



Rebuilding
Afghanistan's
Agriculture Sector

Asian Development Bank

South Asia Department
April 2003

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Terms and Abbreviations

AACA	Afghan Assistance Coordination Authority
ADB	Asian Development Bank
AIA	Afghanistan Interim Administration
AIMS	Afghanistan Information Management System
ARTTS	Agricultural Research and Technology Transfer System
CNA	comprehensive needs assessment
FAO	Food and Agriculture Organization
GIS	geographic information system
MAAH	Ministry of Agriculture and Animal Husbandry
MIWR	Ministry of Irrigation and Water Resources
MPW	Ministry of Water and Power
MRRS	Ministry of Rehabilitation and Rural Development
NDF	National Development Framework
NGO	nongovernment organization
shura	traditional governing committee
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VFU	veterinary field unit

Currency Equivalents

(as of 30 April 2003)

Currency Unit – Afghani (Af)

Af 1.0 = \$0.0192

\$1.0 = Af 52

NOTE: In this report, "\$" refers to US dollars.

Foreword

Following the Tokyo Conference on Reconstruction Assistance to Afghanistan in January 2002, a mission composed of representatives of external funding agencies, led by the Asian Development Bank (ADB), visited Afghanistan for one week during February 2002 to initiate a needs assessment for the natural resources and agriculture sector. This mission provided the foundation for, and recommended a more detailed analysis of needs by, the current mission, which visited Afghanistan from 7 April to 7 May 2002.

The CNA mission was led by ADB and comprised Allan Kelly (ADB, Project Economist/Mission Leader), Ray Shaw (ADB consultant, Agriculture Economist), Richard Smith (ADB consultant, Rural Development Specialist), Elayne Gallagher (ADB consultant, Institutions Specialist), Ted Breckner (ADB consultant, Agriculturalist), Aziz Bouzaher (World Bank, Natural Resource Specialist), Tony Garvey (World Bank, Water Resources Specialist), Rodney Kennard (FAO consultant, Livestock Specialist), Abdul Salkini (International Centre for Agricultural Research in Dry Areas, Agricultural Researcher), and Roma Bhattacharjea (United Nations Development Programme, Gender Specialist).

The terms of reference of this mission focused on two requirements, namely (i) the preparation of project profiles for quick-impact interventions, the so-called QIPs, and (ii) a medium-term strategy, policy, and institutional development framework for the natural resource and agriculture sector to set the stage for sustainable development into the medium term. For this purpose, the natural resources and agriculture sector is broadly defined to include all aspects of natural resource management, utilization, and protection.

The mission consulted extensively with the concerned line ministries: the Ministry of Rehabilitation and Rural Development, the Ministry of Irrigation and Water Resources (MIWR), and the Ministry of Agriculture and Animal Husbandry. The mission also maintained a close working relationship with the Afghan Assistance Coordination Authority (AACAA), which maintains an overview of the sector. Discussions took place with all major international agencies and external aid providers, and with key nongovernment organizations (NGOs) working in the sector. Field visits were undertaken to Bamian province, the Panjshir Valley, and the Shamali Plains adjacent to Kabul. In addition, the mission participated in a Water Resources Development Conference sponsored by MIWR and the United Nations Children's Fund, which was held in Kabul between 29 April and 1 May.

The mission is extremely grateful for the time accorded to its activities by the staff of all the various ministries and agencies working in the sector, and whose views have helped to shape this report. The aim is that this report will provide a basis to achieve a consensus on a medium-term vision for this sector; together with the policies, programs, and institutional changes needed to realize that vision. Once agreement is reached, the sector framework will provide a basis to ensure that individual projects are supporting priority activities and outcomes.

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INTRODUCTION

Approach to Needs Assessment

The preparation of the needs assessment involved a two-stage approach: technical specialists undertook subsector assessments, whose findings and recommendations were integrated into an overall natural resources and agriculture sector needs assessment and medium-term development framework. The reports discuss the needs assessment in two timeframes, a short-term period of 2 years and a longer period of 3–5 years.

This report outlines sector strategies and needs, summarizes the subsector report findings, and highlights the programming aspects. The key issues, objectives, short- (1–2 years) and medium-term (3–5 years) needs, and required policy agenda for each subsector are outlined in a subsector matrix table. Separate sections cover institutional and capacity-building needs, the policy agenda, and implementation strategies.

Sector Background

The natural resources sector (including agriculture) has suffered from varying degrees of depredation for almost 25 years. A combination of war, civil conflict, exploitation, and enforced neglect have combined to leave a legacy of degraded natural resources, especially forests and rangeland; damaged infrastructure; and fragmented rural institutions. While nongovernment organizations (NGOs) and United Nations agencies have worked effectively with rural communities throughout this period and have had positive impacts at the local level, overall the sector continues to perform poorly, and the country

depends heavily upon food aid. The recent severe drought has worsened the degradation, but it is not the key underlying factor for the unsustainable resource use, poor management, and inefficient production systems.

The task of recovery is to improve the performance of the sector and at the same time rebuild its resilience, through the adoption of technologies that reduce vulnerability to drought. Although population pressures are increasing, Afghanistan has the capacity to mobilize over 7.5 million hectares (Mha) of cultivated land, of which 60% would be irrigated and 20% would be double-cropped. This degree of land and water use amounts to about 0.35 ha per capita, a relatively generous ratio in a regional context. In addition, the country has about 29 Mha of rangeland for use by livestock. If productivity can be restored to levels similar to those of the rest of the region, then Afghanistan should be able to resolve medium- to longer-term food security concerns.

The recovery process outlined in this report has a 5-year timeframe. In this period the emphasis will be on achieving a large measure of self-sufficiency, especially in cereal production. This is a household priority, given the legacy of the past 25 years, which has left so many families unable to feed themselves. However, while self-sufficiency is a household and social priority, economically it may not be the preferred option, because achieving a high level of dependency on domestically grown cereals would depend on using high-cost irrigation systems. A longer-term development framework might involve the importation of most cereals, while Afghan agricultural production systems focused on a range of cash crop exports. Achieving this potential will depend on the outcomes of the medium-term development framework.

Sector Development Framework

The development framework for the sector reflects the principles laid down in two key documents, the Tokyo speech of Interim Administration Chairman Hamid Karzai and the National Development Framework (NDF). The principles are as follows:

- The people of Afghanistan must own and implement the development agenda, within a common strategic framework;
- The private sector should be the principal instrument of economic growth, within an appropriate enabling policy framework;
- All sections of the rural population should participate in decision making, and a community-based approach should promote this participation;
- Investment in human capital and maximum use of Afghan expertise is essential to the recovery process; and
- Investment decisions by external funding agencies must sit firmly within the sector framework and related budgetary norms.

Determinants of a Strategic Approach

A number of factors, both conventional and specific to current circumstances, are relevant to the formulation of a medium-term sector development framework. The conventional factors include

- the demand for the sectors' products, both domestic and external;
- the spatial distribution and quality of resource endowments;
- population distribution and the unit size of population groups; and
- the accessibility of population units to markets and sources of raw materials.

These are the factors that largely determine the geographical allocation and use of both natural and human resources, and the need for differentiated development responses depending upon the precise combination of factors in a particular location.

In Afghanistan, the more specific factors include

- the impact of returning refugees,
- food security following 3 years of drought,
- poppy substitution, and
- mined areas.

Each of these specific factors calls for additional efforts in particular locations during the short to medium term. The result of combining all these factors is a complex and diverse geographical pattern of development needs, which will require a combination of support by external funding agencies, private investment, the transfer of appropriate technologies, reshaped institutions, enhanced human resources, and the best efforts of the Afghan people.

The Strategic Approach

In 1978, Afghanistan's population of 14 million was self-sufficient in cereals and had a flourishing export market in horticultural products. The present population is estimated at about 20 million, with a rural population of around 16.5 million. In the past 20 or so years, agricultural technologies have advanced substantially, enabling agricultural systems to more than keep pace with population increases. On this basis, and assuming a stable and secure political environment, it would be realistic to expect Afghanistan's return to its 1978 status in the not too distant future. The process of recovery has started, but requires further elaboration to ensure that all concerned are contributing constructively to this common goal. Recovery of the rural sector will depend upon balancing sustainable natural resource use and population pressures. As the economy remains overwhelmingly rural and agricultural—80–85% of Afghans depend upon natural resources for their livelihood—the pace of recovery in the rural sector will largely determine the overall rate of economic recovery.

Rural society is structured into numerous settlements (more than 30,000 clustered into about 18,000 communities), many of whose access to external assistance and markets is very limited or costly. Although the country's different areas exhibit marked geographical differences in their capacity to generate wealth, village society shows a distinctive cross-section that is irrespective of location or agro-ecological zone. This cross-section covers landholders, small landholders, sharecroppers, and landless and female-headed households. This geographic dispersal and the corresponding disparities in asset distribution within rural communities require a development agenda driven by community-determined priorities. Further, formulation of the agenda should be based upon appropriate participatory mechanisms to ensure that all stakeholders are represented. Logically, this should produce a dual approach to community-based interventions, which should include both productivity-enhancing interventions for those with land and employment opportunities and targeted off-farm interventions for the landless or families with small amounts of land. Both types of interventions are likely to be

required, and are complementary. An agro-ecological, or specific farming, systems approach may be appropriate in specific programs.

This community-based approach to setting the development agenda must be fitted within a natural resource planning framework, to ensure that natural resource use is sustainable, that key resources are protected and shared efficiently, that proven solutions for sustainable resource use are available sectorwide, and that the approaches to export market penetration are coordinated. Mechanisms to merge the “bottom-up” community approach with the “top-down” resource management approach will need to be carefully prepared, as both perspectives are essential to sustained growth of the rural economy.

Three years of drought have severely tested the resilience of the respective rural communities in all agro-ecological zones. Further, it is evident that some communities have coped much better than others. The medium-term framework will address the particular concerns of communities within each agro-ecological zone, but give special attention to rebuilding the asset base of those communities that have proved to be less resilient, where a more appropriate balance between natural resource capacity and population pressure is needed. Technology packages, including the transfer of international best practices, should be applied as appropriate to agroforestry, rangeland, livestock, and rainfed arable and irrigated arable farming systems.

Within any community, the critical resource is water, basic to most agricultural production and critical for household consumption. Afghanistan, for the most part, has a low-precipitation regime, which is collected mostly in the form of winter snow and spring rain. Snowmelt is the lifeblood of rural livelihoods. Consequently, the conservation and efficient use of water must be the foundation of a fully productive agricultural sector. In most of Afghanistan, considerable annual variation in the water available for agriculture is likely to affect both rainfed and irrigated agriculture. Within the medium term, a strategy that mitigates the impact of these variations should be developed. This means capturing the maximum amount of available water (increasing water capi-

tal) and making the most efficient use of it. The adoption of such practices, it is estimated, could at least double the productivity of agriculture (both rainfed and irrigated), thereby removing major concerns about overall food security. However, for the landless and small landholders, it will be essential to complement improved farm productivity with programs aimed at off-farm income generation. Such efforts should be particularly targeted at rural women and woman-led households.

The majority of women in Afghanistan work in agriculture. They constitute a large proportion of the agricultural labor force, an estimate 70%-plus. Women also work



Village women draw water at an irrigation project near Kabul.

as professionals, researchers, and technical staff in the Ministries of Agriculture and Animal Husbandry (MAAH), Rehabilitation and Rural Development (MRRD), and Irrigation and Water Resources (MIWR). These groups of women constitute key stakeholders in any strategy development, planning, and project interventions in the agricultural and natural resource management sectors. Household food security is an identified priority. The absence of food security in recent years has had a particularly adverse impact on women: the patriarchal system means that women are lowest in the hierarchy of intrafamily food consumption, and as sources in the United Nations Children’s Fund (UNICEF) report, food shortages in poor households have resulted in a serious incidence of women’s malnutrition and a very high maternal mortality rate.

