investment in capacity building at district level of both supply as well as demand for extension services.

Table 9 National Agricultural Extension Programme: Budget (in USD ‘000) totals including contingencies

<table>
<thead>
<tr>
<th>Components</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Supply-side Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Public Sector Reorientation and Support</td>
<td>1276</td>
<td>2187</td>
<td>3187</td>
<td>2379</td>
<td>1216</td>
<td>972</td>
<td>844</td>
<td>861</td>
<td>12921</td>
</tr>
<tr>
<td>2. Private Sector/NGO Promotion and Support</td>
<td>91</td>
<td>454</td>
<td>1029</td>
<td>1654</td>
<td>1411</td>
<td>430</td>
<td>0</td>
<td>0</td>
<td>5070</td>
</tr>
<tr>
<td>Subtotal Supply-side Development</td>
<td>1367</td>
<td>2642</td>
<td>4216</td>
<td>4033</td>
<td>2627</td>
<td>1403</td>
<td>844</td>
<td>861</td>
<td>17991</td>
</tr>
<tr>
<td>B. Demand-side Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Farmer Organisation and Empowerment</td>
<td>0</td>
<td>72</td>
<td>378</td>
<td>808</td>
<td>770</td>
<td>268</td>
<td>0</td>
<td>0</td>
<td>2296</td>
</tr>
<tr>
<td>2. Group, Association and Enterprise Development</td>
<td>0</td>
<td>0</td>
<td>52</td>
<td>337</td>
<td>905</td>
<td>1047</td>
<td>455</td>
<td>0</td>
<td>2796</td>
</tr>
<tr>
<td>Subtotal Demand-side Development</td>
<td>0</td>
<td>72</td>
<td>431</td>
<td>1145</td>
<td>1675</td>
<td>1315</td>
<td>455</td>
<td>0</td>
<td>5092</td>
</tr>
<tr>
<td>C. Agricultural Services Provision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Provincial-level Services Provision</td>
<td>606</td>
<td>696</td>
<td>778</td>
<td>975</td>
<td>1104</td>
<td>1126</td>
<td>1149</td>
<td>1172</td>
<td>7600</td>
</tr>
<tr>
<td>2. District/Local-level Services Provision</td>
<td>1000</td>
<td>1125</td>
<td>1687</td>
<td>2674</td>
<td>3313</td>
<td>3379</td>
<td>3446</td>
<td>3515</td>
<td>20137</td>
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<tr>
<td>Subtotal Agricultural Services Provision</td>
<td>1606</td>
<td>1813</td>
<td>2464</td>
<td>3650</td>
<td>4417</td>
<td>4505</td>
<td>4595</td>
<td>4687</td>
<td>27737</td>
</tr>
<tr>
<td>Total Programme Costs</td>
<td>2972</td>
<td>4527</td>
<td>7111</td>
<td>8827</td>
<td>8719</td>
<td>7223</td>
<td>5894</td>
<td>5548</td>
<td>50820</td>
</tr>
</tbody>
</table>

8.5 Specific considerations

More detailed budgets have been prepared for the National Agricultural Extension Programme, PRONEA for the period 2007-2016. Additional budgets might be needed for specific resource allocation programmes Districts, possibly part of the integrated district budget provided through MPD and MF. Specific needs relate to the housing of extension staff and District and Posto Administrativo level as well as additional means of transport in terms of vehicles at District level and new motorbikes for all extension officers, as well as possible other incentives, yet to be established, for the frontline extension workers.

Especially for the additional extensionists to be recruited a total of 500 houses will be needed, this amounts to USD 4 000 000 for the next ten years on the basis of DNEA (2005) costs estimates of USD 8 000 per house. This amount has not been included in the PRONEA budget, but has to be considered in the context of PROAGRI II and the District Budgets.

