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THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF AGRICULTURE

PRODUCTIVE SAFETY NET PROJECT
PHASE IV

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Natural Resources Directorate,
PSNP Public Works Coordination Unit
-
Agricultural Extension Directorate,
Livelihoods Strengthening Coordination Unit

6 June 2014

LIST OF ACRONYMS

BoARD	Bureau of Agriculture and Rural Development
CSE	Conservation Strategy of Ethiopia
CFSTF	Community Food Security Task Force
CFU	Counterpart Fund Unit
DA	Development Agents
EWRD	Early Warning and Response Directorate
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
ESMF	Environmental and Social Management Framework
FSCD	Federal Food Security Coordination Bureau
FSP	Food Security Programme
GOE	Government of Ethiopia
JSOC	Joint Strategic Oversight Committee
KFSTF	Kebele Food Security Task Force
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
PSNP	Productive Safety Net Programme
RFSCO	Regional Food Security Coordination Office
RFSSC	Regional Food Security Steering Committee
RPWFU	Regional Public Works Focal Unit
SARDP	SIDA-Amhara Rural Development Project
SOE	Statement of Expenditures
ToT	Training of Trainers
WFSCT	Woreda Food Security Case Team
WFSTF	Woreda Food Security Task Force
WOFED	Woreda Office of Finance and Economic Development
WARDO	Woreda Agriculture and Rural Development Office
WLAEPO	Woreda Land Administration and Environmental Protection Office
USD	United States Dollars

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Executive Summary

Food insecurity has long been one of the defining features of rural poverty, particularly in drought-prone areas of Ethiopia. Poverty has been widespread in both rural and urban areas, but the magnitude has been much greater in drought-prone rural areas than in urban areas.

The Government of Ethiopia decided that there was an urgent need to address the basic food needs of food insecure households *via* a productive safety net system financed through multi-year predictable resources, rather than through a system dominated by emergency humanitarian aid. Furthermore, the Government sought to shift the financing of the programme from food aid to cash. On this basis, within the framework of the national Food Security Programme, which emphasized the three interrelated pillars of food security that address food availability, access to food and utilization, the Government decided to develop a Productive Safety Net Project (PSNP).

Following the launch of the PSNP in 2005, the food insecurity situation has shown gains in recent years, attributable to the PSNP and other, related programmes and activities. However, with rapid population growth, the absolute number of Ethiopians living in poverty is still high.

PSNP IV will build on the successes and lessons learned from the previous and current phases of the PSNP. It will also support the transition to a system of integrated social protection, and the integration of the two previous programs (PSNP and Household Asset-Building Programme (HABP)) into a single program, and scaling up to a national rural program, in all regions.

PSNP IV will consist of three components:

1) Systems Development (USD 150 million total). Support to the social protection and DRM systems will include targeting, registry, capacity development, and management information systems (MIS).
2) Productive Safety Nets and Support to Livelihoods Strengthening (USD 2.5 billion total), consisting of the following sub-components:
    a. Safety net transfers to targeted households and effective response mechanisms providing resources to transitorily food insecure households;
    b. Development of sustainable community assets and improved enabling environment for livelihoods through watershed development planning and public works;
    c. Support to household's access to livelihoods strengthening;
3) Institutional and Management Development (USD 260 million total). This component will support sustainable capacity development and institutional strengthening to implement PSNP 4.

PSNP IV will target chronically food insecure and vulnerable households in rural Ethiopia. It will move to national coverage over time, but clients will be phased in to the program starting with the existing caseload from the current program and those households in existing program regions who have received emergency assistance for at least 3 out of the last 5 years, meaning they are chronically food insecure. Following this, the program will expand to cover remaining woredas in Somali region, and finally to cover all regions in the country and become a national

program. It is estimated that the program will have a caseload in the next 5 years of about 9.2 million people, and will use an evidence-based approach to target new households for inclusion when existing clients graduate from the program.

This Environmental and Social Management Framework (ESMF) is designed to address potential environmental and safeguards issues arising from:

(i) The labour-intensive public works in Sub-component 2b, and

(ii) The Livelihoods Strengthening Sub-component 2c, which will provide mentoring and coaching to support aspiration development, improved access to appropriate financial services, a focus on savings for all households, livelihoods transfers, and credit for the credit-ready, and will support livelihoods strengthening through three pathways:
   - Agricultural production, supported by improved extension for increased agricultural production;
   - Off-farm income generating activities, supported by business and technical skills training;
   - Workforce development and linkages to employment

All environmental and social safeguards to be followed in the management of these two sub-components are covered by this ESMF, which contains two separate ESMF procedures:

- Public Works ESMF
- Livelihoods Strengthening ESMF

Both of these ESMF procedures are built on similar procedures used, and lessons learned, during the previous phases of the PSNP.

Public Works ESMF

The community-based PW programme of Sub-Component 2b is aimed at integrated watershed development, following the Government's *Community-Based Participatory Watershed Development Guideline*. The programme consists of discrete sub-projects planned, selected and prioritized by the communities and implemented by the PSNP PW beneficiaries. They are intended to make a major contribution towards environmental transformation and infrastructure development, and consequently improved agricultural productivity and more sustainable livelihoods. Such changes, in conjunction with other interventions, are expected to support eventual graduation from poverty of the beneficiary households.

PSNP PW are generally intended to enhance the environment and increase the productive capacity of the natural resource base. However, some past mass-mobilisation efforts towards environmental rehabilitation in Ethiopia have failed or have been abandoned, largely due to inappropriateness of the activity, a top-down approach, a lack of integration between the activity and the surrounding environment and land use pattern, and a sole focus on the provision of labour. As a result, the environment returned to its degraded state. Furthermore, some of the projects, although intended to protect or enhance the natural resource base, were poorly designed, and ended up doing the opposite. The conclusion is that such activities have the potential for failure and adverse environmental impacts on human populations or the biophysical environment, if the location or design does not follow good environmental practice.

The PW subprojects are planned, selected and implemented at community level; the cost of community labour is augmented by an average of an additional 25% to cover non-labour inputs, and each subproject is subject to Environmental Assessment, to ensure that it is environmentally sound and sustainable.

The principal relevant laws and policies of the Republic of Ethiopia for the purposes of this ESMF are:

- The Constitution of Ethiopia
- The Growth and Transformation Plan (GTP)
- The National Policy and Strategy on Disaster Risk Management (2013)
- The Federal Policy on the Environment (1997)
- The National Action Plan to Combat Desertification (2001)
- The Environmental Proclamations
- EIA Directive and Guidelines
- Climate Resilient Green Economy (CRGE)
- The Food Security Strategy (2002)
- The National Nutrition Programme (2013-2015)

The instrument normally employed in Ethiopia to ensure that projects are designed to avoid or minimise negative environmental impacts is Environmental Impact Assessment (EIA).[1] Where there are subprojects that are numerous, community-based, and not identified beforehand, it is not possible to apply EIA to each subproject in advance. Instead, the EIA requirements of both the Government of Ethiopia and the PSNP donors are addressed through this ESMF.

Under the ESMF, subproject Screening is the responsibility of woreda-level staff. The actual Screening is typically delegated to the Development Agent (DA), but supervision and overall responsibility remains at woreda level.

PW subprojects, which are community-based and small-scale, normally follow published designs into which good environmental practice has been incorporated, as set out in the Infotechs of the *Guideline*. Thus the majority are not expected to have negative impacts. However, depending on the environmental setting, some sub-projects will need site-specific mitigating measures to be incorporated into the design by the DA, in consultation with woreda experts.

Some sub-projects will require application of specialized procedures, notably those involving the use of pesticides, medical waste, and dam construction. These procedures are annexed to this ESMF.

In exceptional cases it may be necessary for a subproject design to be reviewed at a higher level. The Screening procedure earmarks such subprojects as being of environmental concern, and draws them to the attention of the Regional Bureau of Environment and Forests (RBEF) or its equivalent (originally the Regional Office of the Environmental Protection Authority, the

[1] In keeping with Ethiopia's *Environmental Impact Assessment* proclamation, the term 'environment' in this context covers biophysical, social and cultural heritage impacts.

responsible authority under Ethiopia's *Proclamation on the Establishment of Environmental Protection Organs* (No. 295/2002).

The RBEF decides if an EIA is necessary, and if so, the regional Public Works Focal Unit (PWFU) arranges with the concerned woreda office for the EIA to be conducted. Woreda staff are trained for this eventuality. In such cases, the RBEF is responsible for reviewing the EIA and making the final decision as to whether the subproject can proceed.

Under PSNP III no PW sub-projects with impacts that might lead to involuntary resettlement or involuntary loss of assets or access to assets were ineligible. Under PSNP IV, PW sub-projects likely to lead to the physical relocation of households remain ineligible, but sub-projects involving involuntary loss of assets or access to assets are now eligible.[2] Thus in addition to this ESMF, a *Resettlement Policy Framework* (RPF) has now been prepared, in accordance with the World Bank safeguard policy OP 4.12, on the assumption that some PW subprojects might have negative impacts related to the acquisition of land, loss of assets, loss of income sources or means of livelihood, or restriction of access to natural resources. This determination is made by the DA during the subproject Screening process. The RPF then serves as a guide to project implementers to ensure that, prior to implementation of any sub-project likely to result in such impacts, project-affected people are consulted and appropriate preventive and mitigation measures are exhaustively considered and executed.

Another study that was conducted as part of the overall environmental and social assessment under this new project was a Social Assessment, in accordance with World Bank safeguard policy OP 4.10 addressing the needs of particularly vulnerable peoples. The study assessed key socio-economic and socio-cultural factors that might require consideration in project design before or during project implementation, consulted particularly vulnerable or historically underserved groups in the project areas that might be excluded from PSNP IV or adversely affected by it, determined whether the project is likely to trigger the World Bank social safeguards policy OP 4.12 *Involuntary Resettlement*, and if so to what extent, and recommended appropriate mitigating measures or design modifications for addressing any potential negative social impacts.

The implementation of both of these social safeguard policies OP 4.10 and OP 4.12 provide the basis for a robust plan for social mitigating measures, monitoring and follow-up.

Livelihoods Strengthening ESMF

The aim of Livelihoods Strengthening Sub-Component 2c is to foster improved livelihoods through household-level micro-scale activities, each of which, when examined individually, is expected to have no significant impact on the environment. However, the strategy of this sub-component is to offer services and facilities to large numbers of households over several years. There is thus potential for large numbers of households in a given area to choose to embark on identical or similar HABP activities.

[2] The Voluntary Asset Loss procedure employed by PSNP III will no longer be utilized. Under PSNP IV all cases of loss of assets or access to assets must follow the RPF procedure.

It is then clear that Livelihoods Strengthening could lead to significant cumulative negative environmental impacts. Thus the Livelihoods Strengthening ESMF incorporates a Strategic Environmental Assessment (SEA), which identifies cumulative impacts that might reasonably be expected to occur. Because it is not possible to predict what activities might be undertaken, and where, and because of the potentially very large number of household-level activities that might be undertaken, a framework approach is adopted. Thus this document sets out procedures for (i) Avoiding or mitigating such impacts before they occur, and (ii) Monitoring the implementation of the mitigating measures.

At woreda level, the Extension Unit NR Expert takes the lead responsibility for implementing the Environmental Management system. At regional level, responsibility for managing the process is assumed by the Extension Case Team.

Summary of Roles and Responsibilities for Safeguards Implementation

The federal PW Coordination Unit (PWCU) is responsible for coordination, oversight and technical support to the PW ESMF and RPF. The federal Livelihoods Strengthening Unit is responsible for coordination, oversight and technical support to the in Livelihoods Strengthening ESMF.