The success of the outlined sector development framework will require an implementation strategy that synthe-

sizes the strengths of the private sector, NGOs, and line ministries at the national and provincial levels. The absence of coherent government over many years has led to the involuntary withdrawal of line ministries and their provincial offices from their traditional roles. In many provinces and in specific areas, these functions have been taken over by NGOs and United Nations agencies. In the medium term, it will be necessary to reform the overall institutional structure of the sector. It will involve defining the new core roles of line ministries and their relationship to



Wheat farmer near Sar-e Pol, in northern Afghanistan

the collective NGO and private sector communities. The scope of line ministry functions and the mechanisms to forge a closer working relationship with NGOs, especially at the provincial and district levels, are critical elements of the strategy.

An enormous amount of technical expertise has been lost

to the sector over the past 20 years. This loss of human capital must be replaced as quickly as possible if the sector is to recover its former vibrancy, reduce dependency on external expertise, and enable citizens to fulfill their potential. Thus, a key element of the medium-term strategy must be incentive schemes, including training opportunities, designed to produce quality sector managers, program managers, technical staff, and well-informed farmers.

Before agricultural activity can commence in many areas, it will be necessary to undertake surveys to determine the presence of mines, unexploded ordinance, and bomb craters. Land rehabilitation programs will be needed in selected areas determined by the survey.

Poppy cultivation has increased and, while concentrated in two provinces, is spread across several provinces. Strategies to be implemented in these areas must focus on

improving livelihoods through improved agricultural productivity; substituting other high-value crops and other alternate activities; and supporting development of off-farm employment opportunities. As there will be a lead time while these alternative rural activities are established, rural livelihood interventions to improve incomes will be important. The strategies adopted will be fully consistent with those endorsed by the Government and the United Nations Drug Control Program.

Objectives

The overall objective in the natural resources and agriculture sector is to improve livelihoods for all sections of the rural community based on economically competitive activities, social cohesion, and sustainable use of natural resources. Specifically, the planned outcome is self-reliant communities that are able to meet their needs through a combination of food production, off-farm employment, and trade. A realistic medium-term target would be a return to 1978 levels of sector productivity and output within 5 years.

A cross-sector objective, encompassing all subsectors, is the need to support gender-based activities, which are incorporated into the subsector programs. A national gender strategic and action plan is required to address key issues relating to women's poverty, decision-making roles, underemployment, and unequal opportunities. In terms of the subsectors, specific interventions include

- technical skills improvement;
- training in small business enterprises and marketing skills;
- provision of microfinance and credit and the required training to manage money;
- introduction of mechanized practices and processes that would lower women's burden and improve efficiency and productivity;
- promotion of product exports such as dried fruits, (apricots), raisins, and nuts;
- a feasibility assessment of operating an apex marketing outlet in Kabul selling products of women with labelling stressing their origin; and
- linkage with international fair trade partnerships.

Specific subsector objectives are detailed in each of the subsector development matrices.

NEEDS ASSESSMENT: SUBSECTOR PROGRAMS

The following subsector categories have been identified as the core of the natural resource and agriculture sector recovery effort. Each category comprises a short description of subsector issues and future program needs in both the short and medium term. Where relevant, reference is made to any complementary institutional and policy issues that are discussed in more detail later in the text.

Natural Resource Management

Current Status and Issues

Afghanistan has a total land area of about 65 Mha, of which approximately 80% is either mountainous or desert; forest cover, constituting only about 2% of the land area, amounts to around 1.3 Mha, down from 1.9 Mha in 1996. The decline is due to community demands for fuelwood and illegal logging: offtake rates are estimated to exceed annual growth rates, resulting in a loss of about 30,000 ha of forest per year. If nothing is done, Afghanistan will have very little natural forest or its associated wildlife left in 15 years' time. There is one national park and five protected areas. On purely conservation and environmental grounds, at least 5% of Afghanistan's land area, or about 3.2 Mha, should be forest cover. This would reduce rangeland and watershed degradation, loss of biodiversity, and loss of livelihood sources.

Illegal logging is largely a function of the current security situation and control of local resources by local commanders in collaboration with Pakistani traders. Forestry legislation has been in draft form for years, awaiting clarification of tenure and land use rights of local tribes in many parts of the country, and especially along the border with Pakistan. The lack of a legal framework clarifying

tenure, user rights, and oversight responsibilities, combined with the collapse of government institutions, has led to the control of resource rents by local elites. Local communities, with the help of NGOs, have attempted to protect forests, but local leaders have disrupted these efforts, leading to the destruction of physical barriers, such as fencing, and the disintegration of social organizations.

The demand for fuelwood by communities is estimated to be less damaging than illegal logging, but is nevertheless destructive. The issue needs to be addressed within a policy framework for rural energy needs that incorporates provisions for community or social forestry programs. Similarly, recent years have witnessed the cultivation of rangeland as communities seek ways to mitigate the effects of drought and population pressure in some areas. These activities have resulted in the widespread degradation of both forests and rangeland, flooding, water scarcity, and, in many areas, severe soil degradation.

Government agencies have had only a limited role in conservation work over the last 20 years; NGOs have done most of it, working directly with local communities and *shuras* (traditional governing committees). Activities have focused on livelihood sustenance based on horticulture and agroforestry interventions. While the NGOs' contribution has been large, little coordination of their efforts has taken place and any evaluation of these would be limited. The NGOs' experience and lessons learned will need to be integrated into the planning for proposed activities, as will mechanisms to link the vision of the Afghanistan Interim Administration (AIA) for reformed government agencies working with NGOs as partners, or using them as contracted agents.

By most assessments, the natural resources of Afghanistan are in poor shape. The extended drought is commonly cited as the principal cause, together with the protracted conflict. While the conflict has undoubtedly been an exogenous factor, the impact of drought should not necessarily result in a degraded environment.

Afghanistan has a history of droughts of varying severity and will continue to experience such periods. Traditional coping and mitigation strategies have broken down under growing population pressures, the collapse of the rural economy, and control by local elites. These strategies must be rebuilt within the context of the community development approach and effective natural resource management. In the future, vulnerability to drought must be significantly reduced by incorporating a range of technologies and by strengthening off-farm income-generating activities. Any tendency to misuse natural resources must be countered by appro-

ted) planning and the basins' subdivisions (microwatersheds), as indicated in the NDF. At the microwatershed level, management plans would be formulated with full community participation; the communities, through the allocation of tenure or user rights, would become the custodians of the microwatersheds' natural resources. The permitted level of natural resource use in each microwatershed would be determined in collaboration with the agencies responsible for overall natural resource management (i.e., the river basin authorities and their parent organization). Pilot programs to test microwatershed planning, building upon similar work supported by NGOs, should commence within the next 6 months. It is envisaged that this work will take place within the broader context of community empowerment and participatory planning programs.

Pilot social forestry projects should be established in those areas worst affected by community fuelwood gathering. These activities could be initiated quickly under the Rural Livelihood (short-term employment generation) Program, and more widely as a component of the Community Development Program. Urban greening projects could be initiated quickly under the Rural Livelihood Program.

Via a forest and rangeland inventory, the status of the remaining forest area and rangeland is to be assessed using geographic information systems (GIS) technology. The possibility of concluding agreements with local commanders to help curb illegal logging will be considered.

Medium-Term Programs/Investments. The Government should commit itself to a target of 5% forest cover within 20 years. This target should be allocated by watershed and be made the responsibility of the proposed river basin authorities. A similar target should be set for the rehabilitation of degraded rangeland, above a minimum altitude.

In the medium term, forest policy and forest legislation, implementation of institutional reforms, and social forestry activities as part of the community development programs will be the major focus. Policy and legislation will be required for community joint management of forest



In the Shamall Valley, outside Kabul, a group of farmers follow a herd of sheep down a village road.

appropriate environmental management institutions backed by legislation. At present, no agency in Afghanistan has overall responsibility for the protection of its natural resources.

The issues outlined above provide the basis for formulating strategic objectives, identifying short- and medium-term needs, and deriving policy requirements for a natural resource management development framework, which is summarized in Table 1.

Development Framework

Short-Term Interventions. It is proposed that the above issues be addressed within the context of a natural resource management approach based on river basin (wa-

Table 1. Natural Resource Management Matrix

Key Issue	Strategic Objective	Needs Assessment		Policy Agenda
		Short-Term Program	Medium-Term Development	
Severe depletion of natural forest and biodiversity resources	Restored and enhanced quality of natural forests, with a long-term target of 5% forest cover	Assess state of remaining natural forest (using RS/ GIS).	Prepare programs to restore degraded forest and reforestation.	Interim forest policy, including protection measures
Conversion of pastureland to cropland	Improved productivity and sustainable use of rangeland	Assess status of rangeland resources and tenure arrangements.	Develop programs to restore degraded rangeland.	Grazing rights integrated into microwatershed plans
Timber demand rapidly increasing	Illegal logging curbed	Reach agreements with local commanders/ governors.	Reach agreements to enforce off-take using a combination of community wardens and police.	Joint management of natural forests with communities
Urban greening	Reduced air pollution and more attractive urban environment	Initiate peri-urban tree planting/employment program.		Labor-intensive programs
Demand for fuel-wood for household energy in excess of supply	An integrated household energy program	Establish social forestry programs in selected areas.	Develop soil-forestry programs as part of community microwatershed plans.	Rural energy policy
Lack of accountability for natural resource management	Community-based microwatershed plans and management	Formulate pilot micro-watershed plans in collaboration with communities.	Implement microwatershed plans including investment in forest products.	Community responsibility for plantation forest, pistachio, and other fruit tree forests
Unclear tenure/ leasehold rights	Land registry linked to cadastre	Assess existing rights and records.	Compile a computerized registry linked to a national cadastre.	Land tenure policies
Inadequate institutional structures	A reformed DoF	Conduct an institutional review and analysis of DoF.	Develop institutional arrangements for watershed management.	Policies on line ministries' role in natural resources management.
Need for capacity building	Fully trained staff focused on the new DoF mandate	Implement NDF PAIGs at national and provincial levels.	Develop training programs based on approved institutional review recommendations.	Policy on upgrading skills of senior line ministry staff
Demolished infrastructure	Effective working environment	Rebuild necessary DoF office and facilities in Kabul and provinces for revised role.	Create a functioning, reformed agency responsible for natural resource priorities.	Policy on reconstruction of office infrastructure.

Notes: DoF = Department of Forestry; GIS =geographic information system; NDF = National Development Framework; PAIG = planning and implementation group; RS = remote sensing.

Source: CNA Mission.

resources, commercial logging, plantations, biodiversity, and developing community forestry. The social forestry activities will involve community management of forest

resources. Classification and codification of all forms of tenure rights will be needed to effectively implement these activities.

The implementation of a participatory natural resource management strategy in line with AIA policy will require institutional change at the village/district, provincial, and national levels. At the village/district level, the representative committees will need to develop planning and management skills, in addition to their traditional conflict resolution role. At the provincial level, line ministry staff will have to combine technical competence with skills in participatory planning, and at the national level there will be major reform and reorganization. The institutional and policy issues are covered in more detail in Chapters III and IV, respectively, of this report.

Water Resources

Current Status and Issues

Water resources are most precious in Afghanistan and must be managed efficiently and sustainably, as they are fundamentally scarce and drought is a common occurrence. At present, opportunities exist to make water planning, use, and management more efficient: only 15% of runoff contributes to aquifer recharge, and irrigation system efficiency levels are about 25%, when a level of 40% should be the norm, and can be achieved with feasible levels of investment. Moreover, demands on the resource have grown and are expected to continue to grow. The scope also exists to expand irrigation area. The Food and Agriculture Organization (FAO) has estimated that long-term water availability is about 2,800 m³ per head per year, enough to irrigate 4 Mha, which is significantly higher than the current 2.6-Mha command area.

