

The United Republic of Tanzania  
**MINISTRY OF AGRICULTURE AND FOOD SECURITY**

Participatory Agricultural Development and  
Empowerment Project (**PADEP**)

ENVIRONMENTAL AND SOCIAL FRAMEWORK

Environmental Guidelines for PADEP

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## LIST OF ABBREVIATIONS

AG	Attorney General
ASDS	Agricultural Sector Development Strategy
CADS	Community Development Subprojects
CIS	Community Investment Subprojects
CSC	Community Subproject Committee
DC	District Commissioner
DED	District Executive Officer
DFT	District Facilitation Team
DMT	District Management Team
DoE	Division of Environment
DPO	District Project Officer
DPO	District Project Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EP	Environmental Permit
EP	Environmental Profile
ESMP	Environmental Social Management and Plans
EU	European Union
FAO	Food and Agricultural organization
FGIS	Farmer Group Investment Subprojects
GDP	Gross Domestic Product
GoT	Government of Tanzania
IPM	Integrated Pest Management
IPNS	Integrated Plant Nutrition Techniques/Strategies
IRA	Institute of Resource Management
LEAT	Legal Environmental Action Team
MAC	Ministry of Agriculture and Cooperatives
MAFS	Ministry of Agricultural and Food Security
MNRT	Ministry of Natural Resources and Tourism
MRALG	Ministry of Regional Administration and Local Government
MRP	Minjingu Rock Phosphate
MW	Ministry of Water
MWLD	Ministry of Water and Livestock Development
NEMC	National Environmental Management Council
NEP	National Environment Policy
NGOs	Non-Governmental Organizations
NPSC	National Technician Steering Committee
NRT	National Resource Team
NSSF	National Social Security Fund
NTSC	Natural Technician Steering Committee
OD	Operational Directive
PADEP	Participatory Agricultural Development and Empowerment Project
PCU	Project Coordinating Unit
PEP	Provisional Environmental Permit
PLUM	Participatory Land Use planning and Management
PM	Prime Minister
POM	PADEP Operation Manual
PPP	Policy, Plan or Programme
PRA	Participatory Rural Assessment

RC	Regional Commissioner
RDS	Rural Development Strategy
RPF	Resettlement Policy Framework
SC	Subproject Committee
SEA	Strategic Environmental Assessment
SPC	Subproject Cycle
T.S.A.E	Tanzania Society of Agricultural Engineers
TASAF	Tanzania Social Action Fund
TRC	Technical Review Committee
UN	United Nations
UNCHS	United Nations Commission for Housing and human settlements
VEOs	Village Executive Officers
WB	World Bank
WEO	Ward Executive Officer

## EXECUTIVE SUMMARY

This report provides guidelines for assessing possible environmental and social impacts of the subprojects to be funded under the Participatory Agricultural Development and Empowerment Project (PADEP). The guidelines provide a framework for screening community and farmer groups subprojects to determine their environmental and social impacts. The guidelines furthermore show how determination should be made and appropriate mitigating measures incorporated into the subprojects report. The main objective of PADEP is to raise the production of food, incomes, and assets of participating households and groups in a sustainable manner through the implementation of small agricultural development sub-projects planned and managed by groups of community members and farmers. The project has two components: (i) Community Agricultural Development Sub-projects; and (ii) Capacity Building and Institutional Strengthening. The total project cost is estimated to be US\$ 70.6 million equivalent, of which IDA will finance US\$ 56.0 million, beneficiaries will contribute US\$ 12.0 million, and Government (national and district councils) will provide US\$ 2.6 million.

The project will provide grants to communities and farmer groups for investment in agricultural development subprojects, focusing primarily on improving soil fertility and land management, adopting sustainable agricultural technologies and increasing efficiency in inputs and outputs marketing. The soil fertility and land management subprojects will include watershed management for soil and water conservation, conservation tillage and efficient use of inorganic fertilizers. Similarly, under the adoption of sustainable agricultural technologies, subprojects such as integrated plant nutrition techniques/strategies (IPNS), integrated pest management, water harvesting techniques, improvement of traditional irrigation schemes, improved livestock production, introduction of non-traditional crops and rehabilitation of rural infrastructure will be undertaken. Finally, subprojects aiming at increasing efficiency in input and output marketing like supply of farm inputs, rural processing of agricultural and livestock products as well as improvement of products marketing will be funded.

There are several positive socio-economic and environmental impacts that are expected due to implementation of subprojects which are eligible for PADEP funding. Amongst them are: improved skills for farmers; improved soil fertility and better land management; higher degree of environmental awareness; increased productivity; increased land, soil and water conservation; improved soil structure due to the use of manure and organic fertilizers; value added due to processing; and reduced post harvest losses through improvement of rural storage facilities. While beneficial subprojects are likely to represent a substantial portion of overall PADEP funded subprojects, it is recognised that negative environmental and social impacts are also likely to be generated in the course of implementation of the aforementioned subprojects. In this report, the typical environmental and social impacts for each of the likely subprojects have been analysed, and mitigation measures to be deployed have been proposed.

Overall, PADEP which is a community driven development (CDD) project is classified as Category B project. However, since the subprojects to be supported by PADEP are small and because rural people will be the drivers of the subprojects, the process of environmental and social screening has been made simple and informative. The process will consist of the following steps: preparation of environmental profiles; assigning category to a subproject; scoping and public consultations; conducting environmental assessment; review and approval of environmental assessment reports; and disclosure and appeal procedures. These steps have been described in details to enable districts and communities understand the process involved. An environmental and social checklist by subproject types has been included to assist district facilitation teams, communities and farmer groups in the screening process. The environmental screening process, therefore, will include questions pertaining to safeguard policy requirements. The subsequent EA work will be carried out based on the screening results and related recommendations on subproject's category. For example, as a result of the environmental screening process, the resulting EA work may also require a subproject-specific Pest Management Plan based on Integrated Pest Management approaches, or Resettlement Action Plan. If the later is being prepared as a result of the EA work, the RAP will be a separate document and disclosed separately after being cleared by NEMC and the Bank.

The environmental assessment (including social and socio-economic aspects) itself will follow a number of steps, including *impact assessment* - based on screening and scoping exercise; *analysis of alternatives* - to enhance the design of a subproject, including do nothing alternative; *predictions* - to provide information on the potential implication of the proposed subproject; *evaluation of significance* - to determine the predicted or measured change in an environment and social attributes; *identify mitigation measures* - to reduce adverse environmental and social impacts; and *public consultations* - with affected or interested groups and NGOs during screening, scoping and preparation of ToR and EA report.

The review and approval of Category B environmental assessment report, which includes social aspects will be done by the National Environmental Management Council (NEMC), or an agency accredited by NEMC, which is responsible for EIA clearance in Tanzania. The EA report will include a section on the Environmental and Social Management Plan (ESMP). For subprojects which are likely to increase pest problems, a subproject-specific Pest Management Plan (PMP) based on Integrated Pest Management (IPM) will be prepared. In subprojects that are expected to introduce changes in access to land or changes in ownership and use of land and property, a concise Resettlement Action Plan (RAP) will be prepared according to the Resettlement Policy Framework (RPF), which has been disclosed separately.

The institutional arrangements will seek to promote and enhance efficiency, effectiveness, transparency and accountability, reduce red tape and bureaucracy. Instead, they will aim at strengthening community participation, empowerment and ownership of processes leading to the subprojects. The Community Subproject Committee (CSC) and Farmer Groups Subproject Committee (FGSC) will be responsible for overseeing the preparation of EA reports and implementation of agreed mitigation measures for community investments (CIS) and farmer groups investments (FGIS) subprojects, according to the environmental and social plan (ESMP), Resettlement Action Plan (RAP) and project-specific Pest Management Plan (PMP). The District Facilitation Team (DFT) will be responsible for assisting the communities in preparing their specific ToRs and EA reports and developing ESMP and RAP plans. The DFT will also monitor and supervise the implementation of these plans and report progress back to PADEP. At national level, PADEP/Ministry of Agriculture and Food Security (MAFS) Environmental Assessment Unit will be responsible for developing the generic Terms of Reference (ToRs) for EA, capacity building and backstopping of districts and supervision of implementation of ESMP, RAP and project-specific PMP based on IPM.

Resources will be made available for training of MAFS EU staff, DFT and communities to identify and address environmental and social issues of the subprojects. The costs of capacity building for environmental assessment and social aspects shall be part of the component 2 of the project. The estimated costs of undertaking training in environmental and social assessment will be determined according to the needs assessment. The Environmental Assessment and Social aspects training manual prepared by NEMC will provide the basis for developing project-specific modules. Training on Bank safeguards will be added into the modules prepared by PADEP consultant.

Public understanding about the proposed subprojects and their possible environmental and social impacts will be key to their successful implementation. These environmental and social issues shall therefore be fully covered in the participatory assessment leading up to selection of the proposed subprojects, and in subsequent design. The District Facilitation Team (DFT) shall be fully prepared to lead public discussion of environmental and social issues. In order to raise awareness of communities about the potential environmental and social impacts of PADEP funded activities, a number of sensitisation meetings will be held. These will include meeting with village leaders, village assemblies, workshops to launch implementation of mitigation plans and seminars to discuss various environmental and social assessment themes. PADEP will design communication strategy to enhance consultations. This will include the right choices of the agenda of meetings, launching workshops and seminars, media for message delivery; cultural considerations; and publicity or advocacy activities.

PADEP will ensure that the World Bank environmental and social safeguard policies are adhered to. The safeguard policies that are triggered by the proposed PADEP project are: *OP/BP 4.01 Environmental Assessment*, *OP 4.09 Pest Management*, *OP 4.12 Involuntary Resettlement*, and *OP 7.50 Projects on International Waterways*. To the extent that subprojects trigger World Bank safeguard policies, subproject-specific safeguard documentation, such as subproject PMPs, subproject Dam Safety Measures and subproject RAP will be prepared.

## **1. INTRODUCTION AND BACKGROUND**

### **1.1 Introduction**

Environmental Assessment (EA) is a process used to evaluate projects' potential environmental risks and impacts in the area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. Whenever feasible, preventive measures are favoured over mitigatory or compensatory measures.

This report provides guidelines for assessing possible environmental and social impacts of the subprojects. The guidelines indicate how projects should be screened to determine their environmental and social impacts. The guidelines furthermore show how determination should be made and appropriate mitigating measures incorporated into the subprojects report. The guidelines specify institutional responsibilities for undertaking environmental assessment including the social aspects, implementation of preventive, mitigatory or compensatory measures, and monitoring and evaluation. The guidelines also set out the criteria according to which a project would be disqualified for support as a result of likely environmental or social impact.

### **1.2 Project description**

The Government of Tanzania with assistance from the World Bank has prepared the "Participatory Agricultural Development and Empowerment Project (PADEP)". The main objective of the project is to raise the production of food, incomes, and assets of participating households and groups in at least 840 villages in a sustainable manner through the implementation of small agricultural development sub-projects planned and managed by groups of community members and farmers. This objective will be achieved by: (i) empowering self-selected rural communities and farmers' groups to make decisions regarding choice of sustainable and remunerative productive technology; (ii) sharing of costs by the public sector and participants, and hence sharing the risk of adoption of improved technologies, again for self-selected participants; (iii) enhancing demand for products and services provided by the private sector in rural areas by increasing the purchasing power of participating groups and encouraging the growth of savings; (iv) promoting improved land and crop husbandry practices by participants; (v) supporting the ongoing decentralization process at the district level; and (vi) partially financing maintenance and/or construction of roads, bridges, and other small sub-projects to improve access to markets.

The project has two components: (i) Community Agricultural Development Sub-projects; and (ii) Capacity Building and Institutional Strengthening. The total project cost is estimated to be US\$ 70.6 million equivalent, of which IDA will finance US\$ 56.0 million, beneficiaries will contribute US\$ 12.0 million, and Government (national and district councils) will provide US\$ 2.6 million.

#### **Component 1: Community Agricultural Development Sub-projects**

This project component will consist of (a) Community Investment Sub-projects (CIS); and (b) Farmer Group Investment Sub-projects (FGIS). The aim of this component is to empower rural communities and farmer groups to make decisions to improve their economic well-being and to act on them. Village Councils and organized farmers' groups will have the primary responsibility for using participatory approaches in implementing small-scale investment activities supported by the project, including identification, undertaking environmental assessment, planning of subprojects, implementation of technical recommendations, local procurement of inputs, contracting of service providers and monitoring and evaluation. The project will build capacity of local authorities, communities and farmers' groups by conducting tailor-made basic training in participatory methodologies (PRA), sub-project cycle, basic financial and procurement skills, participatory monitoring and evaluation (PM&E), environmental and social assessments, and HIV/AIDS awareness and prevention.

A community is defined as a single village, or a significant portion thereof, with a common investment interest. Thus a community sub-project would be any investment that draws public

interest and brings common benefits. A "Farmer Group" is defined as a small group (10 - 40 households) of the same village in which members have voluntarily agreed, with endorsement of their Village Council, to engage in an investment sub-project that introduces technological innovation. Possible sub-projects include: soil fertility and better land management (watershed management for soil and water conservation, restoration of soil fertility using rock phosphate, conservation and no tillage techniques, and fuel efficiency technologies - biogas); agricultural investments and technologies (integrated plant nutrition strategy (IPNS), integrated pest management (IPM), rainwater harvesting, improvement of traditional schemes, production of non-traditional crops and improved livestock); and input-output marketing (production of organic fertilizers, primary processing of crop and livestock products, contract farming etc.). Criteria for approval of sub-projects will include gender balance, sustainability and empowerment of rural communities.

In order to share risks involved in adopting new improved technologies, efforts of communities and farmers' groups will be complemented with direct transfers of financial resources to them (through local governments) on a matching-grant basis. This will allow them to shop and compare prices among several suppliers of goods and services needed to implement their sub-projects. Mechanisms for community-driven development will be introduced in a phased manner, to allow for improvements in the course of project implementation.

Before implementing the sub-projects, each Village Council or farmer group committee will undergo a participatory planning process to identify key challenges and practical ways to overcome them. The sub-projects thus derived will then be costed and the implied share of the cost to the beneficiaries, including mitigation measures for the likely environmental problems made clear. If the beneficiaries wish to undertake the project, it will be submitted for approval to the District Facilitation Team (DFT) of the District Authority. With each participating community or farmers group, the cycle of sub-projects will unfold over three years. The initial year will be devoted to capacity building, PRA, and identification of the sub-projects. The second and third years will be devoted to implementation.

For CIS, beneficiaries will contribute (labour, materials or in cash) at least 20% of total sub-project costs and the project will contribute the difference up to a maximum of US\$ 35,000 equivalent per village. For FGIS, the project will contribute in cash 50% of the cost of consumable inputs (seeds, fertilizers, and plant protection chemicals) up to US\$ 25 equivalent per household per year for a maximum of 2 years, and up to US\$ 11,000 equivalent per village. The total project contribution for CIS and FGIS subprojects per village will be US\$ 46,000 equivalent. This amount includes all costs related to preventive or mitigation measures of environmental and social problems due to implementation of the chosen subprojects. The project will also contribute up to 80% of other costs, up to a maximum of US\$ 750 equivalent per FGIS. Other costs might cover, for example, advisory services for effective marketing, repair of access roads, small infrastructure for grading or sorting, and other activities. Farmers participating in the group investment sub-projects will be required to have a savings account and to deposit their 50% share into the account prior to receiving the matching grant. At the end of the first year, they will be required to deposit a portion of the value of the initial grant, plus another 50% down payment on the second year's cost of consumable inputs. In this way, farmers will build up savings adequate to sustain use of the technology at the completion of the sub-project cycle. They will also build up a relationship with a local bank and with input dealers.