The regional Public Works Focal Units (PWFUs) ensure that the PW ESMF and RPF are implemented in their respective regions, and manage the process.

Responsibility for implementation of the ESMF procedures is at woreda level, and differs for the two programmes:

(a) For the PW sub-component, the Natural Resources Expert in the Woreda NR Case Team is responsible for implementing the ESMF procedures, part of which (notably the ESMF Screening) is delegated to the DA.
(b) For the Livelihoods Strengthening sub-component, the Natural Resources Expert in the Woreda Extension Services Case Team is responsible for implementing the ESMF procedures, in conjunction with the Environmental Specialist in the Woreda Environmental Protection Office (EPO).

Implementation Budget

The ESMF-related costs of the federal PWCU and the regional PWFUs are incorporated in the budgets for these Units. The experience during the earlier phases of PSNP/HABP is that it is necessary to conduct training throughout project implementation, on an annual basis. The cost of training for staff undertaking safeguards work on the PW ESMF and RPF is estimated at $63,000/annum. The cost of training for the Livelihoods ESMF will be estimated by the PWCU when the planned annual scope of the Livelihoods Strengthening sub-component has been determined. Meanwhile a provision of $30,000 is made.

PART I: BACKGROUND

1. Environmental Context and Baseline Conditions

Ethiopia depends principally on agriculture both for its economic growth and food security. Out of an estimated 91 million people, some 83% live in rural areas with agriculture (crop production and animal husbandry) as the main source of livelihood.

Ethiopia's current development agenda is governed by the Growth and Transformation Plan (GTP), the main goal of which is for Ethiopia to "extricate itself from poverty to reach the level of a middle-income economy by 2025." To achieve the GTP‟ s main goal and objectives, the Government of Ethiopia (GoE) has considered internalizing the climate induced risks and has embarked on developing the Climate Resilient Green Economy (CRGE) strategy in support of GTP. The vision of the CRGE is to achieve middle-income status by 2025 in a climate-resilient green economy.

The services provided by natural resources including agriculture and livestock play a critical role for the livelihood of the majority of Ethiopia's population. Agriculture is the key pillar of the economy and the most important source of growth. It accounts for almost 48% of GDP and 85% of export earnings. Agricultural production is mostly rain-fed and dominated by small-scale farmers and enterprises that contribute to 90% of agricultural production. Although much of the agriculture remains for subsistence purposes, still smallholders provide a large part of traded commodities, including for exports and about 70 percent of the raw material requirements of agro-based domestic industries.

Agriculture, which is the critical element of economic growth and food security of the country, relies on sustainable management of land and water. The country, however, is experiencing low and declining agricultural productivity, persistent food insecurity, and rural poverty largely attributed to land degradation. Studies have shown that by the mid-1980s some 27 million ha or almost 50 percent of the Ethiopian highlands, which makes up about 45 percent of the total land area, was considered to be significantly eroded, of this 14 million ha was seriously eroded and over 2 million ha beyond reclamation. It is estimated that some 30,000 ha are lost annually as a result of soil erosion, representing over 1.5 billion tons of soil that is removed annually by a variety of land degradation processes.

With its soil fragility, undulating terrain, and highly erosive rainfall, Ethiopia has continually faced challenges in conserving its soil fertility. Coupled with these natural constraints, the environmentally destructive farming methods that many farmers practice make the country highly vulnerable to soil erosion. Moreover, some sources estimate that close to one-third of the agricultural land is moderately to strongly acidic because of long neglect in soil conservation and destructive farming practices.

The PSNP IV woredas are located in Tigray, Amhara, Afar, SNNP, Oromiya, Somali regions, and in the rural parts of Dire Dawa and Harage Administrations. However, the environmental

characteristics of these areas in which PSNP IV will be implemented are more usefully demarcated by altitude, rather than administrative boundaries. Thus they are presented in Table 2 below, with their height above sea level, which is broadly correlated with temperature.
The PSNP IV woredas are located in Tigray, Amhara, Afar, SNNP, Oromiya, Somali regions, and in the rural parts of Dire Dawa and Harage Administrations. During the course of programme implementation it is planned to extend to Benishangul-Gumuz and Gambela regions. However, the environmental characteristics of these areas in which PSNP IV will be implemented are more usefully demarcated by altitude, rather than administrative boundaries. Thus they are presented in Table 1 below, with their height above sea level, which is broadly correlated with temperature.

Table 1: Eco-Climatic Zones and Potential Environmental Sensitivities[3]

Eco-Climatic Zone	Potential Sensitivities
High Dega Wurch Very high elevation areas (>3200 m) principally in Wollo, Gonder and Gojam in Amhara; dominated by grassland landscapes; rainfall is 1000-1600 mm.	Regeneration of natural resources in the high elevation zones need to recognize the limited plant species adapted to these highland conditions and the slower growth rates, potential for rapid rainfall runoff and the vulnerability to overgrazing and other human uses.
Dega High elevation areas (2000-3200 m) such as in Tigray, Wollo, Gonder and Gojam in Amhara, and Harrege, Arsi and Bale in Oromiya; typically mixed coniferous shrubs and trees; rainfall is 1000-2000 mm.	The elevation changes, the relatively high rainfall and the potential high soil erosion rates present opportunities and constraints for environmental rehabilitation and management of increasing land use pressures in the Dega zone.
Weyna Dega Mid-elevation areas (1500-2400 m) such as in the western half of Ethiopia covering Amhara, Oromiya, SNNP and Tigray; typically mixed temperate forests and shrubs and riparian and other vegetation associated with the Abbay River and Awash River; rainfall is 800-1600 mm.	The relatively high level of ecosystem productivity and biotic diversity provides for significant natural resources and the pressures of human uses, along with the presence of important and sensitive natural habitats but with generally high recovery rates if managed properly.
Kolla Low elevation semi-arid areas (500-1500 m) of western Tigray, western Gonder in Amhara, southern Oromiya and northern Somali; dry savanna landscapes; rainfall is in the range of 200-800 mm.	The semi-arid, dry savanna Kolla landscapes are vulnerable to deforestation and overgrazing, variable rainfall, slower rates of recovery and wildfire potential; soils are generally nutrient poor and moderate-high erodability.
Bereha Low elevation arid areas in Afar, Somali, Benshangul, Gumuz and Gambella and the western parts of Tigray and Gonder in Amhara, and eastern Oromiya (Harrerege and Bale); arid and dry savanna landscapes; rainfall is generally less than 200 mm.	Moisture and nutrient limitations, poor water holding capacity of soils, high livestock grazing pressures and slow recovery rates present constraints in these mostly Arid landscapes that generally have low soil quality, high erosion potential and vulnerability to pastoral livelihoods.

[3] RDFE, May, 2004, *Emergency Drought Recovery Project: Environmental and Social Management Framework*.

2. Legal, Policy and Administrative Framework

2.1 Relevant Legislation and Policy

2.1.1 The Constitution of Ethiopia

The 1994 Constitution of Ethiopia proclaims that all citizens shall have a right to live in a clean and healthy environment. It states that Government and citizens have a duty to protect the environment, and the design and implementation of programs and projects shall not damage or destroy the environment. The Constitution incorporates a number of other provisions relevant for the protection, sustainable use and improvement of the environmental resources of the country. It reflects a view of environmental concerns in terms of fundamental human rights, and provides a basis for the formulation of national policies and strategies on environmental management and protection. It assures that no development activity shall be disruptive to the ecological balance, and that people concerned shall be made to give their opinions in the preparation and implementation of environmental protection policies and programs.

The Constitution also:

(a) Maintains land under the ownership of the Ethiopian people and the government but protects security of usufruct tenure;
(b) Reinforces the devolution of power and local participation in planning, development and decision taking by regions and woredas;
(c) Ensures the equality of women with men;
(d) Ensures the appropriate management as well as the protection of the well-being of the environment; and
(e) Maintains an open economic policy.;
(f) Recognises the rights of groups identified as "Nations, nationalities and Peoples" having a common culture or similar customs, mutual intelligibility of language, belief in a common or related identity, a common psychological make-up, and who inhabit an identifiable, predominantly contiguous territory.
(g) Recognises the rights of pastoral groups inhabiting the lowlands.

The Constitution of Ethiopia further states that land is retained under the control of the people and the Government of Ethiopia, and thus prohibiting its buying and selling. It however ensures its usufruct tenure rights and allows for its usufruct rights to or from others (i.e. renting out the land). All farmers who would like to make a livelihood from farming are entitled to have plot of land free of charge

2.1.2 Growth and Transformation Plan (GTP)

The GTP sets the broad framework for PSNP IV, and the approach to the PW programme and the safeguards architecture are consistent with the GTP's two strategic objectives "to achieve a sustainable increase in agricultural productivity and production", and "to reduce degradation and improve productivity of natural resources".

2.1.3 The National Policy and Strategy on Disaster Risk Management (endorsed 2013)

PSNP IV is consistent with, and will contribute to the implementation of, the National Policy and Strategy on Disaster Risk Management, which amends the Policy on Disaster Prevention and Management of 1993. The National Policy and Strategy on Disaster Risk Management reduces risks and impacts of disasters through the establishment of a comprehensive and integrated DRM system within the context of sustainable development. It entails a shift from response and recovery to a multi-sectoral and comprehensive approach that focuses on disaster prevention, mitigation and preparation.

2.1.4 Federal Policy on the Environment (1997)

The first comprehensive Environmental Policy of the Federal Democratic Republic of Ethiopia was approved on April 2, 1997 by the Council of Ministers. It derives from the recommendations of the Conservation Strategy of Ethiopia, which was prepared in 1989 and later updated in 1997. The Overall Policy Goal is to: "improve and enhance the health and quality of life of all Ethiopians and to promote sustainable economic development through the sound management use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs".

The Environmental Policy provides a comprehensive set of principles and policies to guide the integration of environmental considerations in development activities, and includes nine policy objectives, 19 guiding principles, ten sectoral policies and ten cross-sectoral policies.

The National Policy was further strengthened with the adoption of several multilateral environmental conventions, including:

- The Convention on Biological Diversity;
- The Basal Convention on the Control of Transboundary Movements of Hazardous Wastes;
- The United Nations Framework Convention on Climate Change;
- The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa;
- The Vienna Convention and the Montreal Protocol for the Protection the Ozone Layer;
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; and
- The Stockholm Convention on Persistent Organic Pollutants.

2.1.5 National Action Plan to Combat Desertification (2001)

Ethiopia signed the Convention to Combat Desertification in October 1994 followed by the Government ratification in June 1997. The Environmental Protection Authority (EPA)[4] was designated by the Government as a national focal agency for the implementation of the convention. The activities so far have included, among others, the development of a National Action Plan for the Environment and the regional action programmes are under development.

[4] Now replaced by the Ministry of Environment and Forests.

2.1.6 Environmental Proclamations

A series of legal proclamations form the basis for the environmental assessment and management framework in the country.

The *Proclamation on the Establishment of Environmental Protection Organs* (No. 295/2002) assigns organizational responsibilities for environmental management activities as well as environmental protection regulations and monitoring. It gives the Environmental Protection Agency (EPA) the legal powers to ensure enforcement and compliance with environmental laws and standards and differentiates the responsibilities among the environmental agencies at federal and regional level.

The *Proclamation on Environmental Impact Assessment* (No. 299/2002). Article 5: Project Requiring Environmental Impact Assessment of the Proclamation states that: "Every project which falls in any category listed in any directive issues pursuant to this Proclamation shall be subject to environmental impact assessment"; it also states that programmes and policies with potential impacts shall be subject to the provisions of the proclamation.