Total developed irrigated area in 1978 was estimated to be 2.63 Mha,¹ consisting of (i) 1.32 Mha irrigated by traditional methods from perennial rivers; (ii) 0.98 Mha irrigated by traditional methods from ephemeral streams, *karez* (underground water channels), and *arhads* (a kind of spring); and (iii) 0.33 Mha by modern systems from perennial rivers. Only 1.44 Mha had sufficient water supply to support double cropping. Approximately 2.3 Mha, or 90% of total area, uses traditional schemes developed

¹ As reported in the Afghanistan Agricultural Strategy, FAO, 1997.

and built by farmers, and operated and maintained according to traditional communal customs and practices.

The effects of war and neglect on these systems have not been systematically assessed. While substantial financial and technical support for rehabilitation since 1989 has come from NGOs and United Nations agencies, comprehensive data on the scale and extent of successful and sustainable rehabilitation is not available. In 1997, FAO estimated that about 1.7 Mha required rehabilitation, and another 0.68 Mha required improved water management. A limited number of large formal irrigation systems have also been built, operated, and maintained by the State, and are in need of major rehabilitation. Most are currently not



In the village of Qadam Joy, in Saram district, Sar-e Pol, a young girl waits her turn to draw water at a kanga, or well. Water resources are precious in Afghanistan.

functioning. These large formal schemes raise significant technical, institutional, and social issues, because they will require infrastructure rehabilitation, and repairs to dams and other major structures; many, particularly those in the plains and in the South, have serious water management problems, including waterlogging and salinity.

The Government needs to develop appropriate policies to manage and monitor groundwater development and use effectively. Groundwater, whether a part of annual recharge or the nonrenewable reserves, could serve as the most important safeguard in times of drought or low water availability (a principle mentioned in the 1981 Water Law). Legal and regulatory approaches require effective public institutions and obedience to the rule of law. A more promising approach being applied in many areas of the developing world is to involve communities directly in joint use and management of surface and groundwater, in some cases

by forming special groundwater management districts in which all water users (surface and groundwater) have an effective role in decision making.

While the increase in vulnerability to low rainfall can be traced to unsustainable land use practices involving overgrazing, deforestation, and cultivation of marginal lands, these practices are an outcome of increased population density, a shrinking natural resource base, and limited opportunities for alternative employment and income. When prolonged drought occurs, farmers deplete assets, produce less, and incur increased indebtedness; low food supply, poor health, and increased uncertainty sustain a downward spiral from which it is difficult to recover when rainfall returns to normal. For this reason, providing support to the off-farm rural economy is a high priority: efficiently targeted and implemented labor-intensive interventions to rehabilitate rural infrastructure, including roads, provide needed employment and livelihood improvement.

Given the country's variable climatic conditions and vulnerability to drought, information systems on current and expected weather, rain, and water accumulation in winter snowpack are important, both at the individual level of farmer decision making and cropping enterprises, and at a macro level in preparing short- and long-term strategies to reduce vulnerability to drought. Such strategies may involve water conservation and efficient water use, water harvesting and watershed management, small storage dams, and river basin planning and management. In Afghanistan, data on the amount of water stored in the snowpack is especially important, because snowmelt is the primary source of spring runoff and river flow. Snow surveys to measure such water storage and forecast runoff are common in river basins in many countries.

The river basin (and subbasin as appropriate) should be the basic unit for planning and management. To manage multisector and often conflicting demands, a national water coordination agency should be established with responsibility for guiding all aspects of water use across all ministries (planning and regulation), as well as monitoring, protection, and conservation of the resource base. Sustainable management of rivers and their use for irrigation and hydropower, and management of flood hazards and risks, as well as other uses, are and will be important in determining the prosperity of the country.

There is scope for transfer of the management of larger irrigation schemes to the beneficiaries. The State owns about 0.4 Mha within such schemes. Their rehabilitation should be based on approaches that result from active com-

munity participation, since the community groups will take over the management.

The issues outlined above provide the basis for formulating strategic objectives identifying short- and medium-term needs, and deriving policy requirements for the water resource subsector development framework, which is summarized in Table 2.

Development Framework

Short-Term Interventions. Developing a long-term strategy to manage water resources and reduce vulnerability to drought is a government priority. The strategy should focus on increasing water capital and improving water use efficiency. Specifically, the strategy should include

- water harvesting and watershed management, including more water storage structures, both small and large;
- effective control of groundwater use;
- better information systems on water availability;
- elimination of unsustainable land use practices;
- improved intake structures and corresponding on-farm water management;
- management transfer of state-owned schemes; and
- extending the irrigated command area.

In the short term, the emphasis of the strategy and priorities will be on investment in the rehabilitation of traditional small and medium irrigation schemes, with such programs to play a key role in institutional restructuring and capacity building, planning for the rehabilitation of formal and large-scale schemes, establishment of database and information systems, and initiating the institutional change process. More detailed provisions:

- Conduct water conservation and harvesting through soil, vegetation, and forest cover management; construct check dams, contour bunds, and other facilities to conserve water; and enhance groundwater recharge in all watersheds. Global experience has demonstrated, in arid environments similar to Afghanistan's, that water harvesting measures are effective. Water harvesting measures are also labor-intensive and offer the Government an opportunity to generate short-term employment. Construction of storage reservoirs in selected river basins and watersheds, focusing initially on small reservoirs, would support more efficient water use in irrigation by improving farmers' control of water supply.
- Rehabilitate small- to medium-scale irrigation schemes requiring infrastructure repair work that

Table 2. Water Resource Management Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Large number of inoperable, damaged small-scale irrigation schemes	Maximized scale and efficiency of small-scale irrigation	Address critical rehabilitation needs in traditional small-scale systems.	Expand rehabilitation program progressively based on detailed assessment.	Water rights formally set in legal framework
Poorly functioning or nonfunctioning major informal and formal irrigation schemes	Fully functioning major irrigation schemes	Conduct technical assessment and feasibility studies.	Make major investment in medium/large schemes, including appropriate institutional restructuring.	Policy on ownership and transfer of management of medium/large-scale systems to user group
Inadequate water resources knowledge base	Rebuilt knowledge base	Assess status of hydrologic stations and irrigation systems systematically.	Build comprehensive river basin system databases using latest information tools.	River basin institutional structures
Lack of holistic microwatershed management	Community-based microwatershed management	Devise pilot schemes to develop management models.	Replicate approved models.	Formalized concept of community-based microwatershed management
Groundwater depletion	Sustainable use of groundwater	Monitor tubewell development and impact; if necessary, initiate interim licensing requirement or ban on tubewells.	Arrange for formal application process to be approved by river basin planning and monitoring mechanism.	Policy on the use of groundwater
Lack of appropriate water resources management/coordination mechanisms	A coordination agency with an overall view of the many demands on water resources	Formulate proposals and options.	Establish coordination agency with subordinate river basin authorities.	Regulation on terms of reference for the coordination agency and river basin authorities
Most major rivers are international, requiring riparian agreements.	A set of internationally binding riparian agreements	Conduct discussions/ negotiations with neighbors; take up seats in existing regional forums.	Draw up a clear set of water allocations for each major river basin.	Existing agreements reviewed, negotiating politions prepared
Outdated ministry roles and organizational structures	Reform of the roles and functions of core ministries	Initiate the Planning and Implementation Group concept and undertake full institutional analysis.	Implement approved recommendations of the institutional analysis.	Guidelines on the role and core functions of Government and transfer of responsibilities to private sector
Damaged physical infrastructure of line ministries at the national and provincial levels	Adequate working environment for reformed line ministry staff	Implement reconstruction program in selected provinces according to agreed reforms.	Complete reconstruction program based on institutional assessments.	
Shortage of skilled technicians	Full complement of skilled staff	Devise appropriate incentives to attract returnees.	Restart training programs.	Higher education training

Source: CNA Mission.

extends beyond routine preventive maintenance and needs resources (funds, technical knowhow and skills, construction materials) and that farmers and villagers are unable to mobilize. The rehabilitation program

will be based on a systematic technical assessment of problems and consultation with *mirabs* and farmers. All systems within the basin or subbasin should be systematically surveyed and assessed before priorities

are selected and specific projects formulated, in order to ensure that traditional water rights and allocations are preserved, and that upstream and downstream impacts and conflicts are minimized and mitigated. The rehabilitation of these systems will be undertaken within a community development framework, and are likely to be linked and associated with rural livelihood activities. Pilot projects will also be implemented to support community management of watersheds and water harvesting.

- Plan the rehabilitation of formal and large-scale irrigation schemes. Initial assessment work has commenced in MIWR, with schemes identified and preliminary technical assessments to be undertaken. Complementary efforts will be needed to facilitate the management transfer of these systems to the beneficiaries. Users will have to be organized into an appropriate institutional framework and water delivery contracts agreed upon. This will include a water charging policy and collection mechanism. In addition, detailed design work should continue on partially developed or new schemes.
- Database and information system establishment should commence as soon as practical. Rebuilding the water resources knowledge base will be a collaborative effort of all core ministries and agencies, coordinated by the Afghan Information Management System (AIMS). The introduction and use of modern information technology, including remote sensing and GIS, has the potential of greatly increasing the capacity of the core water sector ministries to plan and manage the reconstruction program. A government task force including AIMS will be required to develop standards and protocols to enable efficient sharing and use of a wide range of data for different purposes. Coordination of this work by the Government is essential to ensure that all studies contribute the overall goal. Reestablishing the hydrologic and hydrogeologic network (including stations to monitor snowpack) is a high priority, though it should be undertaken within the context of earlier network designs. The historical knowledge base of maps, reports, and studies is partly lost; every effort should be made to reassemble it.

Appropriate institutional arrangements for water resource management are an essential prerequisite. These options should be assessed in the context of the broader review of required sector agencies and their respective roles. International experience has shown that the river basin is not only the best unit for planning but also for management of both water supply and demand and con-

servation of natural resources. The Government is considering an institutional mechanism for management of each major river basin of the country. However, an additional consideration is very important for Afghanistan: each of its major river basins is shared with its neighbors. Negotiating and monitoring agreements with each of its neighbors to ensure that Afghanistan has an equitable share of the resource will be a demanding task, and will require establishment of a committee or special body with appropriate specialized technical staff.

Medium-Term Programs/Investments. The medium-term interventions will involve expansion of the investment program and implementation of institutional and policy reforms, via the following key activities:

- Expansion of the traditional small and medium irrigation system rehabilitation program under the community development program;
- Implementation of an investment program for rehabilitation of formal and large-scale irrigation schemes, the rehabilitation program to be based on feasibility studies for each scheme and selection criteria for prioritizing individual schemes;
- Institutional reform and capacity building (see Chapter IV for more detail); and
- Policy and legislative reform for water policy and rights, water charges, community-based watershed management and irrigation system transfer to users, and groundwater and intercountry water transfers.

Community Development Programs

Current Status and Issues

In Afghanistan, the large number of individual communities (about 18,000) has traditionally had a keen interest in the use and protection of natural resources. Communal management, risk mitigation, and coping strategies were a common feature of these traditional agricultural systems. Such community mechanisms have been weakened by years of conflict and a legacy of displaced people, widows and orphans, and disabled and uneducated groups. To reestablish social cohesion, village/district-level decision-making structures must be rebuilt with appropriate policies and sensitive programs and projects.