Similarly it is estimated that additional transport is needed (DNEA, 2005), which amounts to 116 four-wheel drive vehicles (central, provincial and district level) and a total of 741 motorbikes, which results in an estimated amount of USD 6 723 500, of which already UAS 2 218 000 is foreseen in the PRONEA budget.
REFERENCES


DNER. 1997a. Extension Master Plan, Annex. Modalities for Housing and Means of Transportation:
Maputo, MADER, DNEA, August.


MADER, 1995. Política Agrária e Estratégia de Implementação (PAEI)


Extension Master Plan 2007-2016

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### Overall Objective

To contribute to absolute poverty reduction, food security and an improvement in the quality of life of the rural poor.

**Objectively Verifiable Indicators:**
- Improved living conditions, manifested in increased, more resilient incomes, household/family asset accumulation, and enhanced health and nutrition status, particularly for children.
- Three Millennium Goals:
  - reduction of absolute poverty:
  - reversal of HIV/AIDS spread, and
  - environmentally sound and sustainable development.
- Performance Assessment Framework (under PARPA), Evaluation of Social and Economic Plans (PESs), and Poverty Observatory.
- National household income statistics and poverty studies.
- Continuation of overall country economic recovery.
- Complementary progress with other pillars of sector development: marketing, rural infrastructure, NRM and rural finance.
- Strong support for PROAGRI II from government, civil society and donors.

**Sources of Verification:**
- National statistics and surveys.
- Provincial and district progress reports and evaluations.
- PROAGRI II MoU attachments -- annual financing agreements, statement of obligations, and outline intervention and operating schedules.
- MINAG’s PROAGRI II M&E system.
- Government commitment to implement policy reform, decentralization, institutional reform.

### Programme Purpose

**Programme Purpose**

Increased returns and improved household food security for especially male and female subsistence farmers, including female-headed and disadvantaged households, through a steady uplift in production efficiency.

**Objectively Verifiable Indicators:**
- Profitability of small-scale farms of both male and female-headed households.
- Production and income share of the poor, and growth in the incomes of women from agriculture.
- Progression of male and female farmers and their families up the ladder of development, commercialization and well-being, from poorer to less poor/emerging income categories.
- National statistics and surveys.
- Provincial and district progress reports and evaluations.
- PROAGRI II MoU attachments -- annual financing agreements, statement of obligations, and outline intervention and operating schedules.
- MINAG’s PROAGRI II M&E system.
- Continuation of overall country economic recovery.
- Complementary progress with other pillars of sector development: marketing, rural infrastructure, NRM and rural finance.
- Strong support for PROAGRI II from government, civil society and donors.

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- Continuation of overall country economic recovery.
- Complementary progress with other pillars of sector development: marketing, rural infrastructure, NRM and rural finance.
- Strong support for PROAGRI II from government, civil society and donors.

### Specific objectives

**Specific objectives**

1. **Improve the capacity to implement extension programmes within a pluralistic and participatory framework**
   - Degree of decentralization, partnership and participation of the private sector and NGOs in service provision capacity of public services to oversee delivery of quality extension services
   - Degree of involvement of producer groups and organisations in planning, monitoring and evaluation and service provision at provincial and district level
   - Yield and income increases and efficiency in the value chain

2. **Increase the technical and managerial capacity of producers in the planning, monitoring and evaluation process and in service provision**
   - Mid-term evaluation and periodic reports
   - Agricultural survey, case studies, MIC reports on priority value chains

3. **Provide extension services at provincial and district level for the promotion of agricultural productivity and sustainable use of resources**
   - Government commitment to implement policy reform, decentralization, institutional reform
## LOGICAL FRAMEWORK - CONTINUED

<table>
<thead>
<tr>
<th>Results</th>
<th>Objectively Verifiable Indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
</tr>
</thead>
</table>
| **1 Supply-side Development**  
(for extension/technical services) | Number, quality and timeliness of production of national/zonal plans and establishment of procedures, systems, implementation mechanisms  
Records of task fulfilment for national and international consultancies  
Incorporation of needs of poor farmers, including female headed and disadvantaged households, in district agricultural and development plans and Locality/District PESs and local work plans and budgets.  
Number and quality of participatory district/locality agricultural plans.  
Existence, goals and strength of public sector front-line service delivery units.  
Performance of contract managers in the public sector.  
Degree of collaboration and number of collaborative efforts with stakeholders | Records of dialogues and outcomes from public, private and NGO sector interactions  
Technical assistance contracts and reports | Progressive devolution of planning and management responsibilities, with robust fiscal arrangements. |