The *Proclamation on Environmental Pollution Control* (No. 300/2002). This law recognizes the fact that some social and economic development endeavours may inflict environmental harm that could make the endeavours counter productive. To this end, it aims to eliminate or, when not possible, to mitigate pollution as an undesired consequence of development activities.

The *Proclamation on Solid Waste Management* (No. 513/2007). This proclamation gives the Ministry of Environment & Forests responsibility to enhance capacities at all level to prevent the possible adverse impacts while creating economically and socially beneficial assets out of solid wastes.

2.1.7 EIA Directive and Guidelines

The purpose of the EIA guidelines of 2002 is to ensure that development projects integrate environmental considerations in the planning process as a condition for their approval. The EIA process includes:

- Application
- Pre-screening
- Screening
- Scoping
- EIA and submission of EIA report
- Review of the EIA and decision by the Competent Authority

The EIA guidelines cover industrial, mining, agriculture and infrastructure development, all of which are likely to impact the environment in a significant manner.

EIA Directive 1 of 2008, *Directive to Determine Projects Subject to EIA*, determines the categories of project subject to EIA Proclamation 299/2002.

2.1.8 Climate Resilient Green Economy (CRGE)

PSNP IV will contribute to the Climate Resilient Green Economy. Launched in 2011, the CRGE aims to achieve the GTP goal of building Ethiopia into a middle-income country by 2025 in a way that is both resilient to the negative impacts of climate change and does not result in a rise in greenhouse gas emissions. The CRGE comprises two strategies: the Climate Resilience Strategy and the Green Economy Strategy.

The Climate Resilience Strategy is overseen by the Ministerial Steering Committee (in the Prime Minister's Office), and led by a Technical Committee chaired by the Ministry of Environment & Forest. PSNP IV will also support the Climate Resilient Green Economy (CRGE) by increasing climate resilience by strengthening household resilience to shocks through increasing food security and livelihoods; and by reducing carbon emissions and increasing carbon sequestration through public works.

2.1.9 Food Security Strategy (2002)

The Food Security Strategy is targeted mainly toward the chronically food insecure, moisture deficient and pastoral areas, with a focus on environmental rehabilitation to reverse the level of degradation and also as a source of income generation for food insecure households through a focus on biological measures. Water harvesting and the introduction of high value crops, livestock and agroforestry development are also included in the recent strategy. The objectives of this policy are to (i) increase the availability of food through increased domestic production, (ii) ensure access to food for food deficit households, and (iii) strengthen emergency response capabilities. The strategy recognizes the need to tailor interventions to the diversity of the food production zones - areas with adequate moisture, moisture deficient and pastoral areas. Chronically food insecure areas require a more comprehensive and appropriate package of interventions, which may include soil and water conservation, plant nutrient generation and recycling, drought and pest resistant crops and improved post harvest management.

2.1.10 The National Nutrition Programme (2013-2015) (NNP)

Overseen by a National Nutrition Coordinating Body chaired by the Federal Ministry of Health and co-chaired by the Ministries of Agriculture and Education, the NNP aims to drastically reduce stunting, wasting and chronic undernutrition in Ethiopia by 2015. The NNP places a renewed focus on the 1,000 days from conception to when a child reaches two years of age, and works in conjunction with the Health Extension Programme (HEP). The HEP provides free services on a range of basic health interventions (immunization; impregnated bednets; and treatment for malaria, severe malnutrition and pneumonia in young children) as well as behaviour change communication (BCC) through health extension workers and a "health development army".

PSNP IV will support the NNP by integrating nutrition sensitive approaches throughout the new design and by designing specific linkages to ongoing health and nutrition interventions, which will help to maximise the positive and minimise any negative social impacts.

2.2 Administrative Structure for Environmental Management

2.2.1 Ministry and Bureaus of Environment and Forests (or equivalent)

The Ministry of Environment and Forests has overall responsibility for setting environmental policies, regulations and standards and for administration of EIA requirements.

Regional Bureau offices have been established almost all of the regions and where they have not been established, other bureaus are designated to manage environmental affairs and coordination with the federal Ministry.

2.2.2 Ministry of Agriculture

The Ministry of Agriculture is responsible for a broad array of agricultural production and research, food security, poverty reduction, natural resource management and rural development programs and activities. The regional Bureaus of Agriculture are directly involved in delivery of programs with Woredas, in keeping with the decentralization strategy and the government's Growth and Transformation Plan.

2.2.3 Ministry of Water, Irrigation and Energy

This ministry is responsible for overall inventory, planning and management of surface and ground water resources in the country. This includes aspects of watershed management, water supply and water quality management that affect rural development programs. Regional Water Bureaus are directly involved in assisting woredas and other agencies in water resource development projects.

2.2.4 Woreda Offices

The woredas are a key focus of the government's commitment to decentralized delivery of services. The various departments at the woreda level have a direct responsibility for finance, land use, natural resources, infrastructure, and development at the local level. The agriculture departments have subject matter specialists and others who advise development agents working at the village level. The PSNP implementation will depend upon appropriate inputs and management controls related to soil and water conservation, small scale irrigation development, rainwater harvesting, road development and water supply, sanitation and waste management associated with rehabilitated schools and clinics.

2.2.5 Kebele Administration

The kebeles (areas with an average population of about 5,000) are in practice the primary contact level for most Ethiopian citizens. Kebele administrations consist of an elected Kebele council (in principle 100 members), a kebele executive committee of 5-7 citizens, a social court, and the development and security staff posted in the kebele.

The kebele council and Executive committee's main responsibilities are:

- Preparing an annual kebele development plan;
- Ensuring the collection of land and agricultural income tax;

- Organizing local labor and in-kind contributions to development activities;
- Resolving conflicts within the community through the social courts.

Kebele executive committees are answerable to their woreda council. Unlike executive committee members at the region and zone, elected members receive no stipend. The only official Kebele officer is the council chairman, who receives a small monthly allowance. The kebeles provide a link between the state and households and are responsible for enforcing the directives from the government ministries. In remote areas, the kebeles may be the only association, governmental services are conveyed through them.

PART II: PUBLIC WORKS

3. Background

The major causes of food insecurity in Ethiopia include land degradation, recurrent drought, population pressure, and subsistence agricultural practices characterized by low input and low output. The Government policy of community-based watershed development is designed to address some of these issues, with a view to making the watershed productive and able to sustain the livelihoods of households within the watershed. The programme of community-based watershed development is achieved by the implementation of an annual PW programme consisting of discrete PW 'subprojects'. Although many of the subprojects are aimed at enhancing the environment and increasing the productive capacity of the natural resource base, PW also have the potential for adverse environmental impacts on human populations or the biophysical environment, particularly if their location and design do not follow good environmental practices.

The procedures set out in this Section of the ESMF are designed to address such potential impacts, and build on the experience of the implementation of the PSNP III ESMF.

4. Programme Description

4.1 Public Works Sub-Projects: Eligibility Criteria

PSNP IV PW subprojects are labour-intensive, community-based activities designed contribute to watershed development, respond to the needs of Climate Change, Disaster Risk Management and Ethiopia's Nutrition policy, and to provide employment for chronically food insecure people who have "able-bodied" labour. The Programme Implementation Manual (PIM) requires that to be eligible for financing under the PSNP, the subprojects must be environmentally sound. It specifies that projects should be adapted to local conditions and protect the environment. They should be based on sound technical advice, and adequate technical supervision should be available to ensure the quality of work.

The subprojects are also required to meet the following criteria:

- *Labour intensity*: Subprojects activities must be labour-intensive and use simple tools as much as possible.
- *Communal benefits*: The subprojects must benefit the community as whole or groups of households within a given area.
- *Community acceptance*: The subprojects must be accepted and approved by the community. They should have active community support and commitment.
- *Feasibility and sustainability*: The subprojects must be feasible technically, socially and economically. They should be simple and manageable in implementation and also in on-going maintenance in order to be sustainable.
- *Productive*: The subprojects should create durable community assets which should contribute to watershed development and to the reduction of poverty and food insecurity.

- *Gender sensitivity*: Priority should be given to subprojects that are assigned to enable women to participate and which contribute to reducing women's regular work burden and increase access to productive assets.

4.2 Planned Location of Subprojects

Subprojects will be implemented in rural areas, within the identified regions. In cropping areas, they are expected to be within around 5 kilometres of the homes of the intended beneficiaries, or less in areas of steep or difficult terrain.

In pastoral areas, subprojects will be organized at strategic locations to which families can move or send selected able-bodied members.

4.3 Types of Subproject

The selection of activities to be undertaken under the PW component will be driven by the local planning process, which will include inputs from both men and women as well as representatives from vulnerable groups, in order to identify community needs and prioritise activities based on those needs. This will allow a pipeline of subprojects to be developed.

Priorities, desirable outcomes and connected activities will vary based on location. Examples of outcomes and activities in settled cropping areas such as are typically found in Tigray, Amhara, Oromiya and SNNPR, are outlined in the Table below.

Table 1: Examples of PW Subprojects and Expected Outputs and Outcomes

Typical Subprojects	Expected Outputs	Expected Outcomes
▫ Area closures/wood lots ▫ Multi-layered/storied agro-forestry ▫ Physical conservation measures, e.g. hill side terracing. ▫ Micro-niche development ▫ Biological measures ▫ Mulching of degraded areas ▫ Removal of invasive plant species	Improved land productivity and soil fertility restoration	Improved crop production, crop yields and livelihoods
▫ Gully control ▫ Land reclamation of degraded or previously unproductive land ▫ Bench terracing	Increased land availability for land-poor and landless	Improved crop production and livelihoods
▫ Small-scale irrigation ▫ Stream diversion ▫ Spring development ▫ Shallow wells ▫ Small dams ▫ Water ponds ▫ Drainage and water canals/conduits	Improved access to drinking and irrigation water	Improved health, improved food production and livelihoods

Typical Subprojects	Expected Outputs	Expected Outcomes
▫ Infiltration pits ▫ Seepage control measures		
▫ Vegetative fencing and fodder belts ▫ Conservation measures ▫ Fodder seed collection ▫ Paddock systems ▫ Water logging control ▫ Multi-purpose nurseries	Increased availability of fodder,	Improved crop production, livestock management and livelihoods
▫ Repairing classrooms and health facilities ▫ Latrine construction ▫ Classroom construction/renovation ▫ Health post construction.	Improved school and health facilities	Improved health and education
▫ Rural access road construction/rehabilitation ▫ Market yards and storage ▫ Stock routes	Improved access to health, education and farmer training services and to markets	Improved health, education, marketing of on-farm and off-farm products, and livelihoods.
▫ Child care centre construction	Improved access to child-care facilities	Improved mother and child care, health and safety

Some beneficiaries will be given an option to substitute participation in social service ('soft conditionality') programmes as a substitute for part or all of their PW labour-days. These will cover options such as the following:

Typical Services	Expected Outputs (Examples)	Expected Outcomes (Examples)
▫ Nutrition classes	Improved knowledge of nutrition	Improved nutrition status of community members
▫ Ante-natal classes	Improved knowledge of ante-natal care	Improved health status of mother and child
▫ Behavioural Change Communication classes	Improved knowledge of use and benefits of latrines, and of the use of health facilities	Improved community health and nutrition status

Through the PW community-based planning procedure, the PW programme is automatically reflects local needs. Thus the subprojects implemented will depend on the condition of the natural resource base, local infrastructure, agro-climatic setting, livelihood types, etc.