Different communities have distinct social characteristics and different levels of participation by their members, but it is a characteristic of Afghan communities that there

be broad consensus on matters that affect all members. The shura is primarily a means of achieving broad understanding and agreement among the leading members of society to avoid conflict. The shura is not necessarily fully representative of the community, and democratic principles of equality and majority rule are not the basis for decisions, which come about through extended discussion. Shuras are valuable resources for reducing conflict and encouraging cooperation and collaboration. Whether the views of minorities, women, or the poor become part of the discussions depends very much on the local shura. Those in the community with the fewest resources are the least likely to contribute to discussions or benefit from economic opportunities for the village. In some places, powerful minorities control much of the land and the local political processes.

Community development approaches may conflict with these groups, sometimes to the exclusion of participatory approaches. NGOs have been active in Afghanistan working with rural communities, and have developed a number of approaches to facilitate community participation and development. For example, the Aga Khan Development Network has a clear method for facilitating growth of inclusive, participatory mechanisms beginning with close collaboration with the shura. In Badakshan, for example, increasing success and responsibility on the part of shuras has given rise to expanded programs managed by committees and interest groups operating with approval of the shura. The “community forums” working with United Nations Habitat in Bamian is another approach

to expanding alternative development-oriented groups. As the shuras become a central feature of development programming, it will be important for the international community to remember that (i) there is no stereotype shura, (ii) social differences exist between regions that must be taken into account, and (iii) the status of women varies across the country and is reflected in their role in the shura.

The vast majority of communities lack basic services, especially communications, clean drinking water, and health care facilities. While agriculture is the basis of the economy, advice on new technologies and varieties is available but limited, and institutional credit facilities are absent. Community infrastructure related to agricultural production, such as irrigation systems and water impoundments, bridges, and roads, are badly degraded. Community participation in economic development decision making has been relatively narrowly focused, but there are strong village consensus reckoning devices in the shuras and reliable mechanisms to help vulnerable groups. The community-based approach to development will require (i) strong support programs to assist empowered communities to develop the skills to participate fully in decision-making processes, and (ii) funding mechanisms, so the processes will have practical outcomes that improve livelihoods.

At present, the MRRD has few if any resources with which to assist communities. As part of the AIA policy, it will need to redefine its role and functions, and restructure to effectively assist communities. MRRD has little recent experience in designing, surveying, or implementing and managing community-based programs. Its traditional style of operation will be inappropriate for approaches that require partnership with

communities. Provincial offices have been destroyed, and only a few are still functioning through budgetary and program assistance from United Nations agencies and NGOs. Consequently, the database on the status of community infrastructure and community organization is highly fragmented.

The role of these offices in the context of increased decentralization of decision making and enhanced community empowerment has yet to be defined. The scale of infrastructure rehabilitation will be determined by identified requirements of the revised roles, and the human resource development and capacity building needs will be designed to support the revised functions.

At a market in Sar-e Pol, grain, oil and other goods are for sale.



Table 3. Community Development Program Matrix

Key Issue	Strategic Objective Indicators	Needs Assessment		Policy Agenda
		Short-Term Program	Medium-Term Development Framework (2-5 Years)	
Degraded community infrastructure and essential services	Self-reliant village and district community	Initiate community empowerment and community-based public works program.	Build a community development model that empowers communities to manage local investment and natural resource management decisions.	Communities empowered to undertake ownership and management policy formulation
Rehabilitation of water delivery infrastructure for drinking and irrigation	All villages to have a reliable source of water	Start a community-based program, including criteria for identifying villages and surveys of required works.	Develop a formal small-scale irrigation program managed by empowered communities, using a combination of village labor and NGO expertise.	Precise role of empowered community representatives (<i>shuras</i>) in project design and implementation defined
Strengthening community skills in planning and implementing projects	Communities capable of full participation in local natural resource management decisions	Start community training programs in project design, planning, and implementation.	Develop internal MRRD training programs to enhance community skills.	In-service training programs
Redefining line ministry (MRRD) roles	A clear statement of the role and functions of a reformed MRRD	Include MRRD in the broader institutional assessment of sector line ministries.	Implement approved recommendations of the institutional assessment.	Public sector role in empowered community development programs
Damaged physical infrastructure of MRRD	An appropriate working environment	Repair MRRD physical infrastructure in accordance with reforms.	Repair and reform national and provincial offices.	
Weak institutional capacity	A strong MRRD capable of supporting and monitoring community-based programs	Undertake initial training programs in needs assessment, databases, project planning, and finance.	Formalize and internalize training programs for MRRD staff.	Human resources development policies
Redefining role of MRRD provincial level office	A clear understanding of reformed MRRD staff role in participatory planning	Carry out short-term reorientation training.	Develop a clear mandate based on the detailed institutional assessment.	
Inadequate village-level data to apply selection criteria	Village-level databases	Carry out sample village-level assessment, e.g., build on WFP work.	Establish an annual village survey based on a fixed sample and including each district.	Sector information base; future of AIMS

Notes: AIMS = Afghanistan Information Management System; MRRD = Ministry of Rehabilitation and Rural Development; NGO = nongovernment organization; WFP = World Food Programme.

Source: CNA Mission.

The issues outlined above provide the basis for formulating strategic objectives, identifying short- and medium-term needs, and deriving policy requirements for a medium-term community development subsector framework, which is summarized in Table 3.

Development Framework

Short-Term Interventions. One of the major requirements to help implement the proposed community programs is a more detailed village-level database. In the short term, the World Food Programme annual village survey based on a sample of about 1,250 villages is the only significant database. This survey data requires more



Fruits and vegetables abound at the Kandahar market.

in-depth analysis than has been possible, and further refinement of the questionnaire to enable additional data collection. In the medium term, the annual village survey should become an integral part of the sector's information base.

AIA identifies community empowerment and the use of participatory planning mechanisms as a cornerstone of its development framework. The concept of community development, empowerment, or participation in Afghanistan requires elaboration, as it means communities become involved with community needs assessment, program planning, implementation, and management. The concept of community development and the model may be country-specific or even region-specific and may evolve with experience and experimentation. Assistance will be provided to support community empowerment and the development of effective development models.

NGOs have been implementing community development projects for many years. The CNA mission identified more than 120 ongoing development projects with a community-based approach and a total annual budget of more than \$40 million. To utilize this experience and avoid duplication, MRRD programs will need careful coordination. A major initial step will be to reorient MRRD staff to the changed relationship with communities and

NGOs. MRRD staff will need formal and informal training in participatory approaches and in working with NGOs at the village/district level. All communities must be made aware of the changes taking place and of the opportunities that the changes offer them.

Medium-Term Programs/Investments. The medium-term program will involve investments in community empowerment and organization and village planning and decision-making processes; and formalizing relationships with government agencies, NGOs, and communities that had started on a pilot basis to formulate community development models. The models should be developed by implementing agreed-upon priorities within the context of the communities' use of microwatershed natural resources. Activities could include rehabilitation of rural roads, water storage or small-scale irrigation infrastructure, reestablishing fodder and agroforestry plots, livestock and agricultural activities, creation of off-farm small enterprises, and related training courses.

Agriculture

Current Status and Issues

The arable agricultural resource base is about 7.5 Mha of cultivable land, which is divided into rainfed and irrigated land. The rainfed area, largely located in the northern provinces and dominated by cereal production, is estimated at about 4 Mha, but the area actually cultivated in a given year varies considerably, depending upon the climatic factors, such as precipitation, and the area left fallow. The recent succession of dry years has reduced the annually cultivated rainfed area to less than 0.5 Mha.

In recent years, partly as a result of the drought, rainfed cereal productivity levels have been low, averaging some 0.6 tonnes/ha. At present, rainfed cereal production has fallen to about 10% of expected production in a normal rainfall year. As a consequence, food security, especially in the northern areas, is the first priority. Recovery strategies for these areas must be predicated on the assumption of highly variable rainfall and risk mitigation. Farmers must be able to respond to favorable weather conditions quickly and, since yields will always be relatively low, in a cost-effective manner.

Farmers must have access to quality seed, fertilizer, and draft or mechanical power. In addition, they need technical advice on recent developments in dryland farming systems, including water harvesting, and access to effective plant protection and disease control systems. To avail

themselves of quality inputs, farmers will need to have access to rural finance. In the last 10 years, NGOs, United Nations agencies—in particular, FAO—and the external funding community have been involved in agricultural rehabilitation, developing farmer-based seed multiplication programs, promoting technology transfer, and supporting agricultural service delivery systems. The lessons learned need to be incorporated in planned strategies and future programs.

Considerable potential for productivity improvements exists, even allowing for the low and variable rainfall regime. The International Centre for Agricultural Research in Dry Areas has promoted drought-tolerant varieties and cultural practices for cereals, legumes, and forage crops that would significantly increase returns and could double current yields. With extensive and well-designed micro-watershed management and the adoption of microwater-harvesting techniques, the potential for further yield increases is available.

This potential to improve rainfed cereal yields means that rainfed farming could play an important role in agriculture sector recovery. In the longer term, the possibility of Afghanistan being able to produce around 1.5–2.0 million tonnes of cereals annually from its rainfed farming areas would transform agricultural development. Food security concerns could be relegated to very specific marginal areas, and high-value irrigation water could be used, for the most part, to grow high-value cash crops. A further advantage of such a strategy is that it is based on the careful management of microwatersheds, which means that communities are drawn into an integrated approach to resource use combining water, forestry, rangeland, and crops. This is the traditional Afghan approach, which has largely broken down in the course of the past 20 years.

The relatively low and variable rainfall regime places a premium on irrigated land. It is estimated that 85% of all agricultural output is derived from the irrigated areas. The general management of water resources and the efficiency of irrigation systems are therefore of critical importance to the whole food economy. While the potential irrigable area has been estimated at 5 Mha, the total developed area at present is around 2.6 Mha. Under normal conditions about 1.4 Mha have sufficient water for

double cropping. Irrigation systems include traditional systems using informal river diversion structures maintained by the users, which account for about 55% of the total irrigated area; traditional systems based on natural springs, *kareze*, or *arhads*, which account for about 30% of the irrigated area; and more modern formal river diversion structures, which were built in the 1960s and 1970s, and which account for the remaining 15%.

A key feature of these irrigation systems is the very low efficiency rating of about 25%, which means considerable scope exists for reducing the waste of water and increasing the irrigated area. Reliable data on the current extent and productivity of irrigated agriculture is frag-



A small irrigation project near Kabul; most irrigation works in Afghanistan are informal river diversion measures maintained by users.

mented, mostly because of the combined impact of recent conflicts and the prolonged drought. Many systems have been damaged or have not been maintained. A number of the more modern systems and larger traditional systems also suffer from salinity and waterlogging problems.

The productivity of all types of systems can be improved substantially. First, improved on-farm water management and appropriate inputs will substantially increase yields. The average national yield of irrigated wheat in recent years has been around 1.3 tonnes/ha. With improved water management and inputs, a long-term goal of a national average yield for irrigated wheat of 3.0–3.5 tonnes/ha is feasible. For a comparison, the average yield of bread wheat lines by the International Maize and Wheat Improvement Center in the period 1995–2000, under a range of agroclimatic conditions, varied from 4.6 to 5.7

tonnes/ha. In addition to yield improvements, better water management will contribute to higher cropping intensities, which are a function of water availability and length of growing season. Better water management should make possible an increase in the proportion of the irrigated command area that can be double-cropped from 50% to at least 65%—although the second crop enterprise may be restricted to forage.