## **Component 2: Capacity Building and Institutional Strengthening**

This component enhances the institutional and human capacity to ensure that the sub-projects chosen are adequately considered in key dimensions, including environmental, economic, and social, and implemented with acceptable quality.

At the community/village level the project will finance technical assistance and training to village/farmer groups committee members with the aim to support preparation, implementation, monitoring and evaluation of sub-projects. Specific training needs will be identified during the PRA process, and will include environmental and social assessment, and managerial and technical issues relevant to the success of the subprojects. Basic business skills, such as bookkeeping and management of business relations with providers of services and inputs will be included. Grants of up to US\$ 5,000 equivalent would be provided for capacity building to communities after they complete

the PRA exercise. Resources will be used for need-based and "just in time" technical assistance and training, particularly at the local levels, and to hire in advisory services as needed.

In all participating district councils the project will support training to upgrade capacities in participatory planning methodologies, project implementation, monitoring and evaluation, financial and procurement management skills, environmental and social assessments, and public-private partnership in service delivery. Staff of the district councils will also undergo training to enable them guide communities and farmers' groups as needed. Technical assistance will be provided in the preparation of District Agricultural Development Plans (DADPs), which are integral part of the overall District Development Plans (DDPs). Under this component conditional block grants to the districts will be in cash in the amount of US\$ 175,000 equivalent for three years. The District Councils will contribute 10% (US\$ 17,500 equivalent). Planning for the use of these funds will be the responsibility of the District Councils through the DFTs.

Support of the project at national level will include funding for capacity building in key entities and for additional analytical work to underpin ongoing reforms. The capacities of national institutions responsible for policy analysis and regulatory functions, such as planning, monitoring and evaluation, seed agency and plant protection units will be strengthened through training, technical assistance and provision of required equipment. The project will also finance various policy studies aiming at reviewing, harmonizing and rationalizing agricultural taxes, levies and fees on crop and livestock sub-sectors. Other studies to be supported will cover surveys of sectoral performance and beneficiary assessments. The project will support further development and updating of the agricultural sector monitoring and evaluation system, and improvement of its management information system (MIS). In addition, the project will support the implementation of the Seed Act (2000) and the Plant Breeders Right Act (2002), which provide the regulatory framework for seed industry, including the establishment of Seed Executive Agency. The project will carry out the rehabilitation of four strategically located soil testing laboratories, provide the required laboratory chemicals and equipment, including soil-testing kits for on-site soil diagnosis. Finally, the project will finance the national coordination and facilitation unit operating costs. Overall, the national level capacity building and institutional strengthening support budget amounts to US\$ 8.9 million equivalent.

The framework for environmental and social management under the PADEP project is intended to safeguard the health and resources of rural people in a way that is simple enough to be implemented within the context of a community driven developmental initiative. The administrative procedures are therefore simple but sufficient to accomplish the desired objective.

## **2. SUBPROJECT TYPOLOGIES AND THEIR POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

### **2.1 Subproject Typologies**

In the PADEP Guidelines for Preparation and Implementation of Community Agricultural Development Subprojects it is indicated that community and farmer group agricultural investments would focus on the following thematic areas:

- Soil fertility and better land management
- Agricultural technologies
- Inputs and outputs marketing

The types of likely projects eligible for financing under this categorization, with some examples, are presented in Table 2.1. This list is not exhaustive.

**Table 2.1: Types of possible projects eligible for financing by PADEP**

Type	Possible subprojects	Examples
Soil fertility and better land management	Watershed management for soil and water conservation	Construction of contours, protection of gullies, construction of terraces, agro-forestry, establishing and enforcing by-laws, bulking of seed/plant materials required for agro-forestry, woodlot establishment, promotion of gender awareness in soil and water conservation
	Conservation tillage	Improved fallows, use of cover crops, use of farm implements for soil and water conservation, practices to control soil erosion, use of green manure
	Efficient use of inorganic fertilizers	Use of rock phosphate, use of high analysis fertilizers
	Fuel efficient technology	Biogas technology that utilizes manure and reduces use of fuel to safeguard forests
Agricultural technologies	Increase productivity	Use of organic manure in combination with mineral fertilizers, production and use of bio-fertilizers
	Integrated plant nutrition techniques/strategies (IPNS)	Use of organic manure in combination with mineral fertilizers, production and use of bio-fertilizers
	Integrated pest management (IPM)	Observation, preventive and intervention methods in crops, particularly vegetable and fruit production Safe use of pesticides in combinations with improved management related to IPM approaches
	Increased use of labour saving technologies	Use of farm implements, such as ox-drawn ploughs, ridgers, rippers, weeders, power tillers and use of herbicides, etc
	Use of rainwater harvesting techniques	Rainwater harvesting for irrigation, domestic and livestock use, such as chaco dams, water bunds in rice irrigation, etc
	Improvement of traditional irrigation schemes	Rehabilitation of weirs, irrigation canals and construction of division boxes
	Improvement in livestock production	Dairy animals, pig production, poultry, improvement of indigenous livestock, construction and rehabilitation of cattle dips, etc
	Production of non-traditional crops	Production of mushrooms, vanilla, fruits, and other diversification initiatives in agriculture
	Rehabilitation of infrastructure	Rehabilitation of soil testing laboratories, rural roads, bridges, storage facilities and other rural infrastructure

Input/output marketing	Supply of farm inputs	Input shops at farm level, etc
	Initial processing of agricultural and livestock products	Oil processing, cassava processing, rice milling, processing of cashew nuts, small fruits and vegetable processing units, processing of dairy products, etc
	Improvement of crop produce marketing	Establishment of village marketing centres, construction of market yards, grain storage, group-led grain marketing, etc

Source: PADEP – Guidelines for Preparation and Implementation of Community Agricultural Development Projects (draft)

Many subprojects funded by PADEP can have positive impacts on the surrounding environment if they are well designed and implemented. Watershed management, for example, can enhance soil and water conservation; Integrated Pest Management (IPM) can prevent increased use of pesticides through use of other measures to keep pest populations low. For example, breeding and cultural practices are used to make the environment less hospitable to pests and to keep the crop healthy and resistant or tolerant to attack. Other subprojects are also expected to produce positive socio-economic and environmental impacts, which include, based on the type of projects eligible for PADEP funding:

- Improved skills for farmers
- Improved soil fertility and better land management in general
- Higher degree of environmental awareness
- Increased production per unit area, with reduced pressure to expand area
- Expected increased income and higher living standards, including better housing, better nutrition
- Strengthened farmers’ groups and organizations
- Improved gender awareness
- Improved Land, soil and water conservation practices
- Increase in soil fertility through use of livestock manure and other organic matter
- Value added produce through processing and better marketing strategies
- Forest conservation through use of fuel efficient technologies

## 2.2 Benefits of PADEP Subprojects

Environmentally beneficial projects are likely to represent a substantial portion of PADEP subprojects. The benefits of this type of subprojects are long-term rather than short-term, and will not be limited to the members of village community. Below are a few examples of environmentally beneficial subprojects that will be financed by PADEP:

- *Watershed management for soil and water conservation:* The primary advantage of watershed based management for soil and water conservation is that it provides the link between the resources and the system that generates and modifies them. Watershed forms a nested hierarchical system of units, which link the smallest hill slope to the local, district and regional watershed. The linkages of the watershed to runoff generation also provide for the necessary integration of water quantity management with planning for water quality and erosion and sedimentation control.
- *Conservation tillage:* This offers numerous benefits. Added crop residue and minimal tillage both provide the effect of drastically reducing runoff of soil and agrochemicals. The result is to minimize impact on the water ecosystem. Conservation tillage main benefits are: decreased erosion, improved water quality, better long term production, higher soil moisture, improved water infiltration, decreased soil compaction, improved soil tilt, more biological activity, reduced release of carbon gases and reduced air pollution. Reducing and eliminating tillage helps increase soil fertility. Residue left on the soil not only serves in the capacity of soil conservation it also adds organic matter to the soil as it decomposes. Soil fertility, tilt, and structure are improved by conservation tillage practices.

- Fuel efficient technology:* Biogas is one of the fuel-efficient technologies, which will be promoted by PADEP as one of the subprojects. The main positive impacts of biogas technology include: (i) conservation of the forest resource as a result of decreased use of fuel wood which will also result in carbon sequestration by reduction in the cutting of the forest, (ii) renewable source of energy, (iii) reduces workload on the part of women to collect fuel wood, (iv) cheaper when compared to kerosene, (iv) promotes a nutrient cycling strategy. Considering the biogas technology as gas generation and slurry production for soil conditioning purposes, it becomes apparent that it produces positive impacts at farm and public levels as shown in Table 2.2. below.

**Table 2.2: Positive impacts from biogas at farmer and public levels**

Farmers' interests	Public interests
Quality improvement of organic fertilizer/reduction of mineral fertilizer	Reduction of pollutants Reduction of odour
Risk of increased NH <sub>4</sub>	Positive impact on resource protection
Reduction of the use of pesticides	Positive impact on climate protection
Stabilization & improvement of soil fertility/reduction of desertification	Compared to other fuels positive emission behaviour of biogas

- Integrated plant nutrition techniques/strategies (IPNS):* The strategy optimises all aspects of nutrient cycling – supply, uptake, and loss to the environment – to improve food production. At farm level, IPNS aims to optimise the productivity of nutrient flows that pass through the farming system during a crop rotation. This means application of external plant nutrient sources and amendments, efficient processing, and recycling of crop residues and on-farm organic wastes that limit plant nutrient losses. In the process, IPNS empower farmers by increasing their technical know-how and decision-making capacity, and promote changes in land use, crop rotation, and interactions among forestry, livestock and cropping systems in support of agricultural intensification. At village or farming community level, IPNS take into account plant nutrient sources outside cropped areas, including those in irrigation water and flood sediments, livestock manure, and forest litter and organic material that is physically transferred from forest and pastures. IPNS promotes rationalization in the transfer of organic matter and plant nutrients from non-cropped to cropped areas, and the mobilization of unused nutrient resources or the saving of valuable nutrient sources diverted as domestic fuel, raw materials for building or for industrial purposes.
- Integrated pest management (IPM):* This has broad application since it integrates management of all pests, it is a holistic approach, ecologically based and can be applied to any ecosystem. IPM integrates multiple pest management tactics (chemical, biological, cultural, mechanical) and management of multiple pests (insects, weeds, disease pathogens, nematodes, vertebrates, etc). IPM incorporates environmental and social concerns. The main goals of IPM are: sustain resource (agricultural and natural over the long term), more rational use of pesticides, reduce environmental contamination and costs, utilize natural biological controls, minimize pesticides resistance problems, food safety (reduce residues of pesticides on food products) and worker safety (rely on pest management tactics that are safe for workers).
- Use of rain harvesting techniques:* High intensity rains commonly cause devastating effects on the environment particularly in areas of low or no vegetation. Runoff arising from rainwater often causes erosion with subsequent land degradation and sometimes sets the desertification process in motion. Preventing and mitigating soil erosion may achieve environmental conservation. One method to achieve this is through runoff control by rainwater harvesting methods. Surface catchment is the most effective among the rainwater harvesting methods that could mitigate the possible environmental hazards caused by rain.
- Rehabilitation of infrastructure:* High marketing costs are partly related to the poor rural infrastructure, including poor condition of roads, lack of bridges on some rivers and streams and poor storage facilities. By supporting the rehabilitation of these rural infrastructure, PADEP will be able to reduce transaction costs, through linking rural producer to the urban markets, and reducing post harvest losses. Reduced transportation costs due to accessibility of

rural areas will increase profit margins of various crops produced by farmers, hence contribute to reduction of rural poverty. Loss of soil fertility has been identified by the Soil Fertility Initiative document as the biggest threat to smallholder agricultural development. By supporting rehabilitation of strategically located soil testing laboratories, technical services would be readily available to districts and communities, on demand-driven basis.

The PADEP may also generate environmental benefits through a variety of other mechanisms, including:

- Improved awareness and concern for environmental issues on the part of beneficiaries, local communities and districts
- Training of environmental specialists, thus increasing the availability of staff conversant with environmental issues within PADEP and districts
- Generation of environmental assessment guidelines that are then used by other institutions or line ministries and districts, or are adopted by the National Environmental Management Council (NEMC) for enhancing environmental procedures.
- Improvement of tradition irrigation schemes
- Improved livestock production
- Introduction of non-traditional crops

### **2.3 Environmental impacts of PADEP subprojects and proposed mitigation measures**

Subprojects may have impacts that change environmental characteristics of the project area, and these impacts may be ambiguous or negative in their effects. The environmental screening process, therefore, will include questions pertaining to safeguard policy requirements. The subsequent EA work will be carried out based on the screening results and related recommendations on subproject's category. For example, as a result of the environmental screening process, the resulting EA work may also require a subproject-specific Pest Management Plan based on Integrated Pest Management approaches.

#### **2.3.1 Watershed management of soil and water conservation**

The project will support watershed management for soil and water conservation subprojects, including construction of contours and terraces, protection of gullies, bulking of seed/planting materials required for agro-forest, establishment of woodlot, enforcement of catchment management by-laws and creation of awareness in soil and water resources conservation. Watershed management subprojects are undertaken for purposes consistent with sound environmental management, but they may also generate environmental impacts that warrant mitigation. These include changes in land, water, morphological and physical characteristics, as well as quality and quantity of these resources; changes in natural habitats, loss of biodiversity or changes in biodiversity characteristics of both fauna and flora, infringement of property rights and possible intrusion on social/cultural resources, such as archaeological sites and religious shrines.

#### **2.3.2 Conservation tillage**

Examples of conservation tillage subprojects include improved fallows, use of cover crops, use of farm implements for soil and water conservation, practices to control soil erosion and use of green manure. Impacts during conservation tillage are usually associated with management aspects. While conservation tillage offers many advantages, it does require a change in agricultural practice. If certain elements are not managed correctly, impact can occur. Amongst these are: soil and ground water contaminations, river pollution, increased herbicide use, weed infested fields, increased use of fertilizers, increased diseases, soil compaction, etc. Table 2.4 summarizes possible impacts and their mitigation measures. The most important mitigation measures related to conservation tillage are developing subproject-specific PMP based on IPM approaches, integrated weed management, proper fertilization management, residue management, etc.

**Table 2.3: Typical Impacts and Mitigation Measures of Watershed Management for Soil and Water Conservation**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Changes in Land, Water, morphological and physical characteristic as well as quality and quantity of resources</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness raising</li> <li>▪ Participatory land use planning and management (PLUM)</li> <li>▪ By-laws and their effective enforcement</li> <li>▪ Joint management programmes</li> </ul>
<b><i>Biological Environment</i></b> Natural Habitats Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Changes in natural habitats</li> <li>▪ Loss of biodiversity</li> <li>▪ Changes in biodiversity characteristics of both fauna/flora and ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Careful site selection</li> <li>▪ Use of indigenous plant species</li> <li>▪ Biodiversity Assessment and monitoring</li> <li>▪ Developing subproject-specific EA and related Environmental Management Plan (EMP)</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Infringement on property rights</li> <li>▪ Possible intrusion on physical/cultural resources e.g. archaeological and religions shrines</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness raising</li> <li>▪ Provision of alternative income sources</li> <li>▪ Enforcement of by-laws</li> <li>▪ Compensation as per provisions of the resettlement policy framework</li> </ul>

**Table 2.4: Typical impacts and mitigation measures of conservation tillage**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Contamination of ground water table and river pollution</li> </ul>	<ul style="list-style-type: none"> <li>▪ Soil conservation measures</li> <li>▪ Fertilization management</li> <li>▪ Proper residue management</li> <li>▪ Enforcement of air quality standards</li> <li>▪ Awareness raising</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Disturbance on ecological functioning of farming systems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Integrated weed management</li> <li>▪ Promote Integrated pest management approaches</li> <li>▪ Proper residue management</li> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Subproject-specific PMP based on IPM approaches</li> </ul>
<b><i>“Social Environment”</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Loss of historical/cultural sites</li> <li>▪ Reluctance to reduce ploughing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper site selection</li> <li>▪ Propose disease management</li> <li>▪ Awareness raising</li> </ul>

### 2.3.3. Efficient use of inorganic fertilizers

There are three examples of possible subprojects on efficient use of fertilizers among the PADEP's possible subproject types. These are use of rock phosphate, use of high analysis fertilizers and use of organic manure. Table 2.5 summarizes the most frequently encountered environmental impact, particularly for rock phosphate, related to mining and processing.