4.4 Subprojects in Pastoralist Areas

In lowland pastoral and semi-pastoral areas the PW community planning process will be the clan or sub-clan/community rangeland, rather than the community watershed or micro-watershed. The emphasis is expected to be on interventions that reduce risk and increase the resilience of communities to shocks, such as:

- Development of water points (using both traditional and innovative methods);

- Reclamation and rehabilitation of grazing areas and creation of grazing reserves through improved water harvesting and conservation-based activities (rainfall multiplier systems for improved pastures, agro-pastoralist systems, irrigation, etc.);
- Agro-forestry systems in grazing reserves to improve aerial pasture and multipurpose species, and access to fruits, dyes and gums;
- Other initiatives related to livestock trade and livestock health;
- Development of sustained agro-pastoral systems through rehabilitation of crusted and desertified areas (use of run-off/run-on systems integrated with dry-land conservation measures); and
- Windbreaks and fodder belts in protected areas.

4.5 Institutional Arrangements

Under the overall supervision of the Ministry of Agriculture, agencies at every level of Government will be accountable for the oversight and coordination of the programme, with implementation of programme activities being undertaken by woredas and kebeles, line ministry/agencies and other partners. The roles and responsibilities envisaged for the key institutions at each level are set out in summary form in Annex 1.

The preparation of the proposed projects identified as priorities by the community is carried out at kebele level, usually by the Development Agent (DA). Technical guidance is provided by the watershed development *Guideline* (which will be updated and expanded during the course of PSNP IV), with additional inputs to ensure that the PW address Climate Change, Disaster Risk Management and Nutrition. Where technical inputs not available at the kebele level are required, these are to be provided by the woreda line, or sector, offices concerned.

Regional Public Works Focal Units (PWFU), in liaison with Regional line bureaus, are responsible for ensuring that the standards published in the concerned technical materials are maintained as required.

4.6 Subproject Community Planning Process

Kebele Development Plans will form the basis for all PSNP PW interventions. Kebele plans are developed following existing participatory planning practices and methodologies extensively used in community planning in various regions and should ensure an effective participation of the communities in the planning process. The basic planning sequence in highland areas, as set out in the Government's *Community-Based Participatory Watershed Development Guideline*, is as follows. This process ensures that the prior consultations with all subproject-affected persons is followed as required by the World Bank's social safeguard policies OP 4.10 and OP 4.12 for all subprojects:

a) The community endorses its Community Food Security Task Force Committee (CFSTF)
Each community reviews, and is invited to endorse in a general assembly, the membership of the CFSTF, which is elected by the community in the first year of programme operation. This committee is composed of a representative from the Kebele Food Security Task Force (KFSTF); a DA (if available in the village); two or three women's representatives (elected); two or three

men's representatives (elected); a youth representative (elected); and an elder's representative (elected).

b) The CFSTF prepares a list of community needs and priorities
The CFSTF benefits from the technical support of DAs from line departments at the kebele level, to identify and formulate the list of needs and priorities. Once this list is prepared, it is transmitted to the KFSTF.

c) The KFSTF prepares a kebele safety net/development plan
The KFSTF consolidates all lists of needs and priorities prepared by the CFSTF which are part of the kebele, and prepares a kebele safety net plan. This plan will identify and specify which activities within the development plan will be undertaken under the Safety Net Programme. It should pay particular attention, where relevant, to incorporating management and rehabilitation of the watershed as a key activity for promoting long-term food security. This means that the plan should properly sequence activities in a way that ensures that watershed management concerns are addressed as an integral part of ensuring sustainability of the assets created.

d) If a kebele development plan has already been developed
A number of kebeles may already have developed a development plan through the same process as described in (a) to (c). In such cases, the kebele development plan will be adapted to integrate new needs and priorities identified by the CFSTF, taking into account the input of men and women, youth and elderly and other vulnerable groups, and will specify which activities within the development plan will be undertaken under the Safety Net Programme.

e) Presentation to the communities
Once the kebele development plan has been established, it will be presented to a general meeting of all communities in the kebele for review and endorsement by these communities.

The Safety Net component of the kebele development plan will be despatched to the kebele Council/Cabinet for approval, and on up to woreda level, where the plans from all the kebeles will be consolidated and, after approval, sent to the Regional level.

4.7 Analysis of Alternatives

The ESMF is required to assess options for achieving the programme purpose. There are a number of alternative strategies which the Government could adopt:

(i) No Safety Net Programme

Poverty has long been widespread in both rural and urban areas of Ethiopia, and is particularly severe in drought-prone rural areas. Before the introduction of the PSNP millions of Ethiopian required food aid. Given that the major causes of food insecurity include land degradation, population pressure and subsistence agricultural practices, and that a significant proportion of the vulnerable people are in a state of chronic food insecurity, to opt for no Safety Net programme would mean to some extent reverting back to emergency relief coordinated by the Early Warning and Response Directorate (EWRD), and implemented on an ad hoc basis. While this strategy may enable the beneficiaries to survive in the short-term, it would fail to:

(a) address the cumulative impacts of these factors in drought-prone areas in a systematic manner; or
(b) execute PW in a comprehensive manner, incorporating capital and other non-labour costs, which can be provided for only in a systematic, annual programme.

By allowing widespread chronic food insecurity to persist, the resultant downward spiral of environmental degradation would continue, and by failing to institute satisfactory public works, the opportunity to correct this vicious cycle would be lost. Thus from an environmental, as well as socio-economic and humanitarian viewpoint, the 'no Safety Net' alternative would not be preferable.

(ii) Safety Net Provision with Centrally-Planned Public Works

Previous Ethiopian governments have experimented with programmes involving food payments to beneficiaries for providing labour to centrally-planned public works. However, this approach was generally not effective, equitable or sustainable, as the lack of meaningful local inputs to the planning process, and lack of ownership by the communities, meant that in many cases the projects were inappropriately designed and located. The results were lost opportunities to carry out serious enhancement of the natural resource base, at considerable human cost. Thus from an environmental viewpoint, this option would not be a preferred alternative.

(iii) Safety Net Provision with No Public Works

If the beneficiaries were to receive their transfers without carrying out a public works programme of watershed development, there would be few or no prospects for livelihoods improvement. Since many of the watersheds concerned are still degraded and relatively unproductive, the basic inputs – water, productive land and energy – would be insufficient to support improved livelihoods of the resident community.

Experience shows that once a watershed is productive, the PSNP PW programme the focus typically moves away from soil & water conservation activities, to more livelihoods-based PW, often providing livelihoods opportunities for vulnerable groups such as the landless. However, at present the overwhelming majority of PSNP watersheds still require PW programmes for watershed development purposes, including infrastructure. In addition, all watersheds will require additional work to implement sub-projects for mitigation and adaptation to Climate Change and for Disaster Risk Management purposes. Thus termination of the PW programme would be premature, and would run the risk of the watershed sliding back into a degraded state. Thus at the present time, from an environmental perspective 'Safety Net provision with No Public Works' is not a preferred option.

4.8 Implementation Challenges

PW are implemented in geographically and agro-climatically diverse regions of the country. The implementation challenges will therefore vary considerably from location to location. Challenges which could affect the quality and effectiveness of the environmental standards of the public works projects include:

i. The regional PWFUs may lack the necessary capacity to ensure implementation of the ESMF, particularly given the large number of subprojects (estimated in 2013 to be in excess of 40,000/annum).
ii. Woreda capacities vary; some will be less able to provide technical assistance for project design and implementation than others;
iii. Although in most highland areas the participatory planning process is satisfactory, there is still a need for more awareness-creation and training for some were and kebele officials and communities in the pastoral areas;
iv. In some communities, the capacity for satisfactory operations and maintenance of assets of PW subprojects constructed is not yet well developed in some areas, and will take more time to perform to the required standards;
v. In some regions the Regional Bureau of Environment & Forests, or its equivalent, does not yet have sufficient capacity, and may not yet be in a position to provide the basic services which may be required of it to ensure that good environmental practices are adopted in the PW;
vi. While woreda development officers and DAs are actively involved with communities in helping to identify local priorities for investment, in some cases they are over-stretched and may be at the limit of their capacity to suggest and guide the potential range of available and suitable project options. It is noted that in some areas the number of DAs is below the establishment level.
vii. In the pastoral regions there is a significant capacity gap, which requires focussed attention by the PWCU.

The PSNP capacity-building programmes, and support and resources for the PWFUs are designed to ensure that these challenges are addressed.

5. Potential Environmental and Social Impacts

The proposed PW subprojects have the potential, and will frequently be designed, to create many beneficial impacts related to environmental regeneration and sustainable agriculture. However, they may also have adverse impacts, if good practice is not followed in their siting, design and implementation.

Annex 2 sets out guidelines for Screening PW subprojects, based on likely typical potential adverse impacts that need to be avoided, managed and mitigated

Annex 3 lists some typical mitigating measures that have been found from experience to be useful to offset potential adverse impacts. Detailed mitigating measures recommended to offset adverse impacts for specific types of sub-project will be integrated into the technical specifications, work norms and information kits guiding the implementation of the public works under the PSNP.

6. Capacity Building

6.1 Institutional Capacity for ESMF Implementation

The institutional structure for managing the environmental aspects of the project involves four levels:

6.1.1 Federal Level

The PWCU will ensure that the guidelines, technical specifications, work norms and information kits related to implementation of the PW covers the range of potential activities, summarises the latest knowledge on the various types of interventions, and presents this information in a user-friendly manner that is understandable by woreda staff and DAs. The mandate of the PWCU includes further development and field testing of these specifications and kits, as required, including those relating to the design and implementation of the ESMF.

The PWCU will also organise the delivery of training and/or refresher course for regional Training of Trainers (ToT), on an annual basis.

The community-based focus of the PW, which has been utilised during Phases I, II and III, will continue drawing on lessons the watershed development *Guideline*, and will harmonise with imilar programmes such as SLMP, PCDP and AGP. Linkages with these programmes, and the inter-agency forum that has been established to facilitate collaboration between them, will assist in strengthening this role.

The PWCU also provides support to ensure that the capacity of the PSFUs are up to the required level.

The PWCU will also ensure that the PW M&E system, and PW database incorporate ESMF monitoring and evaluation requirements are fully established, in consultation with regional, woreda and kebele staff and at the community level.

6.1.2 Regional Level

The PWFUs are responsible for ensuring ESMF implementation. Staff of these Units receive orientation and training in the ESMF process, and the use of the technical specifications, works norms and information kits. The PWFUs deliver ESMF training to the concerned woreda staff as part of the overall annual PW training programme. This includes TOT for woreda staff who will in turn train DAs and kebele staff.

The PWFUs also conduct capacity needs assessments and provide support at woreda level to ensure that all functions relating to PW, including ESMF implementation, are carried out to the required standard.

6.1.3 Woreda Level

The capacity of woreda staff to provide timely technical support and guidance to kebeles is critical. Woreda capacity development supports the design, operation and environmental management of proposed irrigation systems, water harvesting structures and irrigated agriculture as well as soil and water conservation subprojects.

The woreda staff conducts training DAs and kebele staff as required, ensuring that the Natural Resources DA in each of the estimated 4,800 PSNP kebeles is trained and able to conduct subproject Screening and Livelihoods Strengthening support according to ESMF standards and procedures.

6.1.4 Kebele Staff

Kebele staff are involved in orientation and capacity-building in the communities, in conjunction with the DAs. Areas in which the communities are trained include participatory watershed planning procedures, and the organisational management of subprojects such as drinking water systems, irrigation facilities, etc., through the establishment of water users committees and watershed committees.