The principal output of the irrigated systems is wheat, accounting for about 80% of production, and a range of horticultural crops. It is expected that irrigated wheat area will decline as rainfed wheat cultivation becomes more productive and farmers' contribution to the cost of water increases. The development and rehabilitation of irrigated agriculture require significant investment, which has to be recovered, and a single crop of wheat, even at a yield of 3.0 tonnes/ha, is probably insufficient to enable this recovery. A much higher proportion of the irrigated area could support high-value cash crops. Agroforestry and horticulture are a small but previously highly productive subsector, at one time accounting for 40% of export earnings. These crops, plus others that have not traditionally been grown in Afghanistan, should be assessed and where feasible piloted.

The issues outlined above provide the basis for formulating strategic objectives, identifying short- and medium-term needs, and deriving policy requirements for a medium-term agriculture subsector framework, which is summarized in Table 4.

Development Framework

Short-Term Interventions. The conflict and drought of recent years have had a devastating impact on the horticulture industry. Precise figures are not available, but observation and small surveys suggest that approximately 50% of orchards have been destroyed. The feasibility of rehabilitating the industry will be determined by the potential to compete in international markets. Other players have entered the markets vacated by Afghanistan, and regaining former market share will be difficult. A detailed survey of potential markets and their requirements should be undertaken.

The present status of irrigated agriculture raises a number of policy issues related to maximizing the efficient use of available water. System efficiency levels are reportedly as low as 25%, and the potential exists to improve on-farm water management efficiencies. If the system improvements are to be sustainable, farmers will have to accept the concept of water charges. One option may be to have this done obliquely, by including a water

charge in a land tax, a concept with which Afghan farmers are familiar. Further, such as tax could also be made progressive, which would minimize social discord. Such a policy would send price signals to farmers that would increase pressure to improve water use efficiency, extend double cropping, and produce higher-value crops and crops with lower water requirements.

Inputs such as seed, fertilizer, and agrochemicals are being provided by a number of external funding agencies, including NGOs. In some instances, inputs are being provided free of charge. Tight coordination of input provision is needed to ensure that both quantity and quality issues are adequately addressed. In particular, formation of a consensus is needed on a strategy that moves the current situation toward the government vision of private sector-led distribution networks for the main inputs. Such a strategy will need to address policy issues, which include the role of the public sector in plant protection programs and the need for regulation of quality control of seeds, fertilizers, and agrochemicals provided by the private sector.

Afghanistan formerly produced a number of industrial crops such as cotton and sugar beets, which were linked to substantial processing facilities. These facilities are largely moribund. Feasibility studies will be needed to determine the prospects for the industries and, based on the outcomes of these studies, investment requirements identified. Future investment will be based on private sector involvement.

The recovery of commercial agriculture and much of the cereal subsector will require finance, which is not readily available. At present, farmers in need of credit are dependent on informal sources. It is vitally important to the success of the proposed community-based approach that alternative sources of finance be made available. The reestablishment of agricultural credit facilities requires detailed assessment of the feasibility of introducing both community and asset-based lending. Commercial funds are needed in agriculture, which means asset-based lending using land titles as collateral and related bankruptcy procedures. The instruments for asset-based lending are not well established; and since it is estimated that less than 25% of landholders have clear legal title to their land, collateral will be a constraint. A review of the rural financial sector is required to identify an appropriate institutional framework; this will include an assessment of existing functioning and nonfunctioning bank and nonbank financial institutions.

The AIA-outlined strategy in the NDF that public institutions will be restructured to undertake core functions represents a significant departure from the traditional role of MAAH. A sector institutional review and analysis is required. In a restructured institution, core responsibilities are likely to encompass policy and plan-

Table 4. Agriculture Subsector Matrix

Key Issues	Strategic Objective Indicators	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Inadequate and outdated dryland farming technology	Rainfed area output maximized	Transfer latest dryland farming methods and mitigate risks of low rainfall.	Implement programs to transfer dryland farming methods.	Technology transfer mechanisms
Availability of drought-resistant cereal, legume, and fodder varieties	Uptake of approved varieties	Multiply distribution of seed via network of contracted farmers.	Set up a private sector-led seed production and distribution network.	Seed certification and quality control
Fertilizer distribution	Adequate supplies available at world prices	Ensure adequate supplies without undermining private sector activities.	Privatize the fertilizer factory and support private sector distribution.	Policies on private sector services delivery
Inadequate farm power	Appropriate technology available as needed	Promote farmer organizations and undertake detailed needs assessment in consultations with farmers' recommendations.	Promote machinery hire and machinery coops.	Rural coops and enterprise start-up incentives
Plant protection against selected major pests	Minimal risk of crop losses from major pests	Support MAAH efforts to control pests on an interim basis.	Establish an efficient public sector capacity to control locusts, etc.	Scope and funding of public sector plant protection service
Poor on-farm water management	On-farm water management efficiencies improved by 20%	Rehabilitate small-scale irrigation schemes that include design measures to improve on-farm water management and technology transfer.	Make irrigation system investments that incorporate improved agreed on-farm water management techniques.	Water pricing, cost recovery, and technology and irrigation management transfer policies
Badly damaged horticulture industry	A rejuvenated, competitive industry	Reestablish nurseries to provide rootstock on a commercial basis.	Establish private sector nurseries with bank financing.	Rural finance and private sector policies
Inadequate market knowledge	Private sector trade associations	Conduct marketing studies for horticulture and other potential high-value crops.	Promote pilot programs for innovative crops, especially in poppy-growing areas.	Trade policies, start-up incentives, and poppy substitution
Moribund industrial crops	Competitive private sector industries	Evaluate and, if necessary, conduct feasibility studies.	Finalize approved investment packages with significant private sector partners.	Investment policy in agriculture and agroprocessing
Inappropriate institutions with large numbers of staff	A reformed MAAH	Conduct institutional review of MAAH role and functions.	Implement approved recommendations of institutional review.	Public sector/line ministry roles
Capacity building	Well-trained MAAH staff	Conduct short-term reorientation programs.	Establish training and study programs.	In-service training policies
Lack of agricultural credit	Commercial and nonbank financial institutions	Review financial sector, develop framework for community and asset-based lending.	Set up commercial bank and nonbank financial institutions lending to agriculture.	Landownership and bankruptcy legislation

Note: MAAH = Ministry of Agriculture and Animal Husbandry.

Source: CNA Mission.

ning, plant disease and pest control, certification systems for agricultural inputs and products, animal health, and applied agricultural research. Delivery of agricul-

tural extension services will be assessed to determine the most effective and efficient delivery system, be it private or public provision. This institutional reorga-

nization will result in a smaller organization. The infrastructure support and staff retraining programs will be based on these new roles.

Medium-Term Programs/Investments. The key medium-term programs of the agriculture subsector will include the following:

- Private sector provision of agricultural inputs (fertilizer, chemicals);
- A private sector-led seed industry, building on existing private seed multiplication farms;
- Public sector provision of plant protection and disease control monitoring systems, seed certification, and regulatory systems for fertilizer and agrochemicals;
- A farmer-based comprehensive technology transfer program for dryland and irrigated farming systems, improving production and water use efficiency;
- Community-based and large-scale rehabilitation programs;
- Private sector-led investments in horticulture production, processing, and marketing systems, and in industrial crops;
- Alternative and innovative crop pilot program (undertaken as part of the Agriculture Research and Technology Transfer System [ARTTS]).

Livestock Programs

Current Status and Issues

Traditionally, livestock activities have been an integral part of most farming systems in Afghanistan; livestock and their products contribute to farm draft power, family nutrition, the raw materials for household goods (wool, hair, hides, dung), and tradable products. Livestock activities often provided the household with its only source of cash income. Previously the livestock subsector accounted for 40% of total export earnings, but it is estimated that livestock numbers are now about half the level of a decade ago.

At present, livestock raisers have serious problems: loss of livestock, decreased productivity due to declining feed and overgrazing, and the effects of animal diseases, which are not being adequately treated. Much of the irrigated land that formerly supported livestock is now without water. The small poultry flocks that were almost exclusively owned and managed by women have for many households almost disappeared, while the smallest and poorest farmers, who formerly kept at least one cow to provide for

their subsistence needs, are now without animals. Disease problems are only being partially contained. Rangeland is overgrazed; nomadic and semisedentary sheepherders are experiencing high livestock mortality rates. Improvements in the small ruminant sector, even in nondrought times, are hampered by traditional user rights and grazing practices and a preoccupation by raisers with livestock numbers rather than productivity.

Over the last decade, in the absence of MAAH provision of animal health and livestock services, a number of development partners (the United Nations Development Programme [UNDP], FAO, bilateral funding agencies, and NGOs) have supported a number of project activities. These include the establishment of an alternative system of veterinary field units (VFUs), which have been established in every province and in most districts. While the objective of these units was to become financially self-sufficient, in most locations the drought and conflict have reduced both livestock requirements and farmer client capacity to pay for the services. Other key externally funded activities have involved vaccination programs and deworming treatments. While these activities are beneficial, the present coverage is inadequate.

In the commercial and semicommercial sector, most herds and flocks have been substantially reduced, and investments in assets such as feed mills and commercial poultry and milk processing facilities have been lost. To reestablish these activities, investments in the semicommercial poultry and dairy sectors will be important if prospective producers are to access breeding stock, breeding material, commercial feedstuffs, and equipment. Considerable investment is also required for reestablishing feed mills and poultry and milk processing plants. Private sector investment is needed for poultry, red meat, and dairy production. Investments are needed in production and processing facilities, which add value to livestock products for domestic consumption or export. These include operations such as abattoirs, dairy processing plants, tanneries, wool processors, and fattening operations. The reestablishment of these facilities would also create a market in that area for smallholder-produced livestock products, to which most smallholders now have no access.

Within MAAH, two subdirectorates are responsible for livestock. Currently, both are ineffective, lacking resources to undertake existing functions. Most if not all of the staff would require retraining. Further, significant weaknesses in private and public sector skills in commercial and semicommercial poultry and dairy production also need to be addressed. The facilities that the Government formerly maintained to support livestock production are

no longer operational and are mostly inappropriate for the anticipated new core functions of government agencies. The current absence of reliable information, particularly with respect to livestock numbers and location and fodder resources, limits the capacity for planning development interventions in the sector.

The issues outlined above provide the basis for formulating strategic objectives, identifying short- and medium-term needs, and deriving policy requirements for a medium-term livestock subsector framework, which is summarized in Table 5.



Countryside scene: a farmer drives a herd of camels along the road near Kandahar.

Development Framework

Short-Term Interventions. The development of a medium-term institutional framework to encourage smallholder and commercial livestock development will be influenced by the outcome of the government review of public sector roles and the subsequent restructuring of MAAH. Once this role is clear, an appropriate structure and staffing schedule can be developed, and personnel can be trained to perform the tasks for which they remain responsible. Appropriate regulations and legislation will have to be developed to support the new structure. This allocation of responsibilities is particularly important in the livestock subsector, as important animal and public health issues need to be resolved.

A key initial activity will be a livestock inventory, which will provide data for planning activities. It will involve a rapid rural appraisal of all provinces, focusing on livestock numbers and distribution, feed resources, husbandry and livestock offtake strategies, and livestock support services. A number of activities will be implemented to improve smallholder livestock productivity; these are likely to encompass fodder production, artificial insemination, vaccination and disease control, and animal health and livestock support services. These activities are to be supported within a component of a community-based development program.

Additional support for the smallholder sector should target poultry producers, with expanded village poultry distribution and improved production capability for semicommercial producers, including improved disease control, deworming, and supplementary feeding for female breeding stock. Further support to the dairy sector through an expanded program of artificial insemination using deep-frozen semen, liquid nitrogen storage and distribution, and improved fodder production in irrigated areas will be required.

Studies will be required to determine the most effective and efficient systems for livestock vaccine production and delivery, and for provision of animal health and livestock support services. A vaccine quality control laboratory is required, and it will be necessary to define sentinel service needs against transboundary diseases and diagnostic laboratory functions and needs, and to identify the requirements for functioning animal health laboratories.