In phosphorus-deficient soils, Minjingu rock phosphate (MRP) exploited from Manyara Region near Lake Manyara is as effective and profitable as imported triple super phosphate (TSP). Farmers are applying 125-250 kg P/Ha as a capital investment, and expect a five-year residual effect. A particular important environmental consideration in the case of Minjingu rock phosphate is dust, presence of heavy metals and radionuclides. MRP like other Rock Phosphate (RP) mines contains heavy metals. Of the metals contained in MRP, Cadmium (Cd) represents the greatest concern because of the potential human risks via transfers within the food chain. The Cd level is considered low (9 mg/kg) and within the same range as those reported from other RP mines. Despite this, there is a need to monitor the Cd levels in soils as phosphate fertilizers are continuously being applied to soils. With regard to radioactive materials, the levels of radionuclides are not much different from the levels found in other RP mines.

**Table 2.5: Typical impacts and mitigation measures of efficient use of inorganic fertilizers**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Stalinization of soils</li> <li>▪ Contamination of groundwater</li> <li>▪ Pollution of surface water</li> <li>▪ Heavy metals</li> <li>▪ Dust</li> <li>▪ Air pollution</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct training on safe use and handling</li> <li>▪ Use of high grade fertilizers</li> <li>▪ Salinity monitoring</li> <li>▪ Use of masks to prevent inhaling of dust</li> <li>▪ Stored and transported in closed containers</li> <li>▪ Bringing the moisture content to 7-8 percent</li> <li>▪ Enforce air quality standards</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Promoting weed growth</li> <li>▪ Loss of natural plant and wildlife habitats and species</li> <li>▪ Increased pest problems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct training on safe use of fertilizers</li> <li>▪ Weed control, e.g. through lining of irrigation canals</li> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Promoting Integrated Pest Management (IPM) approaches</li> <li>▪ Developing subproject-specific Pest Management Plans (PMP)</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Loss of natural recreational, historical and archaeological sites</li> <li>▪ Health risks</li> <li>▪ Increased use of labour-saving technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Land reclamation</li> <li>▪ Disease surveillance</li> <li>▪ Provision of protective gear</li> <li>▪ Proper screening of herbicides</li> <li>▪ Training on IPM approaches</li> </ul>

### 2.3.4 Fuel efficient technology

Fuel efficient (e.g. biogas technology subprojects) do not usually result in major impacts. Table 2.6 summarizes the most frequently encountered environmental impacts of these types of subprojects. PADEP fuel-efficient technology subprojects will finance construction of biogas plants. Biogas subprojects are likely to increase ammonia content of digested manure. Combined with a slightly increased pH will a higher risk of ammonia losses in treated slurry compared to untreated manure. Therefore, digested slurry must be handled more carefully and farmers have to follow manure-handling instructions given by the extension service officers.

**Table 2.6: Typical impacts and mitigation measures of fuel-efficient technology**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Ground water pollution</li> <li>▪ Ammonia losses</li> </ul>	<ul style="list-style-type: none"> <li>▪ Control surpluses of slurry</li> <li>▪ Cover the soil</li> </ul>
<b><i>Biological Environment</i></b> Natural Habitats Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Effect on vegetables and fodder</li> </ul>	<ul style="list-style-type: none"> <li>▪ Locate far from residential settings</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Odour complaints</li> <li>▪ Lost income opportunity, e.g. for charcoal traders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Different design concept</li> <li>▪ Build far from residential houses</li> <li>▪ Provision of alternative income sources</li> </ul>

### 2.3.5 Increasing productivity

Use of organic manure in combination with mineral fertilizers, production and use of bio-fertilizers are subproject activities supported by PADEP. Table 2.7 shows some typical impacts of these subprojects. All studies conducted in the country have indicated that the application of organic manures in combination with mineral fertilizer gives higher crop yield increases than when both are applied separately. In addition, studies have concluded that Nitrogen and phosphorous applied in combination have resulted in significantly high yield. The potential impacts from these subprojects are salinization of soil, contamination of surface and ground water, loss of plant species.

### 2.3.6 Integrated plant nutrition techniques/strategies (IPNS)

PADEP will support IPNS subprojects with the aim to address nutrient management, including improving organic matter in the soil, increasing plant available nitrogen, and combining organic and inorganic fertilizers. These interventions have the potential to increase and sustain production levels, increase the economic potential of a production system, and counteract and minimize environmental pollution. However, the interactions between nutrient applications and other agricultural activities and the likelihood of unforeseen problems such as environmental contamination of soil, surface and ground water should be a great concern and a monitoring system with key indicators should be developed. Table 2.8 summarizes typical impacts and mitigation measures of IPNS.

**Table 2.7: Typical impacts and mitigation measures of increasing productivity through use of organic manure in combination with mineral fertilizers and bio-fertilizers**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<i>Physical Environment</i> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Salinization of soils</li> <li>▪ Contamination/pollution of surface and groundwater</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct training on safe use</li> <li>▪ Use of high grade fertilizers</li> <li>▪ Salinity monitoring</li> <li>▪ Integrated soil fertility management</li> <li>▪ Public awareness raising</li> </ul>
<i>Biological Environment</i> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of plant species</li> <li>▪ Promoting weed growth</li> <li>▪ Increased pest problems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Weed control measures, e.g. lining of irrigation canals</li> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Promoting IPM approaches</li> <li>▪ Developing PMP which are subproject-specific</li> </ul>
<i>Social Environment</i> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Change of scenery</li> <li>▪ Health risks</li> <li>▪ Increased use of labour-saving technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness and training on safe use</li> <li>▪ Promote high value crops</li> <li>▪ Provision of protective gear</li> <li>▪ Proper screening of herbicides</li> <li>▪ Training in IPM approaches</li> </ul>

**Table 2.8: Typical impacts and mitigation measures of integrated plant nutrition techniques / strategies (IPNS)**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<i>Physical Environment</i> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Salinization of soils</li> <li>▪ Contamination/pollution of surface &amp; groundwater</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct training on safe use</li> <li>▪ Use of high grade fertilizers</li> <li>▪ Salinity monitoring</li> <li>▪ Integrated soil fertility Management</li> </ul>
<i>Biological Environment</i> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of some plant species</li> </ul>	<ul style="list-style-type: none"> <li>▪ Scientific studies on plant nutrition</li> <li>▪ Promoting weed growth</li> </ul>
<i>Social Environment</i> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Health risks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness and training on safe use</li> <li>▪ Promote high value crops</li> <li>▪ Provision of protective gear</li> </ul>

### 2.3.7 Integrated pest management (IPM)

PADEP will finance subprojects aimed at promoting safe use of pesticides in combinations with observation, preventive and intervention methods in crops, particularly vegetable and fruit production. According to FAO definition, an IPM is a pest management that in the context of the associated environment and the population dynamics of pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains pest population at levels below those causing economically unacceptable damage or loss. Therefore, an IPM involves a combination of various measures to ensure effective pest management without disturbing the ecosystem, reduce environmental pollution and eliminate direct and indirect health hazards to human beings. Due to changes in project

design, PADEP has now become demand-driven, hence subsequent to the screening procedures, each subproject will have its own case-specific Pest Management Plan based on IPM approaches. The PMP prepared in 2001 will be re-formulated and used as a guide/reference document in the preparation of subproject-specific PMPs.

Table 2.9 summarizes typical impacts and mitigation measures of IPM. Most of IPM methods have little or no impacts at all, especially use of botanical pesticides like neem trees, biological control, such as concinellid beetles, intercropping, resistance varieties, etc. Typical negative impacts include soil contamination, water resources pollution, loss of animal and plant species.

**Table 2.9: Typical impacts and mitigation measures of Integrated Pest Management (IPM)**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<p><i>Physical Environment</i> Soils Water Resources Air Quality</p>	<ul style="list-style-type: none"> <li>▪ Soil contamination</li> <li>▪ Water resources pollution</li> </ul>	<ul style="list-style-type: none"> <li>▪ Adherence to provisions of the subproject-specific pest management plan</li> <li>▪ Awareness and training</li> <li>▪ Treatment/purification of water for domestic use</li> <li>▪ Provision of safe watering points/structures for livestock</li> <li>▪ Adopt leaching techniques</li> </ul>
<p><i>Biological Environment</i> Fauna and Flora</p>	<ul style="list-style-type: none"> <li>▪ Loss of animal and plant species</li> <li>▪ Aggravating pest problems due to increased pesticides resistance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct Biodiversity assessment and monitoring</li> <li>▪ Effective screening of pesticides entering the market</li> <li>▪ Promoting and adopting IPM approaches to pest control</li> <li>▪ Developing PMPs which are subproject-specific</li> <li>▪ Enhanced research and extension support services</li> </ul>
<p><i>Social Environment</i> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities</p>	<ul style="list-style-type: none"> <li>▪ Health risks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness and training on safe handling of pesticides</li> <li>▪ Pesticide-related hazards adequately addressed</li> <li>▪ Enforcement of by-laws</li> <li>▪ Clean-up and disposal to appropriate land fills</li> </ul>

**2.3.8 Increased use of labour saving technologies**

PADEP will support labour saving technologies, such as use of farm implements, such as ox-drawn ploughs, ridgers, rippers, weeders, power tillers, etc. The objective of supporting these subprojects is to increase the marginal labour productivity in the existing smallholder farms. The project will not support use of labour saving technologies to open up new areas. Table 2.10 summarizes typical impacts and mitigation measures of increased use of labour saving technologies. The potential impacts of the inappropriate use of labour saving technologies are loss of soil fertility, loss of water sources and air and noise pollution. There is also loss of plant and animal species due to the use of non-selective herbicides, accidents to human beings and potential land use conflicts.

**2.3.9 Use of rainwater harvesting techniques**

Rainwater harvesting for irrigation, domestic and livestock use, such as chaco dams, water bunds in rice irrigation, etc are interventions supported by PADEP. Table 2.11 summarizes typical impacts and mitigation measures of increased use of rainwater harvesting techniques. Potential environmental impacts of rainwater harvesting techniques are: land degradation at livestock watering points,

contamination of stored water, water and land use conflicts, loss of natural habitats, loss of fauna and flora, etc.

**Table 2.10: Possible impacts and mitigation measures of increased use of labour-saving technologies**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Loss of soil fertility</li> <li>▪ Soil compaction, deterioration of structure</li> <li>▪ Soil and water contamination due to herbicides use</li> </ul>	<ul style="list-style-type: none"> <li>▪ Employ farm management principles</li> <li>▪ Use of appropriate technology</li> <li>▪ Awareness raising and training in herbicides use and handling methods</li> <li>▪ Effective screening of herbicides used by farmers</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of plants species due to use of non-selective weed killers/herbicides</li> </ul>	<ul style="list-style-type: none"> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Participatory land - use planning from the grass root levels</li> <li>▪ Training on proper use and handling of herbicides</li> <li>▪ Use of selective herbicides</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Gender inappropriateness, e.g. increasing of women's burden</li> <li>▪ Land use conflicts</li> <li>▪ Accidents due to farm machinery operations</li> <li>▪ Accidents due to unsafe handling of herbicides</li> </ul>	<ul style="list-style-type: none"> <li>▪ Participatory land-use planning at all levels</li> <li>▪ Recognition of indigenous knowledge</li> <li>▪ Adherence to safety regulations on herbicides handling</li> <li>▪ Enforcement of by-laws governing screening of herbicides</li> <li>▪ Gender awareness in selection of technology</li> </ul>

### 2.3.10 Improvement of traditional irrigation schemes

PADEP will finance the rehabilitation of weirs, irrigation canals, drainage systems and construction of diversion boxes. PADEP will not finance the construction of new irrigation schemes. Irrigation and drainage systems will be designed to manage water for enhancing agriculture production. There is a wide range of irrigation schemes, which can accommodate many variations in the source, and availability of water, types of climate, and form of agriculture (e.g. rivers and streams, underground water, rainwater, reservoirs etc.). However, since most of the traditional irrigation schemes in Tanzania draw water from rivers and streams, PADEP support primarily the improvement of open irrigation and drainage canals. Rehabilitation of weirs will involve appropriately designed system to provide effective and efficient supply of water. Rehabilitation of earth canals will include excavation and earthworks. If subprojects will involve rehabilitation of chacos or small dams, subproject-specific dam safety analysis in addition to subproject-specific EA will be carried out consistent with the Bank's safeguard policy.

Table 2.12 summarizes the most frequently encountered environmental impacts of small-scale irrigation and minor civil works subprojects. Irrigation subprojects often intensify agricultural production in the irrigation zone and environmental problems may result from increasing use and concentrations of agrochemicals. Such agricultural intensification can also cause accelerated nutrient loading of receiving waters, resulting in algae blooms, proliferation of aquatic weeds, and

deoxygenation. Other impacts from irrigation subprojects include water logging and salinization of soils, degradation of downstream surface water systems, and biotic and chemical changes to aquatic ecosystems. Abstractions of water from dams or reservoirs have the potential to cause significant hydrological disturbances. Diverting water from river systems, especially during seasonal low flows, can cause changes to riverine ecology, fisheries, and aquatic vegetation. Irrigation schemes may also cause an increase in waterborne diseases, because disease vectors proliferate in irrigation canals under some circumstances. If canals are not properly maintained, animal and human waste may be deposited into irrigation systems and spread communicable diseases. The incidence of schistosomiasis, malaria, and onchocerciasis has increased in some irrigation schemes in Tanzania due to poor drainage systems.

Social problems may arise because of multiple demands for limited water resources. Water right issues cause disruption of historical land use practices. Conflicting demands for water and inequities in distribution can also cause problems.