6.2 Proposed Training and Technical Assistance Topics

6.2.1 Development of Training Materials and Technical Specifications, Work Norms and Information Kits

These materials are important tools to incorporate mitigation measures and to minimize adverse effects. The capacity building needed for Woreda Technical Committees to undertake EIA of PW where required should take place in conjunction with dissemination of these materials. These materials serve to guide the design of projects, so they are important in managing potential environmental effects. The lead woreda staff involved and the regional monitoring and evaluation coordinators will receive training based on these materials.

Training materials are under constant review and revision by the PWCU and the PWFUs, including enhancing of the communication aspects. The training covers the development of a basic watershed or catchment area plan and design and sequencing of integrated subprojects for soil and water conservation and watershed regeneration, including:

- Subproject consultation, design and approval
- Watershed concept for soil and water conservation
- Participatory methods for community action
- Gully treatment prescriptions
- Water harvesting structures, such as rooftop catchment systems Appropriate irrigation technologies
- Terracing and bunding methods
- Check dams and other control structures

- Biological measures for soil and water conservation
- Plantation methods and management for effective soil conservation
- Rural road construction and rehabilitation
- Implementation of all aspects of the ESMF

Guidance for *Integrated Pest Management* (IPM) plans was also developed by Government and disclosed (Annex 4).

In order to facilitate the environmental management of medical wastes associated with rehabilitation of rural clinics, a *Medical Waste Management Guide for Rural Health Centres* was produced by Government and disclosed (Annex 6).

Since under PSNP IV subprojects involving involuntary loss of assets, including involuntary land acquisition, will be eligible, a *Resettlement Planning Framework* setting out the procedures to be followed has been developed.

Finally, guidelines for the *Safety of Small Dams* are annexed to this ESMF (Annex 7).

6.2.2 Training in Environmental Management

Regional and woreda staff receive training in the ESMF procedures, including:

- EIA and mitigation case studies
- Assessment of impacts and design of site-specific monitoring measures which also takes into account social issues and impacts, over and above the standard measures recommended in the Technical Materials
- Incorporation of mitigation measures in subproject designs and construction documents
- Review and approval of PW proposals
- Public consultations in the EIA process which includes women and other vulnerable groups
- Training on waste management, including bio-medical waste
- Environmental Audit/ monitoring training

6.2.3 Farmer Training in Irrigated Agriculture

In projects involving small-scale irrigation systems, there is often a need to provide farmers with training on managing the increased number of inputs, including fertilizers, pesticides and their alternatives, management of these systems, the development of water user committees and follow-up extension support to assist farmers and DAs in developing irrigated agriculture, and managing the environmental aspects including integrated pest management.

6.2.4 Awareness-Creation Training

Training will also focus on creating awareness of the EA process, including consultation, participation, disclosure, design and approval. This training needs to include women and men, elderly and youth, as well as vulnerable groups.

6.3 Training Mechanism

Training in ESMF implementation will not be conducted in isolation. It will be based on the ongoing PSNP capacity needs assessment, and will be included as an integral part of the capacity-building programme currently being designed and budgeted for the PSNP, and budgeted for and delivered within the PSNP awareness-creation and training programme.

7. Environmental and Social Management Plan

7.1 Strategy

The PSNP Environmental and Social Management Plan is based on the following principles:

i. The PSNP involves small-scale subprojects that can be designed, implemented and managed at the kebele level using standardised published guidance, and with the assistance of woreda staff as required.

ii. Environmental management will be integrated into project planning, design and implementation.

iii. Subprojects will be adopted in the kebele PSNP plan on the basis of selection criteria and screening designed to eliminate projects with major, or irreversible environmental or social impacts. In particular, the following subprojects are not admissible as PSNP PW:
   - Subprojects in or adjoining internationally-disputed territories;
   - Projects requiring the physical relocation of residents;
   - Subprojects incorporating dams of 10 metres or more in height;
   - Subprojects is located in a Priority Forest Area, or involving major land-use change such as draining of a wetland.

iv. The design of community PW subprojects will be guided by technical design standards that incorporate recommended measures designed to minimise adverse impacts and encourage positive environmental effects.

v. Subprojects likely to involve the involuntary loss of assets or access to assets will trigger application of the procedures set out in the *Resettlement Planning Framework* (RPF).

vi. Subprojects likely to involve medical waste disposal will trigger application of the Government's medical waste management guidelines.

vii. Subprojects likely to involve the use of agrochemicals will trigger the Government's Integrated Pest Management (IPM) procedures, and will lead to the development and implementation of an IPM Plan.

viii. Subprojects involving a dam will trigger application of the FAO Guidelines for the Safety of Small Dams.

ix. Capacity building in environmental and social safeguards management will be provided by the PSNP as and when required.

x. Approval of subprojects with environmental or social concerns will involve the Regional Bureau of Environment & Forest (RBEF), or its equivalent, which will have the right to reject a project on environmental or social grounds, or arrange for an EIA prior to approval, including:

- Subprojects identified as having high or unknown negative impacts during Screening,
- Subprojects involving a dam of more than 5 metres in height, located within a National Park or other designated wildlife area or buffer zone, located withina recognised Cultural heritage site, ot World heritage site, or involving abstraction from rivers draining into the Nile basin.

xi. Special attention will be given to sub-projects that *might potentially* involve the involuntary loss of assets or access to assets. These will in all cases be notified to the Woreda Valuation and Compensation Committee or its equivalent, who will decide if the sub-project involves involuntary loss of assets or access to assets. If so, it will implement the procedures set out in the RPF.

xii. Supervision of subproject implementation will be at kebele and woreda levels, with technical backstopping from the PWFU or line bureau. The DA, with assistance if required from the woreda line office concerned, will ensure that the specified mitigating measures are implemented.

xiii. The implementation of the recommended mitigating measures will be monitored by the PSNP IV Public Works M&E system.

7.2 ESMF Procedures

The steps in the subproject Screening and Approval procedure are set out in Figure 1 overleaf. The normal planning process is shown in the left of the diagram. The right side of the diagram shows the subproject Screening and Approval steps.

The Screening procedure, which is conducted by the DA under the supervision of the Woreda NR Expert in the NR Case Team, which is itemised separately here with guidance for the DA. The complete Screening form is set out in Annex 1.

7.2.1 Step (i): Subproject Eligibility Check

Following selection by the community, check each subproject for eligibility:

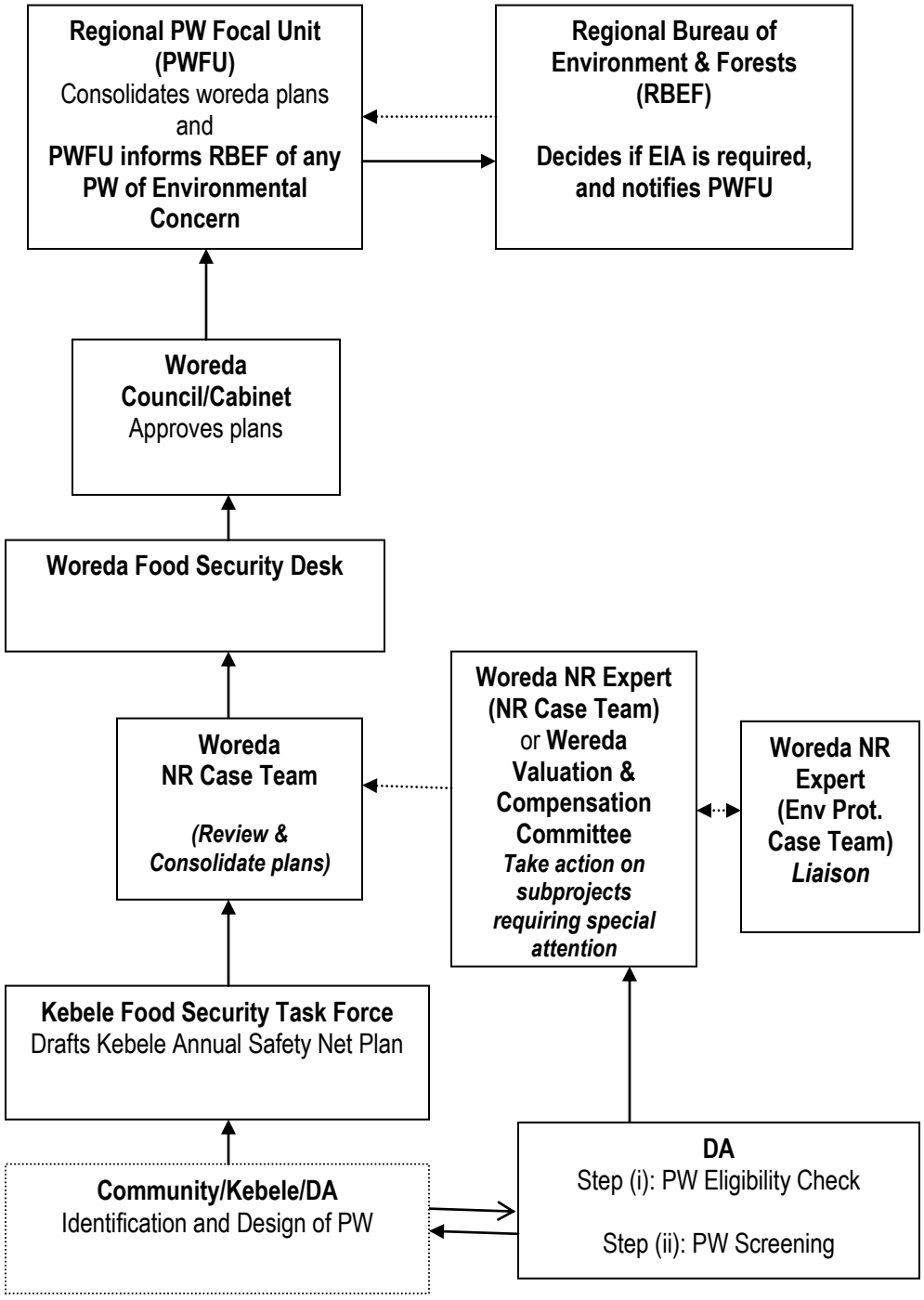
Subprojects Ineligible as PSNP PW

Feature of Concern	Yes	No
Subproject is in, or adjacent to, an internationally-disputed area*		
Subproject may involve the physical relocation of individuals or households		
Subproject incorporates a dam of more than 10 metres in height		
Subproject is located in a Priority Forest Area, or Natural Habitat		

* Refer Annex 5 for details.

If any project has an answer, 'Yes', try to modify the design of the project to avoid the feature of concern. If you are unable to do so, *you must reject the subproject*.

Figure 1: Flowchart showing the First Five steps in ESMF Implementation, within the PSNP Planning Process



7.2.2 Step (ii): Subproject Screening

After identifying the eligible subprojects, carry out the following checks:

If the subproject has any of the following four features it must be referred to the Regional BEF for review, to ascertain whether an EIA is required:

Subprojects of Environmental Concern

	Yes	No
Subproject located within National Park or other designated wildlife area or buffer zone		
Subproject located within a recognised Cultural Heritage site, or World Heritage site		
Subprojects incorporates a dam of >5m in height		
Subproject involves abstraction from rivers draining into the Nile Basin		

If no referral is required, check if the subproject needs a special procedure:

Subprojects Requiring a Special Procedure (detailed in Section 7.3)

Feature Requiring a Special Procedure	Yes	No
Subproject likely to involve disposal of medical waste		
Subproject likely to use pesticides or other agro-chemicals		
Subproject incorporates a dam		
Subproject that *might* involve involuntary loss of assets, or access to assets, such as land, pasture, water, public services, or crops, fruit trees, or household infrastructure such as toilets or kitchens.		