Training to support the new core role and functions of government agencies in animal health services, in meat inspection, and in public health is needed. This will also involve infrastructure and equipment support. The input should include postgraduate training for key government positions in epidemiology and technical laboratory positions, and training for strengthened and properly supported

Table 5. Livestock Development Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1-2 Years)	Medium-Term Development Framework (2-5 Years)	
Lack of reliable subsector database, hence no basis for planning livestock programs	Up-to-date database on livestock numbers, distribution, systems, performance, and resource use	Rapidly appraise all provinces as to livestock numbers, feed resources, distribution, husbandry, off-take strategies.	Conduct regular surveys to update livestock databases.	Policy on collection of livestock statistics; establishment of a central Department of Statistics
Investment in the dairy industry	Commercial dairy industry supported by breed development, processing facilities, and milk collection services	Conduct market surveys in most urban areas; implement expanded private sector AI service delivery, supported by fodder demonstrations.	Invest in processing and marketing supported by availability of formal credit.	Agricultural finance and private sector investment
Livestock raisers with too few resources to restore animal and poultry numbers without assistance	Reestablishment of individual livestock holdings	Carry out assisted restocking for poultry raisers, extend animal health services, including supply of vaccines and medications through VFUs.	Create credit facilities for restocking new breeding base; establish soundly based animal health field service through VFU or similar.	Policy regarding lending to smallholders with little collateral; policy regarding VFUs as suppliers of veterinary services
Unclear policy with respect to roles of private and public sectors in delivery of services	Roles of public and private sectors clearly defined; private provision of services	Review government functions, rewrite and update regulations, and ensure that regulations have backing of law.	Conduct progressive review of regulations and policies to update in line with evolving sector needs.	Policy re private and public responsibilities promoting private sector, passage of new regulations into law
Lack of government field service; status and function of VFUs unclear	Clearly defined VFU role as providers of user-pays veterinary services; private sector ownership and delivery of services promoted	Survey VFUs to determine viability and status; Government to determine "ownership" of VFUs.	Government to subsidize VFUs if necessary, other services, to operate without competition from free service providers; promote private sector.	Appropriate policy and regulations re private sector deliverers of veterinary services
Ineffective and inappropriate structure of animal production and veterinary directorates	Both directorates soundly restructured, resourced, and administered with regard to new roles supporting the sector	Determine restructuring needs, facilities, and training requirements.	Build longer-term capacity by providing equipment, training to retained core facilities and department staff.	Institutional roles and functions of MAAH
Rangeland overgrazing	Livestock numbers in balance with seasonal feed availability on rangeland, destocking mechanisms introduced through development of off-take strategies	Survey owners, livestock numbers, and land area; assess rangeland carrying capacity.	Involve key international organizations in rangeland management and planning; establish strong rangeland research structure.	Policy with respect to rangeland use and transfer of communal property to individual users; regulations governing rangeland use

regulatory units. Longer-term institutional strengthening of government roles would include permanent and strategically located quarantine points manned by well trained and supported staff, and a strengthened central epidemiological capability, with field and quarantine activities linked to a central epidemiologist. Other objectives in animal health include linkages between the veterinary department and the international reference laboratories of neighboring countries. These would lead to an ability to comply with importing countries' animal health requirements so

as to facilitate development of export markets for sheep and mutton.

Development of rangeland management policy and a rangeland research structure and extension capability in nomadic shepherd areas are required. These would permit investigation of offtake strategies and seasonal value-adding practices, such as fattening for rangeland producers, and in time should lead to a reduction in grazing pressure and improved nomadic flock productivity.

Table 5. Livestock Development Matrix (continued)

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Investment in commercial poultry production, inadequate breeding stock	Soundly based, self-financing poultry industry	Conduct study tours for key technical/management staff; continue organization and support for poultry farmers' associations through projects.	Make credit facilities available for feed mills, processing plants, and large and smallholder poultry producers; create supportive regulatory environment.	Appropriate import and export and quarantine regulations
Significant weakness in technical skills of private and public sector staff regarding poultry and dairy production	Useful cadre of trained private technical staff capable of usefully managing and advising in these industries	Conduct study tours for key management/technical personnel to relevant production facilities in region.	Create supportive regulatory and animal health environment.	Regulations supporting quarantine, cross-border livestock movement
Weak livestock disease prevention capability in face of transboundary disease risks and high endemic disease prevalence	Sound local disease prevention and control capability on part of Government	Immediately implement sentinel services against rinderpest; identify requirements for long-term institutional support for improved animal health capability; devise short-term project measures supporting diagnostic capability and sentinel functions.	Establish properly functioning epidemiology-driven diagnostic capability supported by working laboratories, livestock movement controls, and quarantine services.	
Public health and environmental hazards associated with locally produced meat, milk, and poultry	Hygienic and environmentally sound processing and marketing facilities for livestock products	Identify staff requirements for meat inspection and public health services; survey existing facilities to determine needs.	Invest in modern processing facilities.	Policy re government/private sector control of slaughter and processing; regulations governing meat and milk processing and marketing
Lack of properly trained technical personnel in livestock subdirectorates	Both directorates soundly structured, trained, and resourced for new roles	Assist with inventory of staff resources and recommend training needs; conduct recruitment program for key positions.	Institute overseas and on-the-job training where necessary.	

Notes: AI = artificial insemination; MAAH = Ministry of Agriculture and Animal Husbandry; VFU = veterinary field unit.

Source: CNA Mission.

Formal credit facilities will be required to support private sector investment for processing facilities such as abattoirs, feed mills, and semi/commercial poultry production.

Medium-Term Programs/Investments. The key medium-term programs in the livestock subsector will include the following:

- Sustainable smallholder livestock production systems, as an integral component of community development programs;
- Private sector commercial livestock enterprises, with access to rural credit;
- Development of private sector-based livestock production and animal health input supply and support services;
- Establishment of a regulatory environment for livestock production, quality assurance systems, and animal disease control, and for animal public health; and
- Livestock quarantine services and control systems.

Agricultural Research and Technology Transfer

Current Status and Issues

In the past, prior to the conflict, the ARTTS system was substantial, though not always focused on the real needs of the Afghan farmer. This system no longer functions due to widespread destruction of the infrastructure and loss of skilled human resources. When operational, the Department of Agricultural Research consisted of 11 subdepartments; it carried out its functions through 24 research stations (7 main and 17 submain), covering the geographic and agroclimatic variability of the country. The total area of the stations was about 1,750 ha. Before the degradation of the system, these research stations had 1,020 staff members, of whom 25% were technical research staff (graduates).

In the future, the ARTTS network will focus on adaptive research and technology transfer directly related to agricultural development and will not be involved in basic research. Internationally, a wealth of new technologies developed for dryland areas are available. ARTTS' major role will be to test, adapt, and disseminate technologies suitable to local conditions. Demand-driven on-farm participatory approaches to research and development will be employed, and will use the farming systems approach to agricultural research and development, and the integrated watershed planning approach to natural resource management. Institutional and policy innovations will support an

enhanced contribution of research and technology transfer to agricultural development. Human capacity should be strengthened to contribute to institutional innovation in agricultural research and technology transfer for development. This requires new management training methodologies, technology transfer, and dissemination techniques.

The issues outlined above provide the basis for formulating strategic objectives, identifying short- and medium-term needs, and deriving policy requirements for a medium-term agricultural research subsector framework, which is summarized in Table 6.

Development Framework

Short-Term Interventions. It is essential that a review, part of the larger MAAH institutional review, be undertaken to assess the needs, policy, functions, and institutional structure to establish and operate an efficient ARTTS that will respond to farmer-identified priorities and to future farming needs. The principles underlying the future shape of ARTTS include the following:

- Integrating on-farm participatory research and technology transfer activities into practical development programs;
- Developing demand-driven, community-based research and technology transfer programs that recognize the special needs of the rural poor, especially rural women, children, and the disabled;
- Adopting innovative methodological approaches that utilize the farming systems approach to research and development, integrated natural resource research

sites, and integrated watershed management; and incorporate socioeconomic aspects with technical and biophysical research programs; and

- Determining the most effective institutional framework for linking research with extension delivery agencies and organizations.

Programs will be directed at important research and technology transfer areas that previously were either neglected by ARTTS or not given due attention. Such areas include natural resource management (conservation and use of soil, water, and vegetation cover), biotechnology and information technology, socioeconomics, monitoring and evaluation, and adoption and impact research. The ARTTS

In the Kandahar market, a pushcart is laden with cabbages and other greens.



Table 6. Agricultural Research Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
The scope of the future agriculture research and technology transfer system (ARTTS)	A relevant, fully supportive ARTTS, using on-farm participatory research	Undertake study of the scope of research and extension.	Set an agreed scope of public sector responsibility for agriculture research based on study recommendations.	A policy document outlining the options for funding and managing the ARTTS
Damaged and looted facilities	Restored research facilities in line with reformed role	Take interim measures to allow core work program to continue.	Restore facilities in line with agreed reforms and scope of work.	As above
Potential loss of genetic base	A gene bank in Kabul		Implement recommendations of research study.	Conservation of genetic resources
Inappropriate extension service	Effective research and extension service delivery systems meeting community needs	Conduct a study to determine cost-effective and efficient delivery options.	As above.	The role of extension in community-based planning and programming of investment

Source: CNA Mission.

agenda will include gender mainstreaming and rural women’s needs and their role in resource management. Based on assessed priorities, a particular focus may be given to research for developing the vast rainfed areas in the northern and northeastern provinces, where the potential exists for great productivity improvement. Institutional and policy innovations will support timely and cost-effective services to strengthen agricultural research and technology transfer for the poor.

ARTTS policies and institutional arrangements will ensure appropriate use of new technologies for increasing food security and reducing poverty. Managing modern technologies, intellectual property, information systems, and strategic planning through decision support methods should be considered. The aim will be to ensure that stakeholders are active participants in determining the research and extension agenda, and involved in monitoring and evaluating the effectiveness of the programs. This will need partnerships and networks, negotiation and conflict resolution, effective governance bodies and management practices, and decentralized and well-coordinated research and extension activities. Farmers and the emerging private sector, including NGOs, will be important partners in generating new relevant knowledge responding to social needs.

As most research work will be applied research, with ARTTS activities to be implemented in farmers’ fields, it will be important to determine the most effective institutional framework for linking research with extension delivery agencies, both public and private, and sector organizations to develop these linkages. The appropriate-

ness of this framework will be assessed and determined as part of the institutional review of MAAH.

Medium-Term Programs. In the medium term, ARTTS policy and the required institutional reforms will be implemented. These institutional and policy issues are covered in more detail in Chapters III and IV, respectively, of this report. Implementation of these reforms will require large investments in infrastructure, equipment, and human resource training to establish an effective and efficient ARTTS.

Off-Farm Employment

Current Status and Issues

Off-farm income generation activities are an integral part of rural production systems. It is generally accepted that families in most parts of Afghanistan that have less than 0.5 ha of irrigated land have difficulty earning a living solely from agricultural production. This means that about 65% of farming families rely on off-farm income-generating activities to achieve a modest living. In addition, farming has always been marginal in some areas. Traditionally, the main sources of off-farm income have been hired labor, small-scale enterprises, and use of forest products other than timber. Principal small-scale enterprises include carpet weaving, beekeeping, cheese making, skin processing, sericulture, other handicrafts, and rural repair shops.

A key feature of many of these rural enterprises is that they operate in villages that are relatively inaccessible. This

impacts on both the cost of external inputs, market opportunities, and the price for products. In supporting programs to assist such enterprises, financial feasibility will be a key factor.