**1.1 Public Sector Reorganisation and Support**  
Reinforcement of capability for locally oriented planning and coordination of implementation at Central level in PROAGRI II Unit, Extension and related directorates.  
Competent public sector planning and implementation capacity established at locality, district and province level, including effective outsourcing and management of service provider contracts.  
Smallholder priorities for agricultural production and productivity services clarified, strengthened and incorporated in local plans. | Coverage of rural areas by service providers, input suppliers, traders and other market chain operators.  
Access to information and knowledge.  
Cost-effectiveness of mix of public and private sector service provision. | District and provincial records.  
Diagnostic study of barriers to development of service delivery capacity.  

**1.2 Private Sector/NGO Promotion and Support**  
Encouragement of evolution and establishment -- and rapid increase in number and quality -- of active private sector and NGO service providers of extension, associated technology development, training and information.  
Coverage of rural areas by service providers, input suppliers, traders and other market chain operators.  
Access to information and knowledge. | District and provincial records.  
Diagnostic study of barriers to development of service delivery capacity.  
<table>
<thead>
<tr>
<th>Intervention Logic</th>
<th>Objectively Verifiable Indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Farmer Organization and Empowerment</td>
<td>Degree of Farmer organizations participation in planning, monitoring and evaluation in Programme sub-projects/activities in communities in all localities and districts. Farmer organizations with active economic activity underway, making profits</td>
<td>Locality, district and provincial records. Reports of animators and service providers. PROAGRI II MoU attachments -- annual financing agreements and outline operating schedules.</td>
<td>Increasingly conducive environment for small enterprise development, including access to financial services.</td>
</tr>
<tr>
<td>2.2 Group, Association and Enterprise Development</td>
<td>Number of market-oriented groups and associations operating profitable enterprises and services with bank accounts and without external management or subsidies beyond the inception phase. Degree of inclusiveness of rural producer organisations</td>
<td>Agricultural Survey (TIA), other official surveys and case studies. Reports of private sector/NGO partners</td>
<td>Sustained programme of investments in public commercial infrastructure made, including roads and markets. Improved legislation in place, as well as government commitment</td>
</tr>
</tbody>
</table>
### 3 Agricultural Services Provision  
(Products and their Delivery)

#### 3.1 Provincial-level Services Provision
Effective public-good support services supplied on demand to the production systems of smallholders in all Provinces, such as seeds multiplication, sanitary regulations, disease prevention, specific contracted applied/adaptive research and NRM activities.

- Availability of essential support services for the small-scale agricultural sector.
- Provincial public sector response by provision of advice, services for different categories of need of communities, farm households and families.
- Existence and quality of services, with alignment to needs of women and disadvantaged groups.

#### 3.2 District/Local-level Services Provision
Appropriate advice, facilitation of access, knowledge and technology provided to farmers and livestock-holders at district level and downstream in direct response to needs identified and expressed in proper consultations.

- Responses of male and female farmers to trends in market demand.
- Districts and downstream public sector response to provision of advice, services for different categories of need of communities and farm households and families.
- On-farm productivity and avoidance of losses.

- District and provincial records.
- Feedback from male and female farmers’ organizations.
- Reports of Provincial Forums or association clusters.

- Production, price and trade statistics.
- Crop, livestock and household income surveys.
- Reports of district or association clusters.
- District Council records.

- Government commitment to provision of services that private sector should not, cannot or will not provide: legislation, regulation, facilitation.
- Completion of reorientation of sectoral development to a market-led approach, in parallel with adequate local welfare services and support for remote and marginal areas.