Bring any subproject with 'Yes' above to the attention of the Woreda NR Expert in the NR Case Team, who, in liaison with the Woreda Environmental Expert in the WEPO, will ensure that the necessary procedures are followed. Then you can continue with the Screening. Complete whichever table below fits closest to the type of subproject you are Screening.

It should be noted that this list of typical impacts is not tailor-made for any particular agro-climatic or geographic setting. It is expected that regional PWFUs will modify it to reflect regional or woreda-specific issues. In particular, it is expected that the lists for lowland woredas will be tailor-made by the regional PWFUs and updates regularly as experience is gained during the implementation of PSNP IV.

Subproject Screening

01: Soil & Water Conservation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native speciess					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

02: Flood Control & Improved Drainage	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

03: Water Projects: Community & micro -level : Construction	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Increased numbers of water users due to improvements					
Increased social tensions/conflict over water allocation					
Sensitive ecosystems downstream disrupted					
Local incapacity/inexperience to manage facilities					
Other (specify):					

04: Water projects: Community & micro-level : Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Increased numbers of water users due to improvements					
Increased social tensions/conflict over water allocation					
Sensitive ecosystems downstream disrupted					
Local incapacity/inexperience to manage facilities					
Other (specify):					

05: SSI: Construction or Expansion	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Water storage requirement and viability (soil permeability)					
Vulnerability to water logging (poor drainage)					
Vulnerability to soil and water salinization					
Sensitive downstream habitats and waterbodies					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
Increased agric. chemicals (pesticides, etc) loading					
Increased social tensions over water allocation					
Local incapacity/inexperience to manage facilities					
Local incapacity/inexperience with irrigated agriculture					
Other (specify):					

06: SSI: Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Water storage requirement and viability (soil permeability)					
Vulnerability to water logging (poor drainage)					
Vulnerability to soil and water salinization					
Sensitive downstream habitats and waterbodies					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
Increased agric. chemicals (pesticides, etc) loading					
Increased social tensions over water allocation					
Local incapacity/inexperience to manage facilities					
Local incapacity/inexperience with irrigated agriculture					
Other (specify):					

07: Soil Fertility Management and Biological Soil Conservation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

08: Agro-forestry, Forage Development and Forestry.	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

09: Gully Control	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

10: Community Road Earth Road (R1, R2) or Footpath Construction	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Soil erosion or flooding concerns (eg, due to highly erodable soils or steep gradients)					
Number of stream crossings or disturbances					
Wet season excavation					
Creation of quarry sites or borrow pits					
Significant vegetation removal					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
New settlement pressures created					
Other (specify):					

11: Community Road Earth or Gravel Road (R1, R2, R3, R4 or R5) or Footpath Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Soil erosion or flooding concerns (eg, due to highly erodable soils or steep gradients)					
Number of stream crossings or disturbances					
Wet season excavation					
Creation of quarry sites or borrow pits					
Significant vegetation removal					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
New settlement pressures created					
Other (specify):					

12: Social Infrastructure Activities Construction/Rehabilitation& Fencing.	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Alteration of existing drainage conditions					
Vegetation removal					
Wet season soil disturbance					
Construction materials impact on adjacent forests/lands					
Quarries and borrow pits created					
Cultural or religious sites disturbed					
Water supply development effects in available supply					
Effect of sanitation development on existing disposal sites					
Effects of medical waste on existing disposal system					
In-migration/settlement induced by facilities development					
Local incapacity/inexperience to manage facilities					
Other (specify):					

If your assessment shows that the subproject is likely to have impacts ranging from low to moderate, or has only one high potential impact, try to determine (with the assistance of woreda experts if necessary) if it is possible to incorporate suitable mitigating measures into the design to overcome the problem. Suggested mitigating measures can be found in the design specifications in the *Community Based Participatory Watershed Development Guideline*, or in Annex 3 of the present document.

If you find that the subproject is expected to cause more than one **high** potential impact that cannot be easily corrected by a simple change in the design, or will have impacts that are difficult to predict (ie several ticks under "unknown"), then the subproject needs to be referred to the RBEF.

Note: Since this list of typical impacts is intended only as a guide, you should be alert to the possibility that the subproject may have impacts which are not listed here. Consult the Environmental Expert in the WEPO if you are not sure.

Make sure that a list of any subprojects in your kebele that you have earmarked as being of environmental concern accompanies the subproject files forwarded to the Woreda NR Expert in the NR Case Team.

7.2.3 Taking Action on Subprojects Requiring a Special Procedure: Guidance for the Woreda NR Expert (NR Case Team)

For any project with a feature checked in Table (ii), refer to the relevant procedure in Section 7.3 of this ESMF, and take the necessary action.

7.2.4 Notification of Subprojects of Environmental Concern: Guidance for the Woreda Council and PWFU

The Woreda Council should ensure that the plans forwarded to the regional PWFU, via the BoARD, are accompanied by each woreda's list of Projects of Environmental Concern, if any. The PWFU should consult the REPA, who will determine if any of these PW require an EIA.

7.2.5 Reviewing Notified Subprojects: Guidance for the RBEF

When you review a planned subproject that has been listed by the woreda as being of environmental concern, note that not all of these subprojects necessarily need an EIA. That decision rests with your office.

For abstraction from rivers ultimately draining into the Nile, check with your office on the requirements of any international agreements under the Nile Basin Initiative.

For each listed PW, you should prepare for the PWFU the following:

- Your decision as to whether an EIA is required;
- If EIA is not required, the recommended scope of EIA, indicating aspects to be focussed on, skills required, and likely duration of the EIA. These will constitute ToR for the EIA.
- If EIA is not required, guidance regarding any special needs such as technical guidelines or an environmental management plan, including any recommended mitigating measures.

7.2.6 Conducting an EIA: Guidance for the Woreda ARDO and WEPO

The Woreda Agriculture Office (WAO) & EPO are responsible for ensuring that the required EIA is conducted, in liaison with the RPWFU. Normally the WAO will establish a team drawing upon woreda sector experts, DAs and others as appropriate. The woreda experts concerned will have received basic training in EIA in the annual PSNP PW training sessions.

The cost of conducting the EIA should be covered by the PSNP, from the PSNP administration fund for that woreda. The cost will normally be modest, covering expenses above normal daily work, such as travel and field expenses.

The ToR for the EIA will be based on the recommendations of the RBEF.

The EIA report should consist of a brief environmental baseline, impact assessment, mitigating measures, and recommendations for implementation and monitoring of the mitigating measures.

EIA guidelines will be available from the RBEF, supplemented by PSNP PW training material. A list of common mitigating measures appears in Annex 2 of the present document.

7.2.7 Reviewing EIA Report: Guidance for the Regional EPA

The RBEF will review the EIA report, and either approve the PW, recommended re-design, or reject. Reviews should be conducted as quickly as possible, to avoid delay in the PSNP PW programme. The results of the review should be notified immediately to the RPWFU.

Every effort should be made to provide advice to modify a project to enable it to become environmentally sustainable if at all possible, rather than reject it.

7.3 Guidelines for Projects requiring a Special Procedure

7.3.1 Integrated Pest Management (See Annex 4)

The Government supports the use of biological or environmental controls and other measures to reduce reliance on agricultural chemicals. Integrated Pest Management (IPM) refers to a mix of farmer-driven, ecologically based pest control practices that seek to reduce reliance on synthetic chemical pesticides. It involves (a) managing pests (keeping them below economically damaging levels) rather than seeking to eradicate them, (b) relying, to the extent possible, on nonchemical measures to keep pest populations low; and (c) selecting and applying pesticides, when they have to be used, in a way that minimises adverse effects on beneficial organisms, humans, and the environment.

The following strategy addresses the use of agricultural chemicals and to promote IPM in the PSNP and HABP:

- Public works project funds will not be used for the purchase of pesticides or fertilizers.
- Information on acceptable and unacceptable pesticides will be provided to farmers and Woreda staff to encourage compliance with government policy and international standards.
- Training in agricultural activities on pest and fertilizer applications, safe chemical handling and IPM will be provided to communities as required.
- A basic Guide for IPM in the PSNP has been prepared by Government and disclosed (Annex 4), as a menu of practical methods for reducing the need for pesticides, covering techniques such as:
  - Pest-resistant crops varieties
  - Use of disease/weed-free planting stock
  - Farming practices that increase resistance to pests (proper soil preparation, spacing, planting, watering, etc.)
  - Farming practices that suppress pest populations (crop rotation, cover crops, intercropping, etc.)
  - Traditional manual control of pests (weeding, removing insect pods, etc.)
  - Biological controls (predators, pathogens, pheromones, etc.)
  - Targeted chemical use (pest scouting/selective treatments)
- Based on the Guide, an IPM Plan will be produced for each agricultural activities which likely utilize agrochemicals.

7.3.2 Medical Waste Management (See Annex 6)

It is critical that a medical waste management plan for all sub-projects financed under the PNSP which include the construction or rehabilitation of health facilities (irrespective of their size). Therefore project proposals involving the rebuilding of rural health clinics should include provisions for the safe management of medical wastes.

The following strategy addresses medical waste issues in the PSNP:

- A Waste Management Guide for Rural Health Clinics and market places has been prepared by Government and disclosed, to assist subproject design and operations;
- A preliminary environmental audit of clinic rehabilitation proposals will be undertaken by a qualified professional;
- All proposals will undergo environmental screening to identify environmental concerns and environmental assessment and mitigation requirements associated with waste;
- All proposals will be required to prepare a Waste Management Plan following approval of the project by Woreda Council and before implementation. This plan will be based on the Waste Management Guide. The Medical Waste Management Plan addresses:
    - The quantity and quality of wastes generated
    - The available disposal and treatment options at the site
    - Methods to segregate medical waste from general waste
    - Internal rules for waste handling, collection and storage
    - Clinic responsibilities for waste management
    - Proposed landfill development and operations

7.3.3 Projects involving Dams (See Annex 7)

Projects requiring the construction of dams of 10 metres or more in height, will not be approved. Dams of between 5 and 10 metres in height may be approved, subject to a qualified engineer being responsible for the design and supervision of construction, and the construction being carried out by a qualified contractor, following the guidelines set out in Annex 7 of this ESMF.

7.3.4 Projects involving Asset Acquisition or Loss of Access to Assets

While noting that there will be no projects potentially requiring involving physical relocation of individuals or households, it may nonetheless occur that a subproject *might* involve involuntary loss of assets or access to assets. This issue covers:

(i) A reduction in people's access to their economic resources such as land, pasture, water, public services or other resources on which they depend;
(ii) The temporary or permanent loss of crops, fruit trees and household infrastructure such as granaries, outside toilets, kitchens, etc;
(iii) Adverse impacts on particularly vulnerable people such as the elderly, the physically challenged and women, particularly if heads of household, or widows.

In all such cases where such impacts *might* arise, the subproject must be referred to the Woreda Valuation and Compensation Committee for a determination as to whether such involuntary losses are expected, and if so, for implementation of the procedures in the *Resettlement Planning Framework.*

7.4 Implementation of Mitigating Measures and Site Supervision

The mitigating measures presented in the *Guideline* Infotechs, supplemented by the DA following the general guidance provided in this ESMF provide the primary means of implementing environmental and social management of the PW subprojects. Three aspects will be important in applying and monitoring the effectiveness of these measures during the implementation phase:

- The Kebele or community proponent will designate a person who will be responsible for ensuring the mitigation measures are effectively implemented as specified before, during and after construction. This will normally be the DA.
- The Woreda EPO will designate a staff member who will be responsible for inspection and oversight of the implementation of the mitigation measures as required.
- The PWFU in collaboration with RBEF will assess the application of the prescribed mitigation measures in monitoring and evaluating environmental performance of the public works, through the PW M&E system.