Development Framework

Short-Term Interventions. For small-scale rural enterprises to flourish will require a supporting package of services, which should include the provision of raw materials, training, and market outlets. It is proposed that the most feasible solution to meeting these needs would be a rural cooperative with a linked marketing arm in the main urban centers. In the short to medium term, such development could be supported by an NGO with experience in this area. This initiative would have a strong poverty reduction impact.

This type of organization and its activities is well suited to promoting and being promoted by enterprises undertaken by women. A range of activities could be supported by individual rural cooperatives run by women for women, but the key to success is the organization of the marketing function. The rural cooperative becomes the vehicle for extending a range of benefits, including training in particular crafts and skills, as well as a medium for microfinance facilities and the transfer of information from educated women to those less well educated.

The issues outlined above provide the basis for formulating strategic objectives and lead to the identification of short- and medium-term needs and policy requirements for a medium-term community development framework, which is summarized in Table 7.

Table 7. Off-Farm Employment Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Lack of support services	A community/NGO-led small enterprise support service	Form a consortium as an independent organization, e.g., a cooperative	Integrate work programs with community development plans, especially the role of women.	Existing facilities, e.g., sericulture and apiculture, privatized/transferred to consortium
Training programs	Supplied by above	Allow consortium to consolidate expertise and run training programs.	Set up rural women's cooperative movement.	Rural cooperative legislation
Supply of raw materials	As above	To be considered by consortium.	As above	As above
Marketing outlets	An apex marketing organization	Establish rural cooperatives.	Link apex marketing organization to a group of rural coops.	Status of the apex organization
Start-up finance	Rural bank	Pilot microfinance projects.	Create fully functioning village-based credit schemes.	Rural finance/credit

Source: CNA Mission.

Needs Assessment: Institutional Reforms and Capacity Building

AIA presented the draft NDF to the Implementation Group of external funding agencies in April 2002. This framework sets out key principles, policies, and strategies to guide the formulation and implementation of the Afghanistan Recovery and Reconstruction Program. This framework is especially relevant to the natural resources and agriculture sector. The institutions in these sectors are faced with developing a new vision of their future role, revising the policy and institutional framework for the sector, and carrying out the massive task of institutional restructuring and capacity building to enable the respective line ministries and provincial and district offices to lead the recovery and reconstruction program. The Government's guiding principles in this regard are as follows:

- The line ministries and other state entities will be responsible for overall natural resource planning, policies, and related management parameters; and the formulation of programs to deliver agreed public services to the community level, including technology transfer, the regulation of private sector activities, and the monitoring of performance of development programs.
- Implementation, to the extent possible, will be entrusted to the private sector, including beneficiary communities. In this regard, the Government will create the enabling environment for the operation of national and international firms (in particular for engineering and construction).
- Local communities will be empowered to decide their development priorities, to contribute to implementation of their projects and activities where possible, and to monitor the work of government agencies and the private sector. The Government's strategy will focus in the near term on creating employment and supporting livelihoods at the community level.

These principles indicate the need for a complete review of the current institutional structure governing the natural resources and agriculture sector at all levels, from

the national to the village level. The existing structure is a legacy of several highly centralized administrations whose views were diametrically opposed to the decentralized approach of the present administration. In the short to medium term, the line ministries will undergo a process of change management to move away from their current all-encompassing functions to one that reflects a set of core functions for public sector agencies.

Natural Resource and Agriculture Sector National Institutional Structure

At present, three ministries are primarily involved in natural resource and agriculture sector management. They are MRRD, MAAH, and MIWR. In addition, the Ministry of Water and Power (MWP) has considerable influence over river regimes by virtue of its hydropower schemes, and the Ministry of Public Works (MPW) is involved in construction and work schemes in rural areas. The roles and functions of these ministries do not form a coherent structure capable of delivering the sustainable and efficient use of natural resources, especially water. Functions overlap, particularly with regard to irrigation programs, and significant management gaps exist. It will be necessary to review the mandates of these ministries and to formulate a more holistic view of natural resource management that will ensure efficient resource allocation to the various users of natural resources.

The process of internalizing the new vision of the Afghanistan Government in reshaping the roles of public sector institutions at the central, provincial, and district levels will be gradual, but should begin immediately, because many aspects of the short-term strategy depend directly on a measure



Near Qadam Joy, a little boy poses with his donkey beside a dried-up stream bed.

of reorganization and reorientation of the ministries and their provincial offices. In effect, there are two parallel processes required: one is to realize the vision of a reformed administrative structure in accord with the NDF principles set out above and the envisaged approach to natural resource management; the second is the more pragmatic process of beginning the change process in the existing agencies and influencing the attitudes of staff to the future shape of the Government. The latter process is the more sensitive, but requires clear direction based on the first.

The current composition of sector agencies, their detailed functions, and staff complements will be the subject of review. In the context of the current structure of sector agencies, such a review should take into account the following observations and their implications:

- Agricultural activity is dependent on natural resource systems, which need to be sustained. Afghanistan has no agency responsible for ensuring that levels of natural resource use are sustainable.
- The protection of a sustainable level of natural resources must be a priority and cannot be entrusted to one of the major users.
- In Afghanistan, 80% of agricultural output is dependent on some form of irrigation system.
- A distinction should be drawn between the largely environmental role of natural forests and the production role of commercial forestry and agroforestry.

- Development priorities will be determined at the community level, but the aggregation of community demands must be matched to natural resource availability.
- The delivery of agricultural services will be led by the private sector.
- The scope for technology transfer is substantial, but must be responsive to community priorities.

In broad terms, a clear institutional distinction is required between agencies with allocative resource functions and those with user functions. In addition, the institutional arrangements should reflect the community-based approach. The water subsector provides a key example of the need for significant institutional reform. In Afghanistan, no custodian of water resources sets a limit on the various users. To the extent that available resources are assessed, this is done by MIWR, which is also the major user of water. In these circumstances, the demands of sustainable ecosystems cannot be determined objectively. The findings of the recent MIWR-UNICEF water conference workshop (Kabul, April 2002) did not indicate any commitment to significant institutional restructuring, and showed only limited recognition of the current institutional structures' lack of objectivity in allocating water resources. Without significant changes in the institutional structure of natural resource management, especially that of water, in the next 2 years, only limited scope will remain for a sustained recovery of the agriculture sector. The NDF promotes the concept of river basin authorities that link together the microwatersheds managed by their respective communities. It is important that the concept of river basin management not be interpreted as a one-dimensional focus on water. Rather, this concept should encompass the range of natural resources utilized by the communities at the microwatershed level. In this way, the mandate of the river basin authority is consistent with the range of natural resources actually being used and needing supervision.

Individual Ministry Structures and Organization

The current structure of ministries reflects past preferences for a highly centralized form of administration, which is the antithesis of current guidelines calling for decentralized decision-making processes. The organizational structures often incorporate separate subsidiary structures, such as input supply and construction companies. Considerable scope exists for divesting ministries of such activities and privatizing the assets.

The key first step in this restructuring and reform process will be the establishment of planning and implementation groups² in the headquarters of the line ministries and in provincial offices. These groups will be an integral part of a ministry's organizational structure and internal operations, working with and alongside the reorganized or new functional units. Their mission will be to translate policy and programs into projects, and to build new management capacity and the required skills in the ministry and provincial offices. Implementation of projects and related activities (e.g., preparation of technical designs, surveys) will be outsourced to the private sector, to the maximum extent possible. The groups will be staffed first through open recruitment from the staff of the respective ministry, based on technical competence, experience, merit, clear terms of reference, and job descriptions.

In the short to medium term, one outcome of the institutional review and reorganization will be a leaner organization structure, and it is anticipated that the numbers of existing staff will be reduced. The infrastructure support and capacity building that will be required will be for the staff that will be implementing these new roles. The ministries will be staffed by highly qualified and experienced individuals, clearly focused on their new role, who will be paid competitive salaries.

Provincial Natural Resource Management Structure

Provincial offices will have different roles and responsibilities in a decentralized system. Planning and implementation groups will be established in the provincial offices to undertake program and project management. The offices will require infrastructure support and staff training to carry out their new functions, including the following key activities:

- The staff of provincial offices will be key partners in the participatory planning process based on microwatersheds. Community representatives (shuras) will play a full part in determining community needs.
- Provincial offices will help to rank the village/district-level proposals through consultations with shuras and their knowledge of the areas. They will coordinate various types of assistance, and guide NGOs and government agencies toward communities most in need of specific types of assistance.

² The terms of reference for these groups are being developed by the Afghanistan Assistance Coordination Authority.

- Provincial offices should also have a role in project finance, at least to the extent of putting together budgets for each of the districts, ensuring that investment is equitable, and monitoring the flow of funds and completion of projects.
- Provincial offices will play a role in contracting engineering services directly, assessing proposals from the private sector and NGOs to undertake work, and ensuring that only technically qualified firms and in-



This generous watering hole, the product of an irrigation project near Kabul, belies the country's persistent drought.

dividuals obtain contracts. District-level consultative groups consisting of representatives of all communities, or a provincial group consisting of district representatives, should participate in project selection and performance monitoring.

- Provincial offices should establish and maintain up-to-date sector databases and management information systems.

As with the national institutional framework, at the provincial level there will need to be the same distinction between the agencies responsible for allocative and user functions.

Table 8. Institutional Development Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Structure and allocation of responsibilities among natural resource sector agencies	A coherent set of agencies with clear mandates in line with government principles for the public sector and private sector delivery of noncore functions	Undertake detailed institutional analysis and provide options for reshaping existing agency structure.	Implement approved recommendations of institutional analysis.	Number and mandates of public agencies
Role, functions, and organization of individual agencies	Government-approved mandates for all key agencies	Undertake detailed institutional analysis and initiate planning and implementation groups in line ministries.	Approve new organizational structures for all sector line agencies.	Terms of employment and incentive schemes
Large surplus staff resources in existing agencies	Reduced staff numbers appropriate for new roles	Implement human resources plan based on new structure.	Fully implement reorganization with trained professional staff.	As above
Functions and structure of provincial offices responsible for the natural resource sector	A coordinated approach to natural resource management	Initiate planning and implementation groups in provincial cities.	Approve new organizational structures for all provincial offices.	As above
Functions and procedures of village/district level shuras	Clear decision-making processes at village/district and provincial levels	Develop decision-making processes around the concept of micro-watershed plans.	Fully integrate decision-making processes based on community-determined priorities.	Community empowerment policies

Source: CNA Mission.

Village/District-Level Structures

Initial collaboration between the Government, NGOs, and communities emphasizes the flow of material, cash, and technology from the outside agencies to the communities. It tends to begin by operating through well-understood local institutions such as the shuras, placing them increasingly in a new, developmental role. These committees are a prerequisite for broad acceptance and adoption of community-based programs, but over time they are likely to evolve increasingly toward more specialized forms of representative and elected development bodies. This process does not replace the traditional shuras, but is a predictable move toward more specialized, focused, and skilled groups charged with economic advancement of an area. One possible outcome of this process is that individual community-based organizations will link together in multivillage committees; district-level bodies may even form a kind of elected council.

The above issues provide the basis for formulating strategic objectives, identifying short and medium-term needs, and deriving policy requirements for a medium-term institutional development framework. The summary framework is outlined in Table 8.