**Table 2.11: Typical impacts and mitigation measures of increased use of rainwater harvesting techniques**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Siltation due to erosion</li> <li>▪ Land degradation at livestock watering points</li> <li>▪ Contamination of stored water</li> <li>▪ Water and land use conflicts</li> <li>▪ Potential floods during heavy rains</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness &amp; training on safe handling and storage of water</li> <li>▪ Disinfection of water sources</li> <li>▪ By-laws and their effective enforcement</li> <li>▪ Adherence to water rights by irrigators associations</li> <li>▪ Enforcement of water rights by Basin Water Officers</li> <li>▪ Provision of safe watering points/structures for livestock</li> <li>▪ Participatory planning</li> <li>▪ Erosion control measures at the watering points.</li> <li>▪ Prepare and have in place contingency/emergency plans</li> <li>▪ Dam safety analysis in addition to EA of subproject</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of natural habitats</li> <li>▪ Loss of Fauna and Flora species</li> <li>▪ Increased pest problems</li> <li>▪ Introduction of alien weeds species</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness &amp; training on safe handling and storage</li> <li>▪ Careful site selection</li> <li>▪ Planting trees and other vegetation around chaco dams</li> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Developing subproject-specific EA and related Environmental Management Plan (EMP)</li> <li>▪ Develop weed monitoring plan and control measures</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Change of scenery</li> <li>▪ Health hazards e.g. malaria, schistosomiasis and other related diseases.</li> <li>▪ Child accidents</li> <li>▪ Infringement on property and access rights</li> </ul>	<ul style="list-style-type: none"> <li>▪ Participatory planning</li> <li>▪ Alternative income sources</li> <li>▪ Awareness raising to avoid accidents and provide basic knowledge on methods of preparing clean water</li> <li>▪ Use of treated mosquito nets</li> <li>▪ Improved drainage systems</li> <li>▪ Compensation as per provisions of the RPF</li> </ul>

**Table 2.12: Typical impacts and mitigation measures of improvement of traditional irrigation schemes**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Introducing salinity</li> <li>▪ Soil acidification</li> <li>▪ Land and water use conflicts</li> <li>▪ Secondary water uses (domestic, livestock)</li> <li>▪ Water logging</li> <li>▪ Poor water quality for downstream users caused by irrigation return flow quality</li> <li>▪ Flooding and siltation of irrigation canals</li> <li>▪ Reduction in irrigation water quality</li> <li>▪ Contamination of water sources by agro-chemicals</li> <li>▪ Dust pollution</li> <li>▪ Noise pollution</li> <li>▪ Construction wastes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide drainage including disposal of water</li> <li>▪ Analyse soils and monitor changes so that potential problems can be managed</li> <li>▪ Participatory land and water use planning and management, e.g. WUAs and dialogues.</li> <li>▪ Provide water for leaching as a specific operation</li> <li>▪ Provide water for domestic and livestock water supply</li> <li>▪ Include access crossings at convenient locations for people and livestock</li> <li>▪ Provide for drainage of tail waters</li> <li>▪ Salinity monitoring</li> <li>▪ Provision of flood control and de-silting structures in subproject designs</li> <li>▪ Provide plans for disposal of construction wastes</li> <li>▪ Provide protective gear against dust and noise</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of fauna and flora species</li> <li>▪ Loss of habitat</li> <li>▪ Proliferation of aquatic weeds</li> <li>▪ Increased pest problems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Effective screening of agro-chemicals</li> <li>▪ Training in proper use and handling of agro-chemicals</li> <li>▪ Adopting IPM approaches to pest management</li> <li>▪ Preparing subprojects-specific PMP based on IPM approach</li> <li>▪ Biodiversity assessment and monitoring and evaluation of fauna and flora species</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Increase incidence of water-borne diseases</li> <li>▪ Infringement on property and access rights</li> <li>▪ Increased inequity</li> <li>▪ Weaker community infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▪ Educate about cause of diseases</li> <li>▪ Improve health facility</li> <li>▪ Disease surveillance</li> <li>▪ Awareness and training</li> <li>▪ By-laws and enforcement</li> <li>▪ Allow sufficient time and money for extensive public participation that all affected groups are considered and that district and village institutions are involved to sustain irrigated agriculture, particularly in respect of land and water rights</li> <li>▪ Include economic activity like household vegetables, fodder or growing trees for firewood</li> <li>▪ Compensation as per provisions of the RPF</li> </ul>

**2.2.11 Rehabilitation of rural infrastructure**

The project will also support small civil works including the rehabilitation of rural roads, bridges and other small infrastructure, such as, storage facilities. Rehabilitation of soil testing laboratories, marketing yards and dipping facilities will also be supported by the project. The objective of supporting small scale civil works will be to open up inaccessible rural areas and improve rural infrastructure so that marketing costs and post harvest losses are reduced. In terms of rehabilitation of the soil testing laboratories, the aim will be to enable research institutes to immediately respond to the demands for soil analyses from districts within the given ecological zone.

Negative impact of minor civil works include noise pollution, generation of construction wastes and dust during the construction phase. In some cases, open pits could be left behind after the excavation of sand and aggregate materials. Loss of vegetation and habitat from excavation sites. A summary of likely impacts and mitigation measures is given in Table 2.13.

**Table 2.13: Typical impacts and mitigation measures of rehabilitation of rural infrastructure**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<p><i>Physical Environment</i> Soils Water Resources Air Quality</p>	<ul style="list-style-type: none"> <li>▪ Open pits</li> <li>▪ Dust pollution</li> <li>▪ Noise pollution</li> <li>▪ Construction wastes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Contract conditions defining working practices and monitoring</li> <li>▪ Consultation with stakeholders</li> <li>▪ Provide plans for disposal of construction wastes</li> <li>▪ Provide protective gear against dust and noise</li> </ul>
<p><i>Biological Environment</i> Fauna and Flora</p>	<ul style="list-style-type: none"> <li>▪ Loss of fauna and flora species</li> <li>▪ Loss of habitat</li> <li>▪ Loss of crops or livestock grazing land</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of landfill requirement in the contracts</li> <li>▪ Biodiversity assessment and monitoring and evaluation of fauna and flora species</li> <li>▪</li> </ul>
<p><i>Social Environment</i> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities</p>	<ul style="list-style-type: none"> <li>▪ Infringement on access and movement for humans and livestock</li> <li>▪ Health problems due to dust inhalation and noise</li> <li>▪ Accidents from construction sites</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve health facilities</li> <li>▪ Occupational disease surveillance</li> <li>▪ Awareness and training on safety measures</li> <li>▪ Subproject-specific EA required</li> <li>▪ Compensation of lost plants, land or displacement according to RPF</li> </ul>

**2.3.12 Improvement in livestock production**

The PADEP project will also finance subprojects related to improvement of dairy farming, pig production, poultry, improvement of indigenous livestock, construction and rehabilitation of cattle dip, etc. Table 2.14 summarizes the most frequently encountered environmental impacts of improvement in livestock production. The potential impacts of improved in livestock production are overgrazing, degradation of land and vegetation, soil erosion, gas emissions, loss of natural habitats through overgrazing,

**Table 2.14: Typical impacts and mitigation measures of improvement in livestock production**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Overgrazing</li> <li>▪ Degradation of land and vegetation</li> <li>▪ Soil erosion</li> <li>▪ Gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness &amp; training</li> <li>▪ Observing land carrying capacity</li> <li>▪ Establishment of stock routes</li> <li>▪ Combine with biogas technology</li> <li>▪ Market research</li> <li>▪ Rotational grazing</li> <li>▪ Zero grazing</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Loss of natural habitats through overgrazing</li> <li>▪ Wildlife displacement</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Joint wildlife management i.e. integrated management</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Health risks from use of acaricides in dips</li> <li>▪ Conflicts between pastoralists and wildlife management areas</li> <li>▪ Environmental risks from emptying water from dips into rivers/water sources</li> <li>▪ Infringement of property and access rights</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of protective gear</li> <li>▪ Training on safe handling of chemicals and animal drugs</li> <li>▪ Participatory planning and management.</li> <li>▪ By-law enforcement on disposal of waste waters from the dips</li> <li>▪ Compensation as per provisions of the RPF</li> </ul>

### 2.3.13 Production of non-traditional crops

PADEP will support subprojects that are related to the production of mushrooms, vanilla, fruits, and other diversification initiatives in agriculture. Table 2.15 summarizes the most frequently encountered environmental impacts of production of non-traditional crops subprojects. The potential impacts of production of non-traditional crops are contamination of soil, fruits and mushrooms (quality control).

**Table 2.15: Typical impacts and mitigation measures of production of non-traditional crops**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<i>Physical Environment</i> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Soil contamination by agro-chemicals</li> <li>▪ Water sources contamination</li> </ul>	<ul style="list-style-type: none"> <li>▪ Treatment/purification of water for domestic use</li> <li>▪ Provision of safe watering points/structures for livestock</li> <li>▪ Training on agro-chemicals handling and safety measures</li> </ul>
<i>Biological Environment</i> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Introduction of new pests</li> <li>▪ Introduction of new diseases in the farming systems</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quarantine / screening of imported varieties</li> <li>▪ Adherence to phytosanitary regulations of Ministry of Agriculture and Food Security</li> <li>▪ Biodiversity assessment and monitoring</li> <li>▪ Development of subproject-specific PMP based on IPM approaches</li> <li>▪ Enhanced research and extension services support to farmers growing new crops</li> </ul>
<i>Social Environment</i> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Fruits might be contaminated if watered by streams loaded with industrial effluents</li> <li>▪ Lack of reliable markets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness and promotional campaigns</li> <li>▪ Market research and products promotion</li> <li>▪ Enforcement of by-laws</li> <li>▪ Adherence to environmental quality standards.</li> </ul>

### 2.3.14 Supply of farm inputs

The project will support farmer groups intending to stock agricultural inputs in the rural areas. Table 2.16 summarizes the most frequently encountered environmental impacts of supply of farm inputs.

**Table 2.16: Typical impacts and mitigation measures of supply of farm inputs**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<i>Physical Environment</i> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Wastes from packaging materials plastics, tins and cans</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness campaigns</li> <li>▪ Proper disposal of wastes</li> <li>▪ By-laws enforcement</li> <li>▪ Design alternative packaging materials.</li> </ul>
<i>Biological Environment</i> Natural Habitats Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Livestock and wildlife might consume the plastic materials which are deadly to their health</li> <li>▪ Ecological disruption due to overuse of pesticides and herbicides</li> </ul>	<ul style="list-style-type: none"> <li>▪ Raise awareness and training farmers in IPM approaches</li> <li>▪ Enforcement of by-laws governing use and handling of agrochemicals</li> <li>▪ Promoting an IPM approaches</li> <li>▪ Screening / inspection of approved agrochemical</li> </ul>

<p><b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities</p>	<ul style="list-style-type: none"> <li>▪ Health risks from agro-chemicals especially if repackaging is undertaken</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness and training</li> <li>▪ Provision of protective gear</li> </ul>
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**2.3.15 Initial processing of agricultural and livestock products**

Oil processing, cassava processing, rice milling, processing of cashew nuts, small fruits and vegetable processing units, and processing of dairy products, are typical examples of subprojects under this category.

Table 2.17 summarizes the most frequently encountered environmental impacts of improvement in livestock production. The potential environmental impacts of initial processing of agricultural and livestock products are wastes from processing, contamination of products, noise pollution, vibrations and dust.

**Table 2.17: Typical impacts and mitigation measures of initial processing of agricultural and livestock products**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<p><b><i>Physical Environment</i></b> Soils Water Resources Air Quality</p>	<ul style="list-style-type: none"> <li>▪ Wastes from processing</li> <li>▪ Contamination of products</li> <li>▪ Noise pollution</li> <li>▪ Vibrations</li> <li>▪ Dust</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide for proper waste disposal</li> <li>▪ Ensure hygienic conditions</li> <li>▪ Careful site selection</li> <li>▪ O &amp; M strategies</li> </ul>
<p><b><i>Biological Environment</i></b> Natural Habitats Fauna and Flora</p>	<ul style="list-style-type: none"> <li>▪ Solid and liquid wastes from the processing might affect plant and animal species</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct Biodiversity assessment and monitoring</li> </ul>
<p><b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities</p>	<ul style="list-style-type: none"> <li>▪ Gender concerns in ownership and operation</li> <li>▪ Workers' health in the processing plants might be affected</li> <li>▪ Increased pesticides residue in foodstuff</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic group targeting</li> <li>▪ Provision of protective gears, health insurance, awareness raising</li> <li>▪ Adherence to Industrial and occupational health regulations</li> <li>▪ Promoting IPM approaches</li> </ul>

**2.3.16 Improvement of crop produce marketing**

Establishment of village marketing centers, construction of market yards, grain storage and group-led grain marketing are typical examples of subprojects to be supported by PADEP under this category. Table 2.18 summarizes the most frequently encountered environmental impacts of improvement of crop produce marketing. The potential environmental impacts of improved crop produce marketing include wastes at markets, smells and odour, change of aesthetic values, air pollution and soil contamination, etc.

**Table 2.18: Typical impacts and mitigation measures of improvement of crop produce marketing**

<b>Environmental and Social Components</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
<b><i>Physical Environment</i></b> Soils Water Resources Air Quality	<ul style="list-style-type: none"> <li>▪ Wastes at markets</li> <li>▪ Smells and odour</li> <li>▪ Change of aesthetic values</li> <li>▪ Air pollution</li> <li>▪ Soil contamination</li> </ul>	<ul style="list-style-type: none"> <li>▪ Waste management strategies</li> <li>▪ Careful site selection</li> <li>▪ Monitoring</li> </ul>
<b><i>Biological Environment</i></b> Fauna and Flora	<ul style="list-style-type: none"> <li>▪ Livestock might consume hazardous materials from the damp sites</li> <li>▪ Spread of storage pests to other locations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Design an appropriate sanitary land-fill</li> <li>▪ Developing subproject-specific Environmental Management Plan (EMP)</li> <li>▪ Develop subproject-specific PMP based on integrated approaches</li> </ul>
<b><i>Social Environment</i></b> Aesthetics and Landscape Historical/Cultural Sites Human Health Human Communities	<ul style="list-style-type: none"> <li>▪ Poor sanitation due to absence of sanitation facilities</li> <li>▪ Infringement on property and access rights</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide for water supply and sanitation facilities</li> <li>▪ Consensus building through participatory site selection and planning</li> <li>▪ Compensation as per provisions of the RPF</li> </ul>

### **3. THE ENVIRONMENTAL ASSESSMENT AND APPROVAL PROCESSES FOR PADEP SUBPROJECTS**

Since the sub-projects supported by PADEP are small and because rural people will be the drivers of the projects, the process of environmental screening must be simple and informative. The process will consist of the following steps:

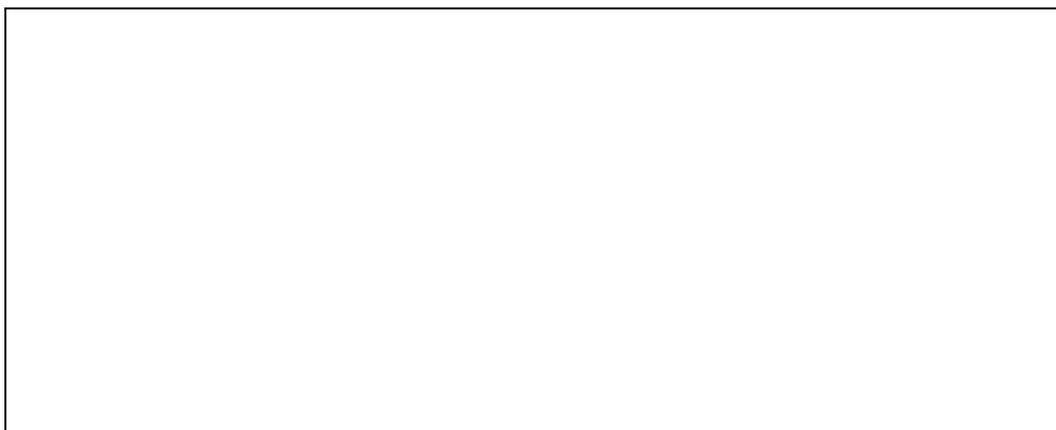
#### **Step 1: Preparation of environmental profiles**

The preparation of an environmental profile of subprojects is an important phase in subproject planning in general and in the environmental assessment of subprojects in particular. An environmental profile is a description of the socio-economic, physical and environmental characteristics of the subproject area. The EP describes the subproject area's development-environment situation and relationships, giving recognition to the relationship among resources, resource users, institutions, socio-economic and cultural setting. The preparation of an EP should be as participatory as possible, drawing on the knowledge of and involving the local people.