7.4.1 Physical Cultural Resources

Regardless of whether or not potential impacts on physical cultural resources (PCR) have been identified, *all* subprojects must be monitored for unexpected encounters with PCR, using the Chance-Finds procedure for which guidance is provided in Annex 8.

7.4.2 Social Assessment

The PWCU and regional PWFU should ensure that the recommendations in the *Enhanced Social Assessment and Consultation* are monitored, ensuring that all prescribed measures for underserved or especially vulnerable groups have been implemented.

7.4.3 Health, Safety and Child Labour

During implementation on site, the DA and any foremen involved should ensure that the *Health, Safety and Child Labour Guidelines* (Annex 13) are followed.

7.5 HIV/AIDS

PSNP IV poses both challenges and opportunities regarding prevention and control of HIV/AIDS. The PW activities could have negative impacts through increasing mobility of large number of people, thereby creating favorable conditions for the spread of HIV/AIDS. To mitigate the potential negative impacts of Safety Net activities, it will be essential to continue effective & participatory HIV/AIDS prevention and control measures in the design of the programme.

Mainstreaming HIV/AIDS Prevention and Control

The existence of organized structures which coordinate the planning, implementation, monitoring and evaluation of the PSNP at federal, regional, woreda and community levels, provides an opportunity to mainstream HIV/AIDS prevention, and to control activities in the PSNP. The interface between local government (woreda, kebele) and local community governance structures is strong, and these structures can be used as a basis on which the local response of HIV/AIDS can be built.

Training

Training for CFSTFs will include a component addressing the prevention and control of HIV/AIDS. The CFSTF will work in close collaboration with Anti AIDS committees, wherever they exists, to raise the awareness of the community and prevent the spread of HIV/AIDS.

Protection and Involvement of Women and Girls

As women and girls are more vulnerable to HIV/AIDS risks than other members of the community, it is imperative to emphasize the protection and role of women and girls in the prevention and control activities that will be planned.

Avoidance of Discrimination

It is also essential to ensure chronically food insecure households which are affected by HIV/AIDS will benefit from SNP without being exposed to any stigma and discrimination.

In addition, if a household cannot provide labour to participate in the public works because illness associated with HIV/AIDS, it should be eligible to receive direct support from PSNP IV.

Part III: Livelihoods Strengthening

8. Background

PSNP IV incorporates a Livelihoods Strengthening component which will provide mentoring and coaching to support aspiration development, improved access to appropriate financial services, a focus on savings for all households, livelihoods transfers, and credit for the credit-ready. It will support livelihoods strengthening through three pathways:

- Agricultural production, supported by improved extension for increased agricultural production;
- Off-farm income generating activities, supported by business and technical skills training;
- Workforce development and linkages to employment

Some of the activities chosen for support under Strengthening Livelihoods will be traditional; others will be innovative, and may be designed as off-farm income-generators. Some may involve introducing crops not traditionally grown in the location concerned; some may involve introducing new techniques such as micro-scale irrigation for crops previously only rain-fed.

Typical livelihoods investment activities under this component could include, but may not be limited to, the following:

- Poultry keeping
- Ox fattening
- Sheep fattening
- Sheep production
- Goat fattening
- Goat production
- Bee keeping
- Micro-scale irrigation for cash crop production (eg. Vegetables, fruit, ensete, coffee and trees for fuelwood or poles)
- Off-farm activities such as petty trading
- Other

This list is not exhaustive. Furthermore, although the types of activity to be chosen by individual households are expected to fall for the most part into such broadly identifiable categories, the specific choices and locations of any particular type of activity are not known in advance. It should also be noted that some households may elect to undertake activities not listed here, and in some regions and woredas, area-specific activities that are not found in other parts of the country may arise. For this reason, no attempt is made here to make definitive forecasts as to the likely cumulative impacts of the programme. Instead, the focus of this ESMF is on providing an environmental management framework that will enable the regional and woreda authorities to track the cumulative impacts, if any, and take corrective action as required.

9. Rationale for a Strategic Environmental Assessment Approach

While individual household activities under the HABP may individually have insignificant environmental impacts, given that the PSNP currently has some 1.5 million beneficiary households. The potential negative impacts of large-scale adoption of new household asset structures and corresponding activities, such as significant increases in livestock ownership, micro-scale irrigation, export crop cultivation, etc., may be considerable. In other words, the impact of a large number of households taking up the same activity in a given area is often 'greater than the sum of the parts'.

Such impacts, usually known as 'cumulative impacts', can best be addressed at strategic level, rather than the site-specific approach of Environmental Impact Assessment (EIA). Thus the objective of this ESMF is to:

(i) Identify the type of household-level activity that might give rise to significant potential impacts if adopted at scale;
(ii) Assess the possible nature and extent of such impacts;
(iii) Develop environmental guidelines, if appropriate, at household activity level;
(iv) Produce a woreda-level procedure for monitoring, managing and mitigating such impacts.

10. The Livelihoods Strengthening Sub-Component and the Environment

10.1 Linkages between Livelihoods Strengthening and Environment

The environmental impact of the Livelihoods Strengthening sub-component will be influenced by:

(i) The nature, condition and resilience of the receiving environment
(ii) The livelihoods activities chosen
(iii) The rate of take-up of the activities
(iv) The PSNP Public Works and other community projects in the watersheds concerned.

PSNP woredas are all to a greater or lesser extent environmentally degraded, and even those that have been partially rehabilitated have fragile eco-systems. Thus given the relatively high population densities, when a particular type of household activity becomes popular and is adopted on a wide scale, there is the potential for two types of environmental interaction: the impact of the activities on the environment, and impacts of the environment on the activities.

10.2 Linkages between Livelihoods Strengthening and the PSNP PW Programme

There will also be linkages between Livelihoods activities and other community programmes such as the PSNP PW programme. For example:

- Households embarking on bee-keeping will need Area Closure nearby for growing the required bee-forage plants;
- Households embarking on export crop cultivation may need shallow wells, which in turn will need adequate ground-water
- Households embarking on animal fattening will need Area Closure to ensure an adequate supply of forage.
- Households embarking on activities such as vegetable production will benefit greatly from PW SWC activities in the vicinity.

Thus the PW program in a community watershed will have a bearing on which income-generating activities will be viable for the beneficiary households, and in some cases should be a condition for granting the concerned credits.

Therefore the PW program must be a consideration in predicting the impacts of Livelihoods Strengthening, and in establishing guidelines and mitigating measures for the implementation of Livelihoods Strengthening activities.

11. Potential Cumulative Impacts on the Environment

Certain of the anticipated Livelihoods activities will have the potential for cumulative impacts on the environment if they become very popular and are taken up at scale, particularly when households get together to share common costs in activities such as irrigated agriculture. These impacts will depend on the ecology of the woredas concerned. Examples of medium-term and long-term impact that might be expected are as follows:

- Animal production and/or fattening leading to (a) uncontrolled use of drugs or chemicals, leading to chemical pollution, and (b) an increase in animal numbers and uncontrolled grazing, leading to increased environmental degradation;
- Poultry keeping leading to uncontrolled use of drugs or chemicals, leading to chemical pollution,
- Crop irrigation using surface water (in water-harvesting ponds), causing (a) reduced river-flows, (b) increased safety risk for children and livestock; and (c) an increased risk of malaria;
- Crop irrigation using ground-water (e.g., shallow wells), leading to (a) a lowering of the water-table, (b) soil salination, and (c) uncontrolled use of agrochemicals, resulting in groundwater pollution, and subsequent health hazards for human and animal life;
- Crop irrigation using river or lake water, leading to (a) reduced river flows, (b) soil salination and encrustation, and (c) uncontrolled use of agrochemicals, resulting in groundwater pollution and subsequent health hazards for human and animal life;
- Micro-processing of agricultural residues for animal feed production, thereby reducing local energy sources, leading to deforestation;
- Increased rainfed or irrigated cultivation, leading to increased pressure on land, and possible encroachment up the hillsides and into forested areas, leading in turn to increased environmental degradation and river siltation;

- Trading in fuelwood or poles or charcoal, leading to deforestation and a reduction in local energy sources;
- Introducing new crop varieties could lead to a narrowing of the genetic base by eradicating land races, which could mean, for example, that in the event of an outbreak of disease, there is no alternative, disease-resistant strain available;
- If the cultivation of cash crops becomes so popular that cash crops come to displace food crops to a significant extent, this could produce an imbalance that might lead to food shortages within, or outside, the woreda;
- Area Closure for growing bee forage crops might oblige cattle to seek marginal grazing lands;
- For households receiving loans for fisheries activities, the use of inappropriate nets and poor fishing practices may have negative environmental impacts such as stock depletion.

12. Potential Impacts of the Environment on Household Livelihoods Activities

It should be noted by the DA that just as the Livelihoods activities may have negative cumulative impacts on the environment, so, conversely, a fragile, drought-prone environment, particularly if densely populated, or subject to climate change effects, may have negative impacts on Livelihoods activities.

For example,

- Drought, putting the livestock and livelihoods at risk, and lowering the water table;
- Flooding, causing excessive soil erosion and destroying micro-irrigation schemes and community roads;
- Outbreaks of livestock diseases such as Trypanosomosis and other diseases (pasurellosis, blackleg, etc.);
- Sediment load due to poor watershed management in the catchment could bring stones into the flood plains, with negative impacts on lowlands farming.

13. Procedures for Environmental Management

For practical purposes, cumulative environmental impacts will be monitored at woreda level. Since woredas differ widely in terms of agro-climatic condition, so the likely impacts of an activity will depend on where it is implemented. Therefore procedures are set out here for each woreda in order to:

- Predict the major impacts, if any, likely to arise from the (expected) most popular activities,
- Identify suitable mitigating measures that can be adopted at household, woreda, zone or regional level, as appropriate.
- Identify activities which if adopted at scale would lead to serious environmental impacts that it would be difficult or impossible to mitigate.
- Monitor the implementation of the mitigating measures and do the necessary follow-up.

13.1 Woreda Environmental Profile

In each PSNP woreda, a basic Woreda Environmental Profile is drawn up by the Woreda Extension Case Team NR Expert in conjunction with the Woreda Environmental Expert, the Woreda Natural Resources Case Team NR Expert, and the Natural Resources DAs.

The *Woreda Environmental Profile* is required to be brief, clear and comprehensive. It should cover:

- All the basic features of the woreda that can have a bearing on the environmental status of the woreda such as geography, soils, population, land use, flora, fauna, communications, human and animal health, cultural heritage, social issues;
- Key environmental issues in the woreda.

An indicative specimen draft of a *Woreda Environmental Profile* is set out in Annex 9. *Woreda Environmental Profiles* should be updated on an annual basis.

13.2 Environmental Guidance for Business Plans

The Woreda Extension Case Team NR Expert (in conjunction with the Woreda Environmental Expert, the Woreda Natural Resources Case Team NR Expert, and the Natural Resources DAs) jointly identify the Livelihoods activities considered most likely to have significant potential negative cumulative impacts in the woreda concerned if adopted by large numbers of households. These potential impacts are identified, covering medium-term impacts (up to 5 years ahead) and long-term impacts (more than 5 years).