Capacity-Building Needs

Both government institutions concerned with agricultural development and rural and community organizations have been weakened during the long period of conflict. Ministries have suffered damage to buildings, have lost skilled resources and equipment in Kabul and the provinces, and generally lack the capacity to undertake their functions. A number of services are currently being undertaken by NGOs and community-based organizations. For a long period, the institutions were not exposed to change or to international best practices in public sector management. The NDF emphasizes the AIA's commitment to establishing an efficient institutional framework in the sec-

Table 9. Capacity-Building Matrix

Key Issue	Strategic Objective Indicator	Needs Assessment		Policy Agenda
		Short-Term Program (1–2 Years)	Medium-Term Development Framework (2–5 Years)	
Shortage of sector/program managers for the public services	A highly qualified, motivated public service	Provide incentives package for returnees and those with good qualifications and/or experience.	Develop a stable, lean, and motivated civil service.	Civil service employment terms and conditions
Senior manager training program	In-service training courses conducted by accredited institutions	Set up interim joint venture between international institutions and Kabul University.	Set up independent management training center, possibly part of the university.	Postgraduate training and funding
Technical sector training	Well-founded vocational training			Community-based development
Community empowerment skills development	Well-equipped communities capable of full participation	Pilot programs in selected areas, as part of community development projects.	Initiate national program to upgrade community participation in the development process.	Women in development policies
Women in development	Upgraded and enhanced income-generating capacity for women	Set up specific training courses aimed at off-farm employment for women.	Establish training programs through a gender-specific organization.	

Source: CNA Mission.

tor, which will involve small, streamlined government institutions providing the appropriate policy and regulatory environment for community-driven development, based on private sector growth and delivery of services. To develop the capacity to achieve this objective will require extensive human resource development and skill retraining.

At present, only a relatively limited number of highly skilled professionals are available in technical and management areas to meet the rapidly increasing demand, as the number and scale of the development programs and projects are expanded. These existing resources will be fully utilized, and a strategy should be developed to address the anticipated shortfall. Key aspects include establishing capacity to provide training, reestablishing training institutions, and encouraging the return of skilled Afghan professionals. The latter have the potential to provide an excellent resource in modern management and economic and technical approaches. Planned technical assistance that requires foreign inputs should focus on maximizing the employment of Afghan professionals to the extent possible.

In terms of reestablishing training facilities, one possible strategy would be to upgrade these facilities and courses in Kabul University or related institutions, through a form of joint venture with an international university.

University or training institute staff would benefit and training capacity would be enhanced. Incentive structures could be provided to encourage participation by government and private sector staff.

NGOs employ large numbers of technically qualified people with relevant experience working in the rural sector, so mechanisms need to be developed to utilize this expertise and strengthen links with local line government agencies. In this manner, NGO staff could provide on-the-job training, and at the same time facilitate closer working implementation groups in each ministry to create a greater awareness of the need for change. Once the Transitional Government is established, a review of public sector administration is planned. The Civil Service Commission is expected to recommend wide-ranging changes in both the overall composition of sector agencies and their individual structures. This is an area of reform where the international community has high expectations following the statements of the AIA and the contents of the NDF. It will have major implications at the sector level.

Nongovernment agencies are established as vital elements in the delivery of a wide range of services to the village and district levels. The established NGOs have professional staff, mostly Afghan nationals, who have acquired skills working with village communities. The challenge is

to ensure that these skills remain available while the role of the NGOs is adjusted to the existence of functioning line ministries, which will have overall responsibility for monitoring their activities. To date, line ministry personnel at the provincial and district levels have not been provided with clear responsibilities consistent with the new vision of the public sector, and are also hindered by their lack of facilities and budgets. However, it is important that the process of adjustment begin early in the recovery, to establish de facto roles and to ensure that line ministry staff realize that their new role will include working with NGOs that have been delivering key services for many years. In discussions with the mission, NGOs indicated they have already begun to adjust their programs to draw ministry staff more closely into their activities. However, clearer policies and operational guidelines, especially at the provincial and district levels, would be helpful.

The need will be to create a framework within which communities can play their envisaged role and interact with district and provincial agencies using participatory methods. As this occurs, careful consideration will have to be given to the adjustments needed to existing relationships between communities and NGOs that may have been working together for several years, and to the relationship between empowered communities and line ministry staff. At a very early stage there will be a need to formulate a “blueprint” that defines these evolving relationships, at least in broad terms, so that all concerned have a clear understanding of their responsibilities and functions.

The above issues provide the basis for formulating strategic objectives, identifying short and medium-term needs, and deriving policy requirements for a medium-term capacity-building framework. The summary framework is outlined in Table 9.

Needs Assessment: Policy Reforms

The development frameworks prepared for each subsector indicate the need for a number of key policy reviews, and for preparatory work on a policy reform agenda during the coming 2 years. The legislative and regulatory aspects of the policy reform agenda will be undertaken in the medium term. A medium-term time frame is required, since institutional and enforcement capacity is minimal at present and will need to be established before an effective regulatory framework can be developed.

In order for an efficient sector framework to be developed that will enable improved livelihoods and sustainable resource management, the policy requirements in the short to medium term will be significant. To ensure the development of policies, legislation, and regulations that are harmonized across the subsectors, a dedicated natural resources policy unit to undertake this work is required.

Specific subsectors where the policy framework needs to be reviewed are outlined in Table 10, with the identified policy issues and potential legislative and regulatory needs detailed for each subsector.

Implementation Strategies

Toward a Development Framework Consensus

The medium-term development framework outlined in this report is based on identified subsector priorities and short- and medium-term needs. It details key strategies and interventions required to achieve agreed sector objectives, and provides a framework for prioritizing and

coordinating recovery and rehabilitation activities supported by the development partners.

The draft framework is the outcome of a wide-ranging consultation with all key stakeholders and should be treated as the start of a process. It has been revised following initial comments, and the intention is that it be further discussed with the new Transitional Government in late June 2002, and that the Government take the lead on reaching a consensus on the framework. The consensus will involve both internal and external aspects. The internal aspect is critically important, because agreements and support are required from sector ministries on the priorities and framework. The external aspect will involve the Government and AACA taking the lead and reaching consensus with the external funding community on the framework, so that sector interventions will be coordinated and support identified priorities. It is expected that the consensus on the programming aspects of the development framework will be less problematic, as this report and the appendices cover the substantive issues in detail.

The past 20 years of activity in the sector have been dominated by NGOs and a small number of United Nations agencies, especially FAO. Most of the work has been done by a cadre of Afghan nationals, many of them based in Pakistan, with relatively limited resources. With the enormous expansion in support, the resources available exceed absorptive capacity and may well exacerbate social tensions. In these circumstances, a new institutional order is essential. A new equilibrium incorporating the private sector, line ministries, rural communities, NGOs, and external funding agencies must be found.

A significant gap exists between the public sector role as articulated by the AIA in the NDF and the views of many senior members of the line ministries. A short-term strategy to bridge this gap is critically needed, and the Government has initiated the concept of planning and implementation groups in each ministry to create a greater

Table 10. Policy Agenda

Subsector	Policy Issue	Comments
Natural resource management	Forestry laws and tenure rights	New policy and law are needed. Policy and legislation should draw upon experience of countries like Nepal, where joint management of forests by communities is working well.
	Microwatershed planning	A regulation/law is needed prescribing the concept of microwatershed planning and the functions of those involved, especially the communities.
	Rural energy	Social forestry provisions should be incorporated into microwatershed planning.
	Environmental protection	A law on natural resources protection, including protected areas, is needed.
Water resource management	Watershed (river basin) planning	The concept should be legalized and institutionalized within the broader framework of natural resource management.
	Water law	The 1981 law needs amendment; in addition, traditional water rights should be codified.
	Groundwater depletion	Groundwater extraction should be regulated and controlled by water basin authorities.
	Irrigation management transfer	A law is needed to permit transfer of irrigation management and specify conditions.
Community development programs	Community empowerment and organization	A law is needed prescribing the rights, roles, and functions of community organizations within the context of the community-based approach.
Agriculture (crops)	Agricultural trade	Trading regulations covering all major commodities should be promulgated.
	Rural cooperatives	The current law should be reviewed and amended if necessary.
	Plant protection	Regulation is needed to cover public sector role, standards, funding, and operational procedures.
	Seed certification	Regulation is needed covering certification process and enforcement of quality standards.
	Land tenure	Regulation is needed on registration and codification of tenure rights.
	Agricultural finance	Comprehensive legislation is needed on prudential and operational guidelines for commercial banks and nonbank financial institutions.

awareness of the need for change. Once the Transitional Government is established, a review of public sector administration is planned. The Civil Service Commission is expected to recommend wide-ranging changes in both the overall composition of sector agencies and their individual structures. This is an area of reform where the international community has high expectations following the statements of the AIA and the contents of the NDF. It will have major implications at the sector level.

Nongovernment agencies are established as vital elements in the delivery of a wide range of services to the village and district levels. The established NGOs have professional staff, mostly Afghan nationals, who have acquired skills working with village communities. The challenge is to ensure that these skills remain available while the role of the NGOs is adjusted to the existence of functioning line ministries, which will have overall responsibility for monitoring their activities. To date, line minis-

try personnel at the provincial and district levels have not been provided with clear responsibilities consistent with the new vision of the public sector, and are also hindered by their lack of facilities and budgets. However, it is important that the process of adjustment begin early in the recovery, to establish de facto roles and ensure that line ministry staff realize that their new role will include working with NGOs that have been delivering key services for many years. In discussions with the mission, NGOs indicated they have already begun to adjust their programs to draw ministry staff more closely into their activities. However, clearer policies and operational guidelines, especially at the provincial and district levels, would be helpful.

The need will be to create a framework within which communities can play their envisaged role and interact with district and provincial agencies using participatory methods. As this occurs, careful consideration will have to be given to the adjustments needed to existing relationships

Table 10. Policy Agenda (continued)

Subsector	Policy Issue	Comments
Agriculture (crops) (continued)	Technology transfer	Regulation is needed covering procedures for the introduction of new technology by the private sector.
	Fertilizer distribution	Regulation is needed on enforcement of quality controls.
	Production and import of vaccines and semen	Regulation is needed on quality controls and licensing of imports.
Livestock	Animal and public health	A law is needed prescribing the extent of public sector responsibility for the prevention, monitoring, and eradication of transboundary livestock diseases, quarantine, and meat inspection.
	Veterinary services	Regulation of private veterinary services is needed.
	Rangeland grazing	Review of grazing rights and enforcement is needed.
	Genetic resources	Regulation on preservation and collection is needed.
ARTTS	ARTTS network	Policy on the scale of public commitment to ARTTS should be developed.
Off-farm Employment	Privatization of state-owned assets	Develop policy and mechanism for commercialization and privatization of state assets.
	Microfinance	Develop framework and regulations for viable systems.
	Tax status of rural SMEs	Enabling legislation should be reviewed.
Institutional development	Role of the public sector	Develop mandates and charters of sector agencies to undertake core functions in line with government policy.
Women in development	Gender policy	A formal gender policy is needed.

Note: ARTTS = Agricultural research and technology transfer system; SME = small and medium enterprises..

Source: CNA Mission.

between communities and NGOs that may have been working together for several years, and to the relationship between empowered communities and line ministry staff. At a very early stage, a “blueprint” will be needed to define these evolving relationships, at least in broad terms, so that all concerned have a clear understanding of their responsibilities and functions.

Asserting Government Ownership

Afghanistan is receiving unprecedented attention and offers of assistance from the international community. To ensure that resources are used efficiently and effectively, it is essential that efficient aid coordination

and management mechanisms be established. The CNA mission noted that various coordination mechanisms are in place, but is concerned that, at least in the natural resources sector, the coordination to date is not being led by the Afghan authorities, especially the AACA. To ensure that government ownership is asserted and that activities support government priorities, and to minimize the risk of duplication within the major externally funded programs, it is essential to have a process established with regular aid provider meetings chaired by the Government and/or its representative body. It is envisaged that such meetings should be held and decisions taken within an agreed development framework, such as the one proposed in this report.