#### **Step 2: Assigning category to a subproject**

After basic information is collected in the profile, projects should be screened and categorized according to their likely environmental and social impact. Screening serves two purposes:

- To determine which projects, of all those proposed at the identification phase of the project cycle of PADEP, need further environmental consideration, and to eliminate those likely to have harmful environmental impacts
- To indicate the level of environmental appraisal that a project will require



Environmental screening of each proposed subproject to be financed under PADEP will be done to determine the appropriate extent and type of environmental assessment required. PADEP subprojects will be classified as A, B or C depending on the type, location, sensitivity, and scale of the subproject and the nature and magnitude of its potential environmental impacts.

The process for identification and approval of PADEP subprojects is elaborated in the GUIDELINES FOR PREPARATION AND IMPLEMENTATION OF COMMUNITY AGRICULTURAL DEVELOPMENT SUBPROJECTS. In brief, the PADEP process with regard to environmental and social assessment is as follows. During the first year of project participation, a village undergoes capacity building and PRA to assess opportunities and identify possible sub-projects to be supported within the envelope of resources available to the community. The District Facilitation Team guides this process, and is well trained to assure that environmental and social considerations form an integral part of the PRA process. Once the community has identified one or several possible subprojects, the proposals are categorized as A, B, or C according to criteria summarized below.

Category A projects are those with significant adverse environmental impacts that are sensitive, diverse, or unprecedented. The impacts may affect an area broader than the sites or facilities subject to physical works. For example, direct pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbance of the site or surroundings; extraction, consumption, or conversion of substantial amounts of forest and other natural resources, measurable modification of hydrological cycles; use of hazardous materials in more than incidental quantities; and involuntary displacement of people and other significant social disturbances. EA for Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" option), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The PADEP process is not likely to generate these, but if such proposals surface they should be rejected during the PRA process because PADEP, which is a Community Driven Development project is not equipped to finance the environmental remediation that would be needed to make them acceptable.

Category B projects are those with potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - are less adverse than those of Category A projects. These impacts are normally site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects. The scope of EA for Category B project may vary from project to project, but it is narrower than that of Category A's. Category B EA examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" option), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.

Category C projects are those which are likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project. However, PADEP financed Category C subprojects will have to show clearance from NEMC with regard to their classification.

All subproject proposals will be required to include an environmental categorization with justification and clearance by NEMC. Category B subprojects will require an environmental assessment. Subprojects which are likely to result in a significant conversion of natural habitats or the destruction of cultural property will not be supported by PADEP. Changes in access to land or changes in ownership and use of land and property that may be detrimental to the society will be addressed according to the Resettlement Policy Framework, which is disclosed separately.

Communities and farmer groups wishing to prepare subprojects will have access to grants to hire technical assistance, primarily through contracting services to private sector/NGOs to undertake the environmental and social assessment. The generic ToRs for the EA will be prepared by the PADEP/MAFS EA unit and customized to suit specific subproject needs by the District Facilitation Team (DFT), which also helps communities/farmer groups with the preparation of EA reports for their respective subprojects. The ToRs and the resulting EA reports shall be approved by NEMC (or an agency accredited by NEMC). Final approval of category B subprojects by the District Management Team (DMT) will require evidence of NEMC (or accredited agency) clearance of the EA report. Evidence that appropriate mitigatory measures, such as, Environmental Management Plan are included and costed in the project proposal will be required. Environmental and social indicators will be included among those monitored to assess progress in implementation of the project. The implementation of the preventive or mitigation measures, will be the responsibility of communities and farmer groups undertaking the subproject. PCU in collaboration with the District Facilitation Teams will undertake regular monitoring and evaluation of the mitigation measures implementation by communities and farmer groups.

Any project that entails changes in access to land or changes in use of land that may be detrimental to interests of current land holders or users will be subject to provisions of the Resettlement Policy Framework (separately disclosed). Provisions for treatment of agricultural chemicals, particularly pesticides, will be included in the subproject-specific Pest Management Plan based on Integrated Pest Management approaches.

Tanzania EIA Procedure and Guidelines also categorize projects according to impact magnitudes i.e., “Mandatory list of projects requiring EIA” and “List of small scale activities and enterprises that require registration” (may or may not require EIA) .

According to “*Tanzania EIA Procedure and Guidelines*”, the screening procedure can lead to one of the following decisions:

- Environmental Impact Assessment is required where the project is known to have significant adverse environmental impacts.
- Preliminary environmental assessment is required where the project may have environmental impacts
- Environmental Impact Assessment is not necessary where the project is unlikely to cause significant environmental impacts.
- No further consideration at all for projects contravening Government policies or other global obligations.

Within Tanzanian EIA Procedure and Guidelines, the following criteria need to be taken into account while conducting screening to determine whether EIA is required or not:

- Key project parameters
- Affected area
- Importance and scale of impacts on the environment
- The likely degree of public opposition i.e. controversial issues which raise public concern as a result of type and scale of the undertaking, sensitivity of the site location, technology used, conflict of interest in land issues and any other factor related to a particular project may required detailed scrutiny and assessment.

### **Step 3: Scoping and public consultations**

Scoping is defined as a consultative procedure that culminates in the determination of the extent and approach to an Impact Assessment study for category B sub-projects requiring assessments. The procedure follows upon classification of the project into an environmental category. It is an early and

an open process for determining the scope of issues related to the proposed action. The objective of consulting communities is to determine how their concerns will be addressed in the EA study.

When a proposed subproject is classified as category B, the PADEP project will provide funds for the group to consult as needed with NEMC and Environmental Units in relevant sectoral authorities, as well as affected or interested parties, and to hire consultants to undertake an assessment. All the concerned parties shall be given adequate opportunities to participate in the Scoping exercise. Draft Terms of Reference (ToRs) for the EA study and the scoping report should be submitted to NEMC for review with assistance of the Technical Review Committee (TRC) for some projects for approval.

Since most of these projects will be similar in nature, standard ToRs could be developed in consultation with NEMC. The standard TORs can be customized for the specific subprojects using information collected during the Environmental Profile preparation stage of the EA process and additional comments received from the key stakeholders.

#### **Step 4: Conducting an environmental assessment**

Where necessary NEMC will conduct a visit to the site(s). The outcome of the study, which could be a rejection or revision/modification or approval should be communicated by NEMC to the project group in a period not exceeding 30 days. When a subproject is classified as Category B, a partial (preliminary) environmental assessment (EA) should be undertaken, resulting in a brief EA report. As part of an EA report, an environmental and social management and monitoring plan (ESMP) should be incorporated. If Resettlement Action Plans (RAP) are being prepared as a result of the EA work, the RAPs will be separate documents and disclosed separately. The responsibility for assuring that the EIA report is done lies with the proposing group and or consultants hired by the group. The main items included in the environmental assessment study are; baseline survey and inventory, development of proposal options, potential impact identification and prediction, mitigation consideration and cost estimates, environmental management plans and other issues specified in the ToRs.

The following steps should be adopted in this procedure for environmental assessment:

- *Impact Assessment:* Based on the screening and scoping, the EA shall identify and assess positive and negative impacts likely to result from the proposed subproject. This uses a variety of methods including checklists, questionnaires, matrices, overlays, modelling, network analysis and simulations. Opportunities for environmental enhancement should be explored. The extent and quality of available data, key gaps in data, and uncertainties associated with predictions shall be identified or estimated. Topics that do not require further attention should be specified.
- *Analysis of alternatives:* Assessment of subprojects from an environmental perspective. This is a key purpose of EA work and the more proactive side of EA – enhancing the design of a project through consideration of alternatives, as opposed to the more defensive task of reducing the adverse impacts of a given design. This provides a detailed review of alternative approaches and prioritises them into a feasible approach. For each alternative, the environmental costs and benefits should be quantified to the extent possible. The *do nothing alternative* should always be included, with a discussion of it being adopted; that is what would the future look like without the proposal? The do nothing (or no project) alternative is always feasible and gives a “base case” against which the performance of other alternatives can be compared in terms of environmental impact, economic effects and other performance measures indicated by the objectives.
- *Predictions:* The principal function of EA is to provide predictive information on the potential implication of projects. Prediction should determine the cause and effect relationship of direct and indirect impacts based on data and information from a wide number of sources on the physical, social, biological, institutional, economic and cultural issues. The quality and availability of data and the analytical techniques and assumptions frequently limit the reliability of prediction. In this context open dialogue with key stakeholders and the public is vital.
- *Evaluation of significance:* This determines the significance at subproject and influence area levels. Within specified time and space a significant impact is the predicted or measured

change in an environmental attribute that should be considered in project design, depending on the reliability and accuracy of the prediction and the magnitude of the change.

- *Mitigation*: This identifies measures to avoid and/or to reduce adverse impacts. It also assesses how to plan and manage environmental enhancement. The identified measures need to be undertaken early enough to embed ideas thoroughly into the basic design of a proposed subproject and show how future monitoring and evaluation would be carried out. These measures are drawn together into coherent Environmental and Social Management and Monitoring Plans.
- *Public consultation*: Consultation throughout EA preparation is generally encouraged, particularly for subprojects like those to be supported by PADEP that affect people's livelihoods. Public consultation can be undertaken during screening, scoping and preparation of ToR, EA report, review of EA report by the NEMC and other stakeholders and during preparation of terms and conditions for EA acceptance or approval.

All the information gathered during the impact assessment is compiled in the format given in the NEMC Reporting Procedure and Guidelines and submitted to NEMC for review. In all cases the documentation should be kept as brief and simple as possible.

#### **Step 5: Review and approval of environmental assessment report**

The EA report prepared for each subproject (Category B) should be reviewed by district facilitation team and NEMC as appropriate and public consultations should be undertaken during the review period. The outcome of the review is of the EA is one of the following:

- EA accepted
- EA not accepted

Acceptance and clearance of the EA (for Category B projects) or the checklist (for Category C projects) by NEMC will serve as a sufficient environmental permit to proceed with further consideration for approval of the project by district council and PADEP. The review of the environmental assessment report should also include the determination of whether or not any people have been identified as owners/users of the land upon which or where the sub-project will be located or if the sub-project in any other way will affect people/ property and access so that there is a negative impact (loss) as a result of the sub-project. If that is found to be the case, the appropriate measures need to be taken in accordance with the Resettlement Policy Framework.

The environmental assessment report should be short and clear, so that project participants can understand it. It should state clearly the main environmental issues, both positive and negative, likely impacts, potentially affected people, mitigating measures, and costs of mitigation. The report should include a section called the Environmental and Social Management Plan (ESMP). The ESMP should be a practical, action oriented plan specifying measures to be taken to address the negative environmental impacts. It should also specify the actions, resources and responsibilities needed to implement the agreed actions and details on key social and environmental management and monitoring performance indicators. Further, ESMP should ensure that the costs of implementing the EA report recommendations are budgeted into the total subprojects costs. Responsibility for preparation of the ESMP will be with the group under guidance of the DFT. The DFT will supervise the implementation of action plans in close cooperation with communities. The PADEP/MAFS EA unit in consultation with NEMC will undertake periodic monitoring and evaluation.

The ESMP should be formulated in such a way that it easy to use. The ESMP should cover the following aspects: Summary of impacts, description of mitigation measures, description of monitoring programme, institutional arrangements, implementation schedule and reporting procedures, cost estimate and sources of funds, and capacity development for implementation of the environmental and social management plan. The contents of an ESMP are further elaborated below.

- *Summary of Impacts*: The predicted adverse environmental and social impacts for which mitigation is required should be established and briefly summarized. Cross-referencing the

ESMP report to RPF and subproject-specific PMP, so that additional detail can readily be accessed.

- *Description of mitigation measures:* Cost-effective and feasible mitigation measures are often detailed and technical in nature. The mitigation measure proposed for PADEP's subprojects should draw on findings from identified impacts and analysis of compliance with the GoT policies, legislation and administrative matters, and WB Safeguard Policies. Each mitigation (or enhancement) measure should be briefly described with reference to the impact to which it relates and the conditions under which it is required.
- *Description of monitoring plan:* Environmental monitoring should be designed to ensure that mitigation measures are implemented. The ESMP should demonstrate that all identified impacts are matched with mitigation measures and monitoring plans. The monitoring plan will use the findings of existing baseline data, as the means to measure the progress in compliance with the GoT and WB Safeguard Policies. In a nutshell, an effective monitoring plan should consist of the following elements:
  - Monitoring objectives
  - Description of performance indicators, which provide linkages to impacts and mitigation measures identified in EA
  - Description of parameters to be measured, methods to be employed, sampling locations, frequency of measurements, detection limits (where appropriate) and definition of thresholds that will signal the need for remedial actions
  - Institutional responsibilities, timing and timescales for monitoring
  - Reporting arrangements (to the NEMC)
  - Cost and financing provisions
  - As part of monitoring plan for PADEP's subprojects a table format should be presented with performance indicators, monitoring site and frequency, responsible institution, time frame and provisional cost for each subproject.
- *Institutional arrangements:* Responsibilities for mitigation and monitoring should be clearly defined. The ESMP should identify arrangements for coordination between the various government institutions and environmental agencies responsible for mitigation impacts of subprojects. Environmental management in Tanzania involves many government institutions and other agencies, and links between the various actors are often complex.
- *Capacity Development and Training:* This comprises a plan for improving institutional environmental management capabilities in the PADEP's subprojects, based on findings of a rapid training needs assessment and review of the existing capacities and institutional roles. Capacity building would be undertaken for staff of PADEP's environmental unit, districts for raising their awareness about environmental issues and for upgrading of skills related to environmental management of subprojects. The ESMP will detail the resources needed and the timing of these staff. Specifically, the ESMP provides a specific description of institutional arrangements – who is responsible for carrying out the mitigatory and monitoring measures (e.g. for operation, supervision, enforcement, monitoring of implementation, remedial actions, financing, reporting, and staff training).
- *Implementation schedule and cost estimates:* The ESMP should provide the timing, frequency, and duration of mitigation measures, specified in an implementation schedule, showing links with the overall subprojects project implementation plans (PIP). Moreover, the capital and recurrent cost estimates and sources of funds for implementing the ESMP should be considered and also integrated into the total subproject cost.
- *Integration of ESMP with Subprojects:* In a nutshell, the ESMP should be specific in its description of the individual mitigation and monitoring measures and its assignment of institutional responsibilities, and it must be integrated into the subprojects overall planning, design, budget, and implementation arrangements
- *Approval:* As mentioned earlier, most of the potential subprojects to be supported by PADEP are not expected to generate significant adverse environmental impacts. If it is confirmed

through the screening process that the subproject is of Category C, which means no EA is necessary, District Facilitation Team should, on behalf of the community or farmer group request clearance of the subproject from NEMC, or agency accredited by NEMC to clear EA reports. Subprojects classified as Category B would require an EA, and would undergo the formal approval process, in which case the NEMC will review and approve the EA report. In case RAP has been prepared, it should first be cleared by NEMC (or agency accredited by NEMC) before the District Facilitation Team seeking clearance from the Bank through PADEP. According to WB policy on resettlement (OP 4.12), all RAPs should be reviewed and approved of by the Bank, before resettlement activities are implemented. Upon receiving clearance from NEMC, District Facilitation Team shall request PADEP to proceed with funding of the subproject.

- *Supervision:* Once the approval process is completed, the supervision becomes part and parcel of the normal subproject cycle management, including monitoring, evaluation and reporting. Environmental monitoring and supervision should be undertaken by all implementing agencies. The DFT should bear the responsibility of supervision at district level and reporting to the PADEP. The PADEP environmental unit staff in consultation with NEMC should be undertaking periodical field visits as part of their supervisory responsibilities. In the process they should also participate in the process of developing and appraising new subproject proposals, which is the prime responsibility of communities, assisted by the DFT.

#### **Step 6: Disclosure and appeal process**

As project proposals are finalized, the complete proposal shall include the environmental category of the subproject. For category B subprojects, the proposal shall include the EA report and proof of its approval by NEMC. For category C subprojects, the environmental checklist shall be included, together with a list of mitigating measures. The checklist will include an enumeration of possible environmental impact (such as those listed above for the various projects and/or others) and planned mitigating measures. Sample templates for the checklist are included in Annex 1.

**Box 3.2**  
**Contents of an Environmental and Social Management Plan (ESMP)**

- Identification and summary of major anticipated adverse environmental impacts
- Description of mitigation measure
- Description of elements of monitoring program
- Institutional arrangement
- Implementation schedule for mitigation measures
- Performance monitoring and reporting procedures designed to ensure early detection of conditions necessitating corrective actions, and provide information on progress and results of mitigation and institutional strengthening measures
- Cost estimates and sources of funds

The EA reports of subprojects should be disclosed to the public by presenting the findings and recommendations to the village assembly and distributing copies to PADEP, district and village government. NGOs and other civil societies in the community should be informed of the meeting and copies of report should be made available to them if needed. A summary of findings should be posted at the village government and political parties' offices. The Community Subproject Committees will be responsible for disclosing the EA reports for community subprojects, while the Farmer Groups Committees will be responsible for disclosing EA report for farmer groups subprojects. The village governments will be responsible for taking minutes of EA disclosure on behalf of the village councils.

PADEP groups or any affected/interested party, has the right of appeal. If dissatisfied with the decision reached at any stage in the EA process, the affected party has the right of appeal to the Minister responsible for Environment. The Minister shall appoint a panel of five people to hear the appeals. The

Chairman of the panel shall be the Director of Environment in the Vice President’s Office and the remaining members shall be three (3) environmental management experts and one member from the general public. The results of appeal shall be communicated to NEMC for action. A summary of institutional responsibilities for key steps in the environmental and social management process is given in Table 3.1 below.

**Table 3.1: Institutional responsibilities for environmental and social management process**

<b>Subproject Cycle Process Outputs</b>	<b>EA Process Outputs</b>	<b>Responsible agency</b>	<b>Community participation</b>	<b>Approval and Clearance</b>
1. Subproject plan prepared	Sub-Project Environmental Profile	District Management Team (DMT), Environmental Unit (EU), and District Facilitation Team (DFT)	Participated actively in examining and analysing environmental problems related to subproject	District Council
	Environmental Screening Report (Full and partial for Category B. No EA required for Category C).	District Management Team (DMT), Environmental Unit (EU), and District Facilitation Team (DFT)	Provide input to subprojects classification, and EA and subproject-specific PMP and RPF reports	NEMC
2. Desk Appraisal of Subproject proposal	Scoping and TOR for Category B	EU with external consultant / NGOs	Consulted interested and affected parties	NEMC
3. Field Appraisal of Subproject report	EA draft report for Category B subprojects, RAP and ESMP	DFT with external consultant / NGO	Participated in disclosure workshops	NEMC/Bank
4. Subprojects approved	ESMP agreed for subprojects implementation	EU, monitoring, evaluation and PADEP supervision	Partner in implementation of ESMP	NEMC

**Table 3.2: Environmental checklist by subproject types**

Eligible subprojects	Examples	Environmental checklist
Watershed management for soil and water conservation	Construction of contours, protection of gullies, construction of terraces, agro-forestry, establishing and enforcing by-laws, bulking of seed/plant materials required for agro-forestry, woodlot establishment, promotion of gender awareness in soil and water conservation	<ul style="list-style-type: none"> <li>▪ Is there likelihood of biodiversity loss? Will there be infringement on property and access rights?</li> <li>▪ Are the necessary by-laws in place?</li> </ul>
Conservation tillage	Improved fallows, use of cover crops, use of farm implements for soil and water conservation, practices to control soil erosion, use of green manure	<ul style="list-style-type: none"> <li>▪ Are herbicides going to be used to control weeds?</li> <li>▪ Have they (herbicides) been screened and approved by the authorized plant protection agency?</li> <li>▪ Have cover crops been screened by research?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared?</li> <li>▪ Is the PMP prepared based on IPM approaches?</li> <li>▪ Are herbicides-related hazards adequately addressed?</li> </ul>
Efficient use of fertilizers	Use of rock phosphate, use of high analysis fertilizers, organic manure	<ul style="list-style-type: none"> <li>▪ What measures are in place to prevent health risks to farmers?</li> <li>▪ Are there signs of salinity in the area?</li> <li>▪ Will the fertilizer be stored safely prior to use?</li> <li>▪ Is there a likelihood of polluting surface and groundwater?</li> <li>▪ Are requisite soil and water quality control measures in place?</li> <li>▪ Have soil tests been done?</li> <li>▪ Are there any recommendations on application rates?</li> </ul>
Fuel efficient technology	Biogas technology that utilizes manure and reduces use of fuel to safeguard forests	<ul style="list-style-type: none"> <li>▪ Is there a segment of the community depending on current energy source for income, e.g. charcoal selling? If yes, what alternative is proposed for the lost opportunity?</li> </ul>
Increase productivity	Use of organic manure in combination with mineral fertilizers, production and use of bio-fertilizers	<ul style="list-style-type: none"> <li>▪ Are there health risks to farmers?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared?</li> <li>▪ Is the PMP prepared based on IPM approaches?</li> <li>▪ Are herbicides-related hazards adequately addressed?</li> <li>▪ Is training on IPM approaches required by farmers?</li> </ul>

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<p>Integrated plant nutrition techniques/strategies (IPNS)</p>	<p>Use of organic manure in combination with mineral fertilizers, production and use of bio-fertilizers</p>	<ul style="list-style-type: none"> <li>▪ Are there any health risks to farmers?</li> <li>▪ Do the farmers have the necessary knowledge and skills?</li> </ul>
<p>Integrated pest management (IPM)</p>	<p>Safe use of pesticides in combinations with observation, preventive and intervention methods in crops, particularly vegetable and fruit production</p>	<ul style="list-style-type: none"> <li>▪ What pests are found in the area?</li> <li>▪ Which pesticides are effective against the pests?</li> <li>▪ Are there alternative control methods?</li> <li>▪ Is it safe to use pesticides?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared? If yes, is the PMP prepared based on IPM approaches?</li> <li>▪ Are pesticides-related hazards adequately addressed?</li> <li>▪ Has training on IPM approaches been conducted?</li> <li>▪ Is research and extension technical support on IPM adequate?</li> <li>▪ Are there any measures to prevent health risks to farmers?</li> <li>▪ Will special protective gear be required and is it available locally?</li> <li>▪ Are the farmers competent enough to handle the pesticides? If not, what kind of training will be required on how to apply the pesticides?</li> <li>▪ What equipment will be used?</li> <li>▪ Is there likelihood of polluting the soils, surface and groundwater?</li> <li>▪ Is there likelihood of the pesticides concentrating in the food chains?</li> <li>▪ Is the activity consistent with the pest management plan?</li> </ul>
<p>Increased use of labour saving technologies</p>	<p>Use of farm implements, such as ox-drawn ploughs, ridgers, rippers, weeders, power tillers, etc</p>	<ul style="list-style-type: none"> <li>▪ Are the implements appropriate for use by women and men?</li> <li>▪ Have the herbicides been screened and approved for use by farmers?</li> <li>▪ Are herbicides-related hazards adequately addressed?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared? If yes, is the PMP prepared based on IPM approaches?</li> <li>▪ Has training on IPM approaches, and safe use and handling of herbicides been conducted?</li> <li>▪ Is research and extension technical support on IPM and use of herbicides adequate?</li> </ul>

<p>Use of rainwater harvesting techniques</p>	<p>Rainwater harvesting for irrigation, domestic and livestock use, such as chaco dams, water bunds in rice irrigation, etc</p>	<ul style="list-style-type: none"> <li>▪ Are measures in place to avoid contamination of stored water?</li> <li>▪ Is there a segment of the community depending on water vending for their income? If yes, what alternative is proposed for the lost opportunity?</li> <li>▪ Are measures in place against child accidents?</li> <li>▪ Are water and land use conflicts likely to emerge?</li> <li>▪ Are measures in place against land degradation at livestock watering points?</li> <li>▪ Will there be infringement on property and access rights?</li> </ul>
<p>Improvement of traditional irrigation schemes</p>	<p>Rehabilitation of weirs, irrigation canals and construction of division boxes</p>	<ul style="list-style-type: none"> <li>▪ Will the subproject cause land and water use conflicts?</li> <li>▪ What measures will be put in place to avoid water logging and poor water quality especially for downstream users?</li> <li>▪ What measures will be used to prevent scouring and clogging of canals?</li> <li>▪ Will there be infringement on property and access rights?</li> <li>▪ Will it cause salinity problems?</li> <li>▪ Will it cause changes in gender relations?</li> <li>▪ Has provision been made for domestic and livestock water supply?</li> <li>▪ Which water-borne diseases are prevalent in the village?</li> <li>▪ Will the subproject lead to an increase in disease incidences?</li> <li>▪ Will the subproject lead to an increase in pest problems?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared? If yes, is the PMP prepared based on IPM approaches?</li> <li>▪ Are pesticides-related hazards adequately addressed?</li> <li>▪ Has training on IPM approaches been conducted?</li> <li>▪ Is research and extension technical support on IPM adequate?</li> <li>▪ Is salinity a problem? If yes, is the subproject likely to increase the salinity problem? What measures will be put in place to prevent or control salinity?</li> <li>▪ Will the improvement lead to expansion of the irrigated area? If yes, would this encroach on ecologically sensitive areas?</li> </ul>

<p>Livestock production improvement</p>	<p>Dairy animals, pig production, poultry, improvement of indigenous livestock, construction and rehabilitation of cattle dips, etc</p>	<ul style="list-style-type: none"> <li>▪ Is land currently enough for existing livestock herds?</li> <li>▪ Are signs of overgrazing and soil erosion?</li> <li>▪ Will the subproject contribute to degradation of land and vegetation through overgrazing?</li> <li>▪ Are their dips in the village? If yes, who operates them?</li> <li>▪ What measures are in place against health risks from use of acaricides in dips?</li> <li>▪ What is done with animal manure? Is it used for biogas production?</li> <li>▪ What measures will be put in place to prevent degradation of vegetation and soil at water points?</li> <li>▪ Is there wildlife in the vicinity of the village? If yes, what measures will be instituted to avoid conflicts between livestock and wildlife?</li> <li>▪ Will there be infringement on property and access rights?</li> <li>▪ Will the subproject cause land</li> </ul>
<p>Rehabilitation of infrastructure</p>	<p>Rehabilitation of soil testing laboratories, rural roads, bridges, storage facilities and other rural infrastructure</p>	<ul style="list-style-type: none"> <li>conflict?</li> <li>▪ Is it likely to cause dust and/or noise pollution?</li> <li>▪ What measures are in place for disposal of construction wastes?</li> <li>▪ Will it result in open pits? If yes, how are they going to be filled?</li> <li>▪ Have the communities and stakeholders been consulted?</li> <li>▪ Is the construction site going to be protected?</li> <li>▪ Will the contract provide protective gear to workers?</li> <li>▪ Is the construction contract include working practices and monitoring of environmental impacts?</li> <li>▪ Are there plans to monitor biodiversity and evaluate fauna and flora species?</li> <li>▪ How is compensation for lost crops or grazing land going to be effected?</li> <li>▪ Is there a mechanism to monitor occupational diseases?</li> <li>▪ Is there any training plan for safety and precautionary measures?</li> </ul>

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Production of non-traditional crops	Production of mushrooms, vanilla, fruits, and other diversification initiatives in agriculture	<ul style="list-style-type: none"> <li>▪ Do the farmers have the necessary knowledge and skills?</li> <li>▪ What measures are in place for control of potential new pests?</li> <li>▪ Has an IMP approach been adopted?</li> <li>▪ Has a project-specific PMP been prepared? If yes, is the PMP prepared based on IPM approaches?</li> <li>▪ Are pesticides-related hazards adequately addressed?</li> <li>▪ Has training on IPM approaches been conducted?</li> <li>▪ Is research and extension technical support on IPM adequate?</li> </ul>
Supply of farm inputs	Input shops at farm level, etc	<ul style="list-style-type: none"> <li>▪ What measures are in place against health risks from agro-chemicals?</li> </ul>
Initial processing of agricultural and livestock products	Oil processing, cassava processing, rice milling, processing of cashew nuts, small fruits and vegetable processing units, processing of dairy products, etc	<ul style="list-style-type: none"> <li>▪ Are there any crop processing facilities in the village? If yes, who owns and operates them?</li> <li>▪ Are women involved in the processing and do they own any of the facilities?</li> <li>▪ Will addition of new facilities cause any conflicts?</li> <li>▪ How will the operations be sustained?</li> <li>▪ What will be done with the by-products from processing facilities?</li> <li>▪ How will waste management be organized?</li> <li>▪ How will the hygiene of processed products be controlled?</li> <li>▪ Will the subproject cause adverse changes in gender relationships?</li> </ul>
Improvement of crop produce marketing	Establishment of village marketing centres, construction of market yards, grain storage, group-led grain marketing, etc	<ul style="list-style-type: none"> <li>▪ How will waste management be organized?</li> <li>▪ Is there a provision for water supply and sanitation facilities at market places?</li> <li>▪ Who will operate these facilities? What are the roles of women and men?</li> <li>▪ Will there be infringement on property and access rights?</li> </ul>

Environmental supervision will be an important activity to assure successful implementation of projects. For category B subprojects that require environmental assessment, the key indicators of the Environmental and Social Management Plan will become indicators that are monitored regularly to assess performance of the subproject. For category C subprojects, the general areas highlighted on the checklist should be reported on in the supervision reports, with measures of indicators where relevant.

#### 4. GUIDELINES FOR INSTITUTIONAL ARRANGEMENTS, TRAINING NEEDS AND COST ESTIMATES FOR MITIGATION MEASURES

Institutional arrangements should seek to promote and enhance efficiency, effectiveness, transparency and accountability, reduce red tape and bureaucracy. They should also aim at strengthening participation, empowerment and ownership of stakeholders.

*At community/village level:* The community subproject committee (CSC) will have direct oversight for preparation of EA reports and implementation of agreed mitigation measures, according to environmental and social management plan (ESMP), as part of the overall subproject cycle management and monitoring at community/village level. . Communities and farmer groups will report on the environmental indicators as part of their regular reporting process for implementation of the subproject. The CSC will communicate implementation progress of the ESMP to the district, through their village government, with copies of such correspondence to the Ward Executive Officer (WEO) for information. The periodic reports on implementation of the PADEP project will include a section on achievement of environmental objectives as shown by the indicators.

*At district level:* The District Executive Director (DED), should assign the task of monitoring the implementation of the ESMP at district level to the DFT, which is lead by District Agricultural and Livestock Development Officer (DALDO). Again, this should be part and parcel of the overall management/monitoring function for the subproject cycle at district level, which is the responsibility of the DMT/DFT. The subproject EA reports, including their ESMPs, should be forwarded by DFT to NEMC (or an agency accredited by NEMC) for their clearance, before sending to PADEP for funding. On behalf of DED, the DALDO should send progress reports on implementation of the ESMP to the PADEP/MAFS EA unit, with copy to the Regional Secretariat for information. DFT should be responsible for ensuring that DALDO sends the reports on regular basis, as required by PADEP's operational guidelines.

*At national or project level:* A decision has been made to build capacity of the EA unit of MAFS, and earmark two individuals to be directly responsible for EA aspects of PADEP during its implementation. The mainstreaming of EA function into the Ministry's EA unit has an advantage of ensuring sustainability of environmental screening beyond the project life. Environmental assessment should be taken as an integral part of the technical evaluation of subprojects proposal. The environmental audit function needs to be taken into consideration at every step of subprojects cycle. In view of this, PADEP should allocate funding for building capacity of EA unit of MAFS, both in terms of required human resources, office equipment and logistical support. The EA unit of MAFS should be responsible for preparing generic TORs for EA, have an oversight on the overall implementation of ESMPs by communities and farmer groups, and provide technical backstopping to districts.

Resources are available under the project for training of MAFS EU staff, DFT and communities to identify and address environmental and social issues. The costs of capacity building for environmental assessment including social aspects should be part of the component 2 of the project. The estimated costs of undertaking training in environmental and social assessment is summarized in Table 4.1 below. The Environmental Assessment training manual prepared by NEMC should provide the basis for developing project specific modules. Training on Bank safeguards will be added into the modules prepared by PADEP consultant.

**Table 4.1: Estimated costs of training in environmental assessment**

Area of activity	Responsible	Target	Outcomes	Proposed timing	Cost Estimates US\$
Conduct training needs assessments for PADEP/MAFS, districts, Villages	PADEP – PCU, District authorities & Village governments	MAFS/PAD EP staff, District staff, villagers	Training needs identified and documented	2003 for MAFS/PADEP & pilot districts & villages, yearly for new districts and villages come on board	<b>50,000</b>

Arrange for & coordinate training in environment in general & EA, WB & GoT policies	MAFS/PADEP staff, district authorities	MAFS/PAD EP staff, District staff, villagers	Increased environmental awareness, appreciation of EA, skills for EA	2003 for MAFS/PADEP & pilot districts & villages, yearly for new districts and villages come on board	<b>100,000</b>
Ensure initial PRAs in villages contain EA messages	PADEP – PCU, DMTs, DFTs,	DFTs, (DMTs)	PRA reports address environmental concerns, incliner impacts, mitigation, ESMP at subproject level	2003 for pilot districts/villages, yearly for new districts and villages come on board	<b>20,000</b>
Monitoring and follow-up	PADEP – PCU, DMTs & DFTs	Village governments, subproject committees	Subproject EMPs successfully implemented	Continuously	<b>30,000</b>

## 5. PADEP SENSITIZATION MEETINGS AND LAUNCHING WORKSHOPS TO ADDRESS ENVIRONMENTAL ISSUES

Public understanding about the proposed subprojects and their possible environmental and social impacts is key to successful implementation. These issues should therefore be fully covered in the participatory assessment leading up to selection of the proposed subproject, and in subsequent design. The District Facilitation Team (DFT) should be fully prepared to lead public discussion of environmental and social issues. When DFT visits a village and hold meetings with the village Government leaders to discuss project concepts, objectives and types of eligible subproject etc., and process to be followed to evolve subprojects, they should introduce environmental issues.

In order to raise awareness of communities about the potential environmental and social impacts of PADEP funded activities, a number of sensitisation meetings are proposed. These will enhance stakeholders participation in EA processes. Sensitisation should also target the National Resource Team and District Authorities in order to raise their awareness and understanding of the major environmental issues/concepts, such as: EIA; impact identification and prediction methods/techniques; social-cultural dimension of EIA; impact mitigation; and inspection and monitoring of environmental standards. Having been sensitised the District authorities, will in turn sensitise communities when they contact them to introduce and discuss the project concepts, objectives, components and focus through the DFT.

When orienting the DFT on project objectives, implementation procedures and roles of teams in facilitating the communities the NRT should also include importance of assessing environment impact on each activity to be undertaken especially during implementation stage.

- *Meeting village leaders:* When DFT visits a village and hold meetings with the village Government leaders to discuss project concepts, objectives and types of eligible subproject etc, and process to be followed to evolve subprojects, they should introduce environmental issues concerning resource management and environmental conservation.

- *First Village Meeting:* The purpose should be to create awareness about the project. In this meeting DFT members should emphasize on the importance of observing natural impact on resource management, including soils, trees, sources of water etc.,
- *Village Meeting for prioritisation of problems:* After prioritising their problems, the villagers and their facilitators should point out environmental issues related to the prioritised problem.
- *Launching Workshop:* Implementation processes will commence with the project launch workshop. The aim of launch workshop is to bring together stakeholders to revisit the project objectives, activities, work plans and each stakeholders responsibilities. This is a good opportunity for DFT to emphasize on the environmental impacts of the different activities to be undertaken and ways to avoid or mitigate.
- *Other meetings:* Meetings should be held on a regular basis with district authorities and communities at which PADEP activities in general, and their environmental consequences in particular are explained in simple and easily understandable terms. Depending on the prevailing social and cultural norms, there may be need to arrange separate meetings for different groups. For example, meeting with elders, women and youths.
- *Workshops and seminars:* These should be arranged for district authorities and communities around relevant environmental and social assessment themes.
- *Plays and songs:* Use/hire school children and drama groups to sing and play/act with messages related to environmental management and social protection.

In order to enhance the effectiveness of these campaigns, the following strategies are recommended:

- *Content:* It is important to make sure that the contents of the launching workshops; seminars and meetings are relevant to the situation in village. Build speeches around real environmental problems within the village.
- *Delivery strategy:* The messages should be delivered in simple and easily understandable language. In order to facilitate understanding of the messages, use of visual aids – films, videos, placards etc is recommended. The occasions should include events like tree planting (season permitting or with watering) and study tours. As far as is feasible, the events should involve local government and national leaders.
- *Cultural considerations:* It is important to consider cultural and norms prevailing in the community. If free mixing is not possible due to social and cultural norms, there may be need to form groups according to age, gender and maybe wealth status.
- *Publicity/advocacy:* The launching ceremonies should be covered in local media – radio, newspapers, TV. Invite representatives from other communities to participate and let them say a word on their experiences.

A training team should consist of an environmental specialist familiar with environmental assessment issues of PADEP subprojects, an agriculturalist familiar with PADEP's subprojects, and an experienced training facilitator, who should be responsible for logistical planning and facilitation.

## 6. COMPLIANCE OF PADEP ACTIVITIES WITH BOTH WORLD BANK AND TANZANIA'S POLICIES, GUIDELINES, LEGISLATION AND REGULATIONS

### 6.1 Compliance with World Bank safeguard policies

A list of World Bank environmental and social safeguard policies is summarized in Box 6.1. The following safeguard policies are triggered by the proposed PADEP project: OP/BP 4.01 Environmental Assessment, OP 4.09 Pest Management, OP 4.12 Involuntary Resettlement, and OP 7.50 Projects on International Waterways. To the extent that sub-projects trigger World Bank safeguard policies, sub-project-specific safeguard documentation such as sub-project PMPs or sub-project Dam Safety Measures will be prepared.

**OP 4.01 Environmental Assessment:** The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. EA takes into account the natural environment (air, water, land); human and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property); and transboundary and global environmental aspects. EA considers natural and social aspects in an integrated way. It also takes into account the variations in project and country conditions; the findings of country environmental studies; national environmental action plans; the country's overall policy framework, national legislation, and institutional capabilities related to the environment and social aspects; and obligations of the country, pertaining to project activities, under relevant international environmental treaties and agreements. The Bank does not finance project activities that would contravene such country obligations, as identified during the EA.

**OP 4.09 Pest Management:** In assisting Borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the Borrower addresses pest management issues in the context of the project's environmental assessment. In appraising a project that will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions that promote and support safe, effective, and environmentally sound pest management. As necessary, the Bank and the Borrower incorporate in the project components to strengthen such capacity.

**OP 7.50 Projects on International Waterways:** This policy applies to the following types of international waterways: (a) any river, canal, lake, or similar body that forms a boundary between, or any river or body of surface water that flows through, two or more states, whether Bank members or not, (b) any tributary or other body of surface water that is a component of any waterway describe in (a) above; and (c) any bay, gulf, strait, or channel bounded by two or more states, or, if within one state, recognized as a necessary channel of communication between the open sea and other states – any river flowing into such waters. This policy applies to the following types of projects (a) hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways as described above and (b) detailed design and engineering studies of these projects, including those to be carried out by the Bank as executing agency or in any other capacity. Due to the use of international waters by future sub-projects, this safeguard policy is triggered, and the relevant riparians (Kenya, Uganda, Rwanda, Malawi and Mozambique) are being notified.

**Involuntary Resettlement (OP 4.12).** The resettlement policy is triggered when people are affected by loss of land, loss of property and/or loss of access to resources. It is therefore irrelevant whether or not the impact will entail physically relocation of the affected people, the policy is triggered in all such cases. This means that the impact may be of such kind that only compensation in cash or kind is necessary. For this purpose, the Government of Tanzania has prepared a Resettlement Policy Framework which is a document that explains the procedures for resettlement and/or compensation, which must be followed once the Environmental Assessment has determined that people will be adversely affected by a project activity".

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The PADEP project will not cause involuntary resettlement, but some of the sub-projects may require changes in land use or changes in access to land. For that reason a Resettlement Policy Framework has been prepared.

**Box 6.1****World Bank Environmental and Social Safeguard Policies**

- **Environmental Assessment (OP 4.01).** Outlines Bank policy and procedure for the environmental assessment of Bank lending operations. The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of EA. The Bank classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and the scale of the project and the nature and magnitude of its potential environmental impacts. This environmental screening process will apply to all sub-projects to be funded by PADEP; sub-projects may be classified as category A, B, or C (category FI will not be applicable in this context). As indicated in the EA report, subsequent EA work for sub-projects will depend on the environmental classification of the sub-project.
- **Natural Habitats (OP 4.04).** The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. If the environmental assessment indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g. strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. The Bank accepts other forms of mitigation measures only when they are technically justified. Should the sub-project-specific EAs indicate that natural habitats might be affected negatively by the proposed sub-project activities, such sub-projects will not be funded under the proposed PADEP project.
- **Pest Management (OP 4.09).** The policy supports safe, affective, and environmentally sound pest management. It promotes the use of biological and environmental control methods. An assessment is made of the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. As outlined in the EA report, sub-projects will prepare sub-project specific pest management plans as required. A revised PMP for the PADEP project will serve as a guidance/reference document for the preparation of sub-project PMPs.
- **Involuntary Resettlement (OP 4.12).** The resettlement policy is triggered when people are affected by loss of land, loss of property and/or loss of access to resources. It is therefore irrelevant whether or not the impact will entail physical relocation of the affected people, the policy is triggered in all such cases. This means that the impact may be of such kind that only compensation in cash or kind is necessary. For this purpose, the Government of Tanzania has prepared a Resettlement Policy Framework which is a document that explains the procedures for resettlement and/or compensation, which must be followed once the Environmental Assessment has determined that people will be adversely affected by a project activity". This policy has been revised in FY 99/00 with the direct participation of technical Bank staff representing various networks. It also benefited from a four month external consultation process, in which the drafting team received and reviewed nearly 300 comments from NGO representatives, resettlement researchers, and government officials from around the world. This draft was approved in December 2001. The Resettlement Sourcebook, which will synthesize best practices in resettlement and provide guidance to staff in application of the policy, is now available.
- **Indigenous Peoples (OD 4.20).** This directive provides guidance to ensure that indigenous people benefit from development projects, and to avoid or mitigate adverse effects of Bank-financed development projects on indigenous people. Measures to address issues pertaining to indigenous peoples must be based on the informed participation of the indigenous people themselves. Sub-projects that would have negative impacts on indigenous people will not be funded under the proposed PADEP project.
- **Forests (OP 4.36).** This policy applies to the following types of Bank-financed investment projects: (a) projects that have or may have impacts on the health and quality of forests; (b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and (c) projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly, privately, or communally owned. The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation of critical forest areas or related critical habitats. If a project involves the significant conversion or degradation of natural forests or related natural habitats that the Bank determines are not critical, and the Bank determines that there are no feasible alternatives to the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs, the Bank may finance the project provided that it incorporates appropriate mitigation measures. Sub-projects that are likely to have negative impacts on forests will not be funded under the proposed PADEP project.
- **Cultural Property (OPN 11.03).** The term "cultural property" includes sites having archaeological (prehistoric), paleontological, historical, religious, and unique natural values. The Bank's general policy regarding cultural property is to assist in their preservation, and to seek to avoid their elimination.

Specifically, the Bank (i) normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage; and (ii) will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. The management of cultural property of a country is the responsibility of the government. The government's attention should be drawn specifically to what is known about the cultural property aspects of the proposed project site and appropriate agencies, NGOs, or university departments should be consulted; if there are any questions concerning cultural property in the area, a brief reconnaissance survey should be undertaken in the field by a specialist. The proposed PADEP project will not fund sub-projects that will have negative impacts on cultural property.

- **Safety of Dams (OP 4.37).** For the life of any dam, the owner is responsible for ensuring that appropriate measures are taken and sufficient resources provided for the safety to the dam, irrespective of its funding sources or construction status. The Bank distinguishes between small and large dams. Small dams are normally less than 15 m in height; this category includes, for example, farm ponds, local silt retention dams, and low embankment tanks. For small dams, generic dam safety measures designed by qualified engineers are usually adequate. Sub-projects that will include small dams, i.e. chaco dams and other water management structures will prepare a generic dam safety analysis.
- **International waterways (O 7.50).** The Bank recognizes that the cooperation and good will of riparians is essential for the efficient utilization and protection of international waterways and attaches great importance to riparians making appropriate agreements or arrangement for the entire waterway or any part thereof. Projects that trigger this policy include hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways. The riparians are being notified in accordance with this policy; no additional steps need to be taken at the level of the sub-projects.
- **Disputed Areas (OP/BP/GP 7.60).** Project in disputed areas may occur the Bank and its member countries as well as between the borrower and one or more neighbouring countries. Any dispute over an area in which a proposed project is located requires formal procedures at the earliest possible stage. The Bank attempts to acquire assurance that it may proceed with a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed can go forward without prejudice to the claims of the country having a dispute. This policy is not expected to be triggered by sub-projects. This policy is unlikely to be triggered by sub-projects to be funded by the proposed PADEP project.

## 6.2 Compliance with Tanzania's environmental management policies

Implementation of the PADEP project will be undertaken in conformity to provisions of the Tanzanian National Environment Policy (NEP) of 1997 and The National Land Policy of 1995. Also relevant is the National Environment Management Council Act (no. 19 of 1983) which principally provided establishment of the National Environment Management Council (NEMC). Among others; the Act also stipulated the following functional roles and responsibilities for NEMC:

- To advise government on all environmental-related issues (i.e. including impacts of PADEP activities)
- To formulate environment policy
- To establish multisectoral/multidisciplinary coordination among both institutions as well as respective individuals dealing with environmental issues. In other words, this incorporates aspects of community participation/involvement as required by PADEP.

Also relevant are the Land Acts especially both no, 4 and 5 of 1999. These make far-reaching provisions for environmental management and natural resources because they provide for categorization of lands into three areas: namely:

- (a) general (i.e. unreserved or public lands)
- (b) reserved ( i.e. protected/conserved lands)
- (c) village lands (i.e. lands to be administered by village government authorities; as opposed to lands to be administered by central government)

Other pertinent Land Acts (among several) are:

- Land Acquisition Act no. 47 of 1967: which provides for compulsory acquisition of land in the interest of the public.

- National Land use Planning Commission Act; 1984 which mainly provides for establishment of the National Land use Planning Commission, but more importantly together with the Rural Lands (planning and utilization) Act no 22 of 1979 establishes the need for ensuring proper land use through e.g. multisectoral/multidisciplinary/coordination as well as cooperation, both of which are in the spirit of PADEP.
- Town and Country Planning Ordinance Cap 378 of 1956, which provides for both methodology and approach to land use planning in both urban and rural areas.

Local authorities will be essential to successful implementation of the PADEP project, and the powers of these are specified in several relevant pieces of legislation. The key legislations are as follows:

- Local Government District Authorities Act no. 7 of 1982 duly amended in Act no. 8 of 1992, Act no.4 of 1985 and Act no, 13 of 1988
- Decentralization of government administration (interim provisions Act no. 27 of 1972, duly amended among several others in Act 26 of 1975, Act no. 12 of 1982 as well as in Act no. 19 of 1992.
- There is a long list of district by-laws, most of which pertain to agriculture, for example the following:
  - ◆ Manyoni District Development Council (Cultivation of Agricultural lands by-laws)
  - ◆ Kilosa District Development Council (Cultivation of Agricultural lands by-laws)
  - ◆ Bagamoyo District Development Council (Cultivation of Agricultural lands by-laws), etc.,

Several pieces of legislation govern use of specific resources. Key among them are:

- (i) Range Development and Management Ordinance (Cap 569), which provides for among others demarcation and improvement of range areas for livestock grazing.
- (ii) Wildlife Conservation Act no. 12 of 1974, which provides for protection of wildlife reserved areas from human activities.
- (iii) Forests Ordinance (Cap 389), which similar to Wildlife Act also provides for protection of forestry related reserved areas from human activities.
- (iv) Among several others; the following acts/ordinance in their totality provide for proper agricultural practices and thence products:
  - Grass-fires (control) Ordinance (Cap 13)
  - Plant protection Ordinance (Cap 133)
  - Food (control) of quality Act no. 10 of 1978
  - Pharmaceuticals and poisons Act no. 9 of 1978
  - Penal Code (Cap 16)
    - Section: 179: Negligent Spreading of diseases
    - Sections:180-81: Adulteration and sale of noxious food
  - Tropical Pesticides Research Institute Act no, 18 of 1979
  - Water utilization (control and regulations) Act no. 42 of 1974 as duly amended in Act no 10 of 1981 as well as Act no 17 of 1989

Acts which promote/control industrial production and trade:

- Small Industries Development Organization Act no 28 of 1973
  - National Industries (Licensing and Registration Act) no 10 of 1967 with its amendments in Act 13 of 1982, no. 13 of 1991 and also amended by Investment Promotion Centre Act no 10 of 1992
  - Penal code Cap 16; Section 186: on Trade

## 7. PUBLIC CONSULTATION PROCESS

As mentioned earlier, PADEP will not support subprojects classified as Category A because of limited capacity, both in terms of technical and financial resources, to implement preventive or mitigation measures required for this type of subprojects.

According to Bank's OP 4.01, all Category A and B subprojects proposed for PADEP financing, during the EA process, the implementing agencies (PCU, districts councils and communities/farmer groups) shall be required to consult subproject-affected groups and local non-governmental organizations (NGOs) about the subproject's environmental aspects and shall take their views into account. PADEP implementing agencies shall initiate such consultations as early as possible. PADEP should consult these groups at least twice: shortly after environmental screening and before the terms of reference for the EA are finalized; and once a draft EA report is prepared. In addition, the PADEP should consult with such groups throughout project implementation as necessary to address EA-related issues that affect them. For meaningful consultations between the implementing agencies and subproject-affected groups and local NGOs, relevant material shall be provided in a timely manner prior to consultation, and in a form and language that are understandable and accessible to the groups being consulted.

Any Category B report for a subproject proposed for PADEP financing shall be made available to subproject-affected groups and local NGOs. For Category B subprojects, public availability of EA reports in Country is a prerequisite to PADEP funding of these subprojects. The consultation process with the subproject-affected groups will be as follows:

- *Stakeholder identification:* There should be an explicitly designed consultation strategy based upon NEMC guidelines and the Bank's safeguard policies. Key stakeholders should be defined. The means for identifying and weighing the relative participation in the consultations of "affected communities" "beneficiaries" and other "stakeholders" should be considered. These should include representatives of government agencies, NGOs, religious groups, and village and community leaders. Gender and ethnicity should be considered in stakeholder identification and consultation process.
- *Information dissemination:* A range of means for information dissemination is available, such as posters, radio reports, and public meetings and hearings. Key stakeholders should be targeted for information campaigns prior to meetings or hearings. Information materials for communities affected by subprojects should be translated into Kiswahili language.
- *Consultation mechanism:* The types of consultation mechanisms to be used in PADEP should include public meetings and workshops and seminars. A systematic survey to elicit opinions of persons affected directly by the subprojects could be considered. There are a wide variety of other effective techniques, which could be used for consultation, but apparently they are not tested in the country. These include public hearings, citizen advisory groups, focus groups, community opinion survey and expert panels discussions.

According to the NEMC guidelines, public consultations are paramount during impact assessment, especially at the stage of scoping, ToR preparation and EA preparation. DFT should identify the main issues of concern and the affected or interested parties during the scoping exercise. To ensure satisfactory public (affected and/or interested people) involvement, DFT should initiate a public information programme of the area likely to be affected by the proposed subprojects. Any concern raised by the public should be recorded and addressed in the process of categorization of proposals. Public notice of the scoping process for the subprojects should be issued by NEMC (or accredited agency) through village leaders and/or other appropriate mechanisms. .

NEMC requires that a summary of the draft EA conclusions, including the ESMP, be presented to affected communities and interested NGOs in a form and language meaningful to the groups being consulted. Comments made by the communities and NGOs must be incorporated into the EA report submitted to NEMC (or accredited agency) and subsequently PADEP for funding.

Under the PADEP implementation procedures, public consultation will begin with the PRA on environmental issues in the communities. During the PRA, the subproject will be defined and, through

## PADEP Environmental Assessment

the screening process, its associated potential environmental impacts and category of the EA will be determined. During the subsequent scoping stages, if the project will be classified as category B, another public consultation will be held with the communities affected by the proposed subproject. Involvement of the public will continue throughout the EA process, using the community and farmer group subcommittees and village and community leaders.

Once the draft EA report has been prepared, another consultation involving as many community members as possible, will be held to review the findings and recommendations of the draft EA report. Comments and observations shall be incorporated into the final EA report and the resulting ESMP report.

**Sample check list for watershed management for soil and water conservation sub-project**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Reduce biodiversity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Adversely affect downstream users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Affect areas of water sources extraction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Affect wetland/swamps areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Affect rare/endangered species?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Adversely effect human health?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Cause changes in land, water morphology and physical characteristics as well as quality and quantity of resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Reduce quality of land, water, or health of plants or animals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	11. Awareness raising?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Improved designing and construction method.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. Compensation if appropriate.			
	14. Are IPM approaches being adopted?			
	15. Have subproject-specific PMP been developed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	16. Are agro-chemical-related hazards being addressed?			
	17. Have PMP based on IPM approaches been developed?			

**Comments by DFO:**

**I recommend the proposal:**

**Signature: (DFO)**

(clearance by NEMC and date)

Date:

**Sample check list for conservation tillage sub-project**

Name of Sub-Project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Lead to soil erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Entail loss of access to or use of land by current users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Increase ability of soil to retain water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Require use of unfamiliar agricultural chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Enable water resources conservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Affect groundwater table?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Introduce new pests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Require storage of manure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Lead to use of new implements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11. Lead to appropriate management of residue?			
	12. Are IPM approaches being adopted?			
	13. Have subproject-specific PMP been developed?			
	14. Have agro-chemical-related hazards been addressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	15. Have PMPs based on IPM approaches been developed?			
	16. Is training in IPM approaches planned?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: **(DFO)** \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for fuel-efficient technology subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

<b>Aspect of EA needs</b>	<b>Sample checklist questions</b>	<b>Yes</b>	<b>No</b>	<b>Additional Data</b>
	<b>Will the subproject be likely to:</b>			
	1. Provide benefits for both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in loss of access to or use of land by present landholders and users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Increased cutting of trees or bushes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Lead to loss of land cover and soil disturbances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Lead to unsightly or foul smelling storage of compost or other matter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Leaching of contaminants into water supply?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Lead to land degradation and soil disturbance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation</b>	9. Are public awareness and training in biogas technology planned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>measures:</b>	10. Are safe disposal methods of slurry in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Siting of storage areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: **(DFO)** \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list to increase productivity subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions	Yes	No	Additional Data
	<b>Will the subproject be likely to:</b>			
	1. Lead to application of organic manure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Require significantly increased use of water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Lead to loss of access to or use of land by present landholders or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Require use of new or unfamiliar agricultural chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Lead to salinization of soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Lead to contamination/pollution of surface and/or groundwater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Lead to benefits for both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Introduction of new pests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	9. Soil testing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Are public awareness and training in IPM approaches being considered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11. Are soil, water and pests being monitored?.			
	12. Are IPM approaches being adopted?			
	13. Are subproject-specific PMP being developed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14. Have agro-chemical-related hazards being addressed?			
	15. Are PMPs based on IPM approaches in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for integrated plant nutrition techniques/strategies (IPNS) sub-projects**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Lead to application of organic manure, mineral fertilizers, bio-fertilizers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Entail loss of access to or change in use of land by present landholders and/or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Adversely affect quality of surface and ground water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Increase weeds or pests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Lead to salinization of soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Lead to loss of some plant species?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	8. Public awareness and training on IPM approaches?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Are soil and water quality being monitored?			
	10. Are IPM approaches being adopted?			
	11. Have subproject-specific PMPs been developed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Have agro-chemical-related hazards been addressed?			
	13. Is PMP based on IPM approaches being used?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_

(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for integrated pest management (IPM) subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Provide benefit to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Entail loss of access to or use of land by current land holders and/or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Entail use of new or unfamiliar agricultural chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Adversely affect micro organisms in soil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Adversely affect surface and groundwater (terrestrial or aquatic ecosystems)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Adversely affect consumers crops (residues in vegetables and fruits)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Soil contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Water resources pollution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	9. Has awareness campaign and training in IPM approaches been done?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Is there adequate capacity for proper handling and storage of agrochemicals?			
	14. Have IPM approaches been adopted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	15. Are subproject-specific PMP developed?			
	16. Are agro-chemical-related hazards addressed?			
	17. Is the PMP based on IPM approaches?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for increased use of labour saving technology subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

<b>Aspect of EA needs</b>	<b>Sample checklist questions</b> <b>Will the subproject be likely to:</b>	<b>Yes</b>	<b>No</b>	<b>Additional Data</b>
	1. Lead to loss of access to or use of land by present landholders or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Entail production of more manure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Introduce increased risk of accidents to humans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation</b>	5. Awareness and training on safe use and handling of herbicides available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>measures:</b>	6. Proper storage and use of manure in place?			
	7. Are IPM approaches adopted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Are herbicides-related hazards addressed?			
	10. Are PMP based on IPM approaches in place?			
	7. Compensation if appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for use of rainwater harvesting techniques subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Lead to increased incidence of water-borne disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Lead to land degradation at livestock watering points?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Provide benefits to men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Increase risk of flooding during heavy rain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Lead to siltation due to erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	7. Is awareness and training plan in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Are there plans to plant protective vegetation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Are design specifications able to withstand reasonable risks of flooding?			
	10. Are IPM approaches adopted?			
	11. Are agrochemicals-related hazards addressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Are PMP based on IPM approaches in place?			
	13. Is there a need for the preparation of generic dam safety measures?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for improvement of traditional irrigation schemes subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Result in increased salinity of soil or water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Increase incidence of water borne disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Adverse impact on downstream users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Land and water use conflicts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	7. Provide drainage including disposal of water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Monitoring of soil and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Is salinity monitoring plan in place?			
	10. Is awareness and training plan in place?			
	11. Are there plans to plant protective vegetation?			
	12. Are design specifications able to withstand reasonable risks of flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. Are IPM approaches adopted?			
	14. Are agrochemicals-related hazards addressed?			
	15. Are PMP based on IPM approaches in place?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_

(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for improvement in livestock production subproject**

Name of Sub-project: \_\_\_\_\_  
Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Create conflicts with customs/traditions of local communities with respect to livestock keeping?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Increase quantities of manure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Lead to overgrazing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Increase exposure of humans to animal borne disease?			
	6. Increase exposure to agricultural chemicals (dips)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	7. Are the grazing arrangements rotational?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Is public awareness and training planned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Are the arrangements for handling and storage of manure and chemicals in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for production of non-traditional crops subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Entail loss of access to or use of land by present landholders and/or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Provide benefits to men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Contribute to deterioration in soil quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Entail introduction of new pests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	5. Is public awareness and training program in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Is a pest monitoring and surveillance in plan in place?			
	7. Are PMP based on IPM approaches in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Are IPM approaches adopted?			
	9. Are agrochemicals-related hazards addressed?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for supply of farm inputs subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

Aspect of EA needs	Sample checklist questions Will the subproject be likely to:	Yes	No	Additional Data
	1. Entail loss of access to or use of land by present land holders and or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Entail local storage of agricultural chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Provide benefits to both men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Enhance risk of robbery or theft?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Increase population of vermin or rats?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation</b>	6. Has security for money and goods (locks) been provide?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>measures:</b>	7. Has public awareness been raised?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Is there good storage facility of agricultural chemicals and seeds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for initial processing of agricultural and livestock products subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

<b>Aspect of EA needs</b>	<b>Sample checklist questions</b>	<b>Yes</b>	<b>No</b>	<b>Additional Data</b>
	<b>Will the subproject be likely to:</b>			
	1. Increase production of by-products?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Entail loss of access to or use of land by present land holders and/or users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Contribute to soil contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Create unpleasant odours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Affect water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Lead to benefits for men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Lead to contamination of products?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	8. Is there proper disposal of wastes planned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Is the site appropriate?.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Is training and public awareness plan in place?.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for improvement of crop produce marketing subproject**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

<b>Aspect of EA needs</b>	<b>Sample checklist questions Will the subproject be likely to:</b>	<b>Yes</b>	<b>No</b>	<b>Additional Data</b>
	1. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Provide benefits to men and women?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Create plant waste requiring disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Create needs for latrines to accommodate gatherings of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Unpleasant odours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	6. Is the plan for disposal of waste in place?.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Has the site been carefully selected? .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Are the water supply and sanitation facilities provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_  
(clearance by NEMC and date)

Date: \_\_\_\_\_

**Sample check list for rehabilitation of infrastructure sub-projects**

Name of Sub-project: \_\_\_\_\_

Proposed Environmental Category \_\_\_\_\_

<b>Aspect of EA needs</b>	<b>Sample checklist questions</b>	<b>Yes</b>	<b>No</b>	<b>Additional Data</b>
	<b>Will the subproject be likely to:</b>			
	1. Will it cause land use conflicts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Is any person living on or near the land needed for the subproject, or is any person farming there, using the land for grazing or watering of animals or for any other purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Generates excessive dust and noise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Leads to creation of open pits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Reduces biodiversity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Leads to construction wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Leads to loss of vegetation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mitigation measures:</b>	8. How is compensation for lost crops or grazing land going to be done?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Are protective gear provided?			
	10. Landfill arrangements in place?			
	11. Construction wastes management in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Biodiversity monitoring plan available?			
	13. Training on safety and precautionary measures planned?			

Comments by DFO: \_\_\_\_\_

I recommend the proposal: \_\_\_\_\_

Signature: (DFO) \_\_\_\_\_

(clearance by NEMC and date)

Date: \_\_\_\_\_

PADEP Environmental Assessment  
Annex 1