They also develop appropriate mitigating measures. These will fall into the following groups:

- Measures to be adopted at household level as either conditions of the credit/loan or recommended good practice;
- Measures to be adopted at woreda level.

For Livelihoods activities that have potential significant negative impacts but which cannot be easily mitigated are not considered eligible for the Livelihoods Strengthening component, and are identified on a short-list.

The short-list of ineligible subprojects and the mitigating measures for eligible subprojects with the potential for negative cumulative impacts are submitted to the DA in a document named *Woreda Environmental Guidance for Business Plans*. The *Woreda Environmental Guidance for Business Plans* should be updated on an annual basis.

An indicative specimen draft of a *Woreda Environmental Guidance for Business Plans* is set out in Annex 10.

13.3 Environmental Monitoring

In order to ensure that the requirements set out in the *Woreda Environmental Guidance for Business Plans* are implemented, the Woreda Extension Case Team NR Expert follows an

environmental monitoring procedure, identifying indicators to be measured and recorded at given intervals, as set out on an *Environmental Monitoring Plan*.

The Woreda Extension Case Team NR Expert will submit the data required in the *Environmental Monitoring Plan* to the Regional Extension staff dealing with the Livelihoods Strengthening component, and the NR and ESMF Specialists in the PWFU. Any requirements for rectification will be sent to the DA.

A specimen indicative draft *Environmental Monitoring Plan* is set out in Annex 11.

Coordination, oversight and support to this process will be the responsibility of the federal Livelihoods Strengthening Technical Team at federal level.

14. Institutional Arrangements, Capacity and Training

The procedures outlined here will be implemented by the existing Government system; no new departments or units will be created. It will also use existing Government staff. Nonetheless, the NR Experts in the Woreda Extension Offices and DAs staff will need training in order to be able to implement the Livelihoods Strengthening ESMF.

An annual training budget of some $ 30,000 is estimated for this purpose (Annex 12).

Part IV: Reporting and Monitoring

15. Roles and Responsibilities

15.1 Routine M&E

Monitoring of the implementation of the PW ESMF and the Livelihoods Strengthening ESMF is an important aspect of ensuring that the commitment to environmental and social sustainability of the PSNP is being met. The regular monitoring of the implementation of the ESMF and the RPF will be overseen at regional level.

The ESMF Specialists in the regional Public Works Focal Unit (PWFU) and regional Livelihoods Strengthening teams will receive the relevant information from each Woreda NR Case Team and the Woreda Extension Case Team.

Direct supervision of project implementation will be at kebele, woreda and regional levels, and the data will be inputs to the regular PW M&E system that will form part of the overall PSNP MIS:

- The DAs, with assistance if required from the woreda line office concerned, will ensure that the specified mitigating measures for the PSNP PW subprojects are implemented, and that the Livelihoods Strengthening ESMF procedure is implemented in the concerned woreda;
- The Woreda NR Expert in the NR Case Team, in liaison with the Woreda EPO, will verify that the proper procedures are being followed for all the PSNP PW and Livelihoods Strengthening activities in the woreda, and that no significant negative environmental impacts are taking place. Where such impacts may occur, the Woreda EPO will provide advice on actions to be taken.
- The ESMF Specialist(s) in the PWFU will monitor, in conjunction with the REPA:
    - Implementation of the PW ESMF and of procedures triggered by it, including the PW Subprojects Screening procedure, the *Resettlement Planning Framework*, the *Integrated Pesticide Management Guidelines*, the *Medical Waste Guidelines*, the *Dam Safety Guidelines* and the *Physical Cultural Resources Chance-Finds* Guideline.
    - The effectiveness of the PW mitigation measures in avoiding or minimizing adverse impacts, and the nature and extent of any such impacts.

The ESMF Specialist in the federal Livelihoods Strengthening Technical Unit will monitor:

- Overall implementation of the Livelihoods Strengthening ESMF, and
- The effectiveness of the Woreda Environmental Guidance for Business Plans in avoiding or minimizing adverse impacts, and the nature and extent of any such impacts.

The PWCU will also ensure that the implementation of the recommendations in the Social Assessment are monitored, ensuring that all prescribed measures for under-served and particularly vulnerable groups have been implemented.

The PWCU will develop a Social Management and Monitopring Plan and during implementation will submit regular separate monitoring reports to the World Bank showing the status of the implementation of the Plan, issues faced, mitigating measures implemented, public meetings held, community development activities started, etc.

The detailed M&E of the implementation of this ESMF and associated RPF will be specified in the design of the PSNP PW M&E system

15.2 Targetted M&E

In addition, *targeted* monitoring will be conducted annually by PW Reviews, and Livelihoods Strengthening Reviews, in which a sample woreda in each region will be visited and spot-checks in order to verify the implementation of the PW ESMF, the RPF, and the Livelihoods Strengthening ESMF procedures.

Part V: Community Consultations

In order to gather comments and requirements on the ESMF (and RPF) by communities and woreda local government, public consultations were conducted in Regions which PSNP IV will serve, and all of which are being currently served by PSNP III. In addition to the consultations with the communities, consultations were also held with woreda staff experienced in implementing the PSNP. The consultations aimed at exploring and soliciting feedback from PAPs on key elements of the RPF, particularly the procedures and implementation arrangement, land acquisition and compensation, grievance redress, and community participation.

The consultations, which provide PAPs the opportunity to contribute to the design and implementation of the PW sub-projects that they select, were very rich, given the long experience the communities and staff have of the PSNP, in some cases extending over nine years.

Consultation Methodology

The invitations of community consultation meetings were announced for community members of the kebeles, and participants included women, men, youth and the elderly. Woreda-level consultations were held with staff from a selection of woredas, in order to provide as wide a range of opinions as possible. The community meetings were facilitated by woreda staff and PSNP DAs. The woreda consultations were arranged by Regional PSNP PWFU staff. In total, 408 community members participated in 17 community meetings, and 45 woreda staff concerned with PSNP implementation in 28 woredas participated in woreda-level consultations. SNNPR: 21 and 22 May 2014, Tigray: 21 and 22 May 2014, Amhara: 5 and 6 June 2014, Somali 23 May, 23 May, 25 May and 25 May 2014, Afar: 30 May 2014, Oromiya: 13 May and 14 May 2014. In total 39, different woredas were covered by the consultations, as set out in the following Table.

Table 3: Consultations were held as follows:

Region	Woreda Consultations (Name of Woreda)	Woreda Respondents	Community Consultations (Name of Woreda, Kebele)	No. of Community Participants		Total Participants
				M	F	
SNNPR	Boloso Sore	Agri-Dev. Officer				1
	Gurage (Zone)	PSNP M&E Officer				1
	Amaro	PW Coordinator				1
	Gibe	Agri-Officer				1
	-	-				1
	A/Zuria	Agr-Officer				1
	Dala	PW Coordinator				1
	Hadiya	PSNP M&E Officer				1
	Gedeo	SWC Expert				1
			Gibe, Homacho	11	7	18
			Dolocha, Matiya-Danye	17	4	21
Somali	Meiso	PW TA				1

	Babile	PW TA				1
	Fik	PW TA				1
	K/Duhur	PW Expert				1
	K/Beyah	PW TA				1
			Degahbur, Boodhley	15	4	19
			Degahbur, Higlaley	14	4	18
			Kabribayah, Guyo	12	5	17
			Kabribayah, Garbi	14	5	19
Oromiya	Dodota	Agrii-Food Security				1
	"	TA				1
	"	Nat Res Expert				1
	"	HABP Agri-Officer				1
	Sire	NRM Process Owner				1
	"	PSNP TA				1
	"	SNSF TA				1
	"	Food Sec Process Owner				1
	"	HABP Agri-Bus. Officer				1
	"	M&E, Agric. Office				
			Dodota, Koro Degaga	19	2	21
			Sire, Koloba Bale	17	2	19
Tigray	Ofla	PW Focal Person				1
	Degua Tenben	PW Focal Person				1
	Mereblehe	PW Focal Person				1
			Enderta, Arato	10	10	20
			Kilite Awlailo, Ainalem	11	12	23
Amhara	Shebel Berenta	Agric. Office				1
	Ziquala	PW Specialist				1
	Deuley Harewa	Agric. Office				1
	Tach Gayint	Agric. Dev. Office				1
	Albuko	PW Nat Res Expert				1
	Janamora	PW Coordinator				1
	Angolela Tra	PW NRM Specialist				1
	Mekdela	Agr-Dev (PWFU)				1
			Libokemekem, Shamo	16	6	22
			Lay Gayint, Sinchra	11	9	20
Afar	Ada'ar	WPADO Head				
	"	Disaster Prev/FSP Process Owner				
	"	-				
	"	Fin & Econ Dev Field Off.				
	"	-	Ada'ar, Jeldi	12	8	20
			Higlaley	14	4	18
			Bodhley	15	4	19
			Guyo	12	5	17
			Garbi	14	5	19
Total	**28 Woredas**	**45 Woreda Staff**	**17 Community Meetings**			**408 participants**

Issues Discussed during Consultations

PW ESMF Procedures

The community meetings discussed the ESMF and RPF. The discussions on the ESMF focused principally on whether the community members have had experience of negative impacts from PSNP sub-projects in the past, whether they are satisfied with the way in which the ESMF is working, and what might be done to improve the implementation of the ESMF.

The consultations involved the use of ESMF checklists to explain the concept and benefits of the ESMF procedures. Generally the community members are already aware of the ESMF procedure, though some were not familiar.

There was strong feedback in all cases. As for effectiveness of the ESMF, in general it was found that the communities understand that the ESMF helps to avoid negative impacts, and in Tigray, for example, the members said that affected people are consulted, and that appropriate preventive and mitigating measures are executed. A typical response came from an Afar community, who said that since their sub-projects are planned and implemented with community participation,, they did not generally experience negative impacts. Nonetheless in did occur sometimes, when there were quality problems in the implementation of the design. For example, it was noted in Tigray that quality problems in some water projects have in some cases given rise to negative environmental impacts. In the case of Amhara there is an example in one community road sub-project where no culverts were installed, which caused a flooding problem, and a hand-dug well, which, though having no negative environmental impacts, had a low discharge and was therefore unsustainable. Another Somali community, which is experienced in PSNP PW, said that they are satisfied with the planning and implementation of the sub-projects, but they would like to focus more on water projects in the future, for which the ESMF is a suitable procedure. In SNNPR and in pastoral areas it was agreed that community roads needed quality improvements, and also the location of water points, which in some cases have led to overgrazing, with consequent environmental problems. Overall, there was also a general call for more awareness-creation and training for the PW ESMF.

In order to reflect the concerns above, the procedures for PSNP IV PW have been strengthened to include (i) More technical support for community roads from the woreda Roads Offices, (ii) An initiative is now underway (during 2014) to explore the harmonization of the PSNP PW roads programme with the higher-standard URRAP roads programme, (iii) New guidelines are now available for the design of pastoral PW sub-projects, (iv) Additional training will be given under PSNP IV to DAs in ESMF operations and roads and water project design, (v) Under PSBP IV a higher non-labour budget will be provided for the PW, in order to ensure that materials such as road culverts can be purchased and installed, (vi) Capacity improvements will be made at woreda level, including transport, to ensure stronger ESMF compliance monitoring.

The principal difference between the PSNP III ESMF and the PSNP IV ESMF is the eligibility of sub-projects potentially giving rise to impacts under OP 4.12, *Involuntary Resettlement*, and

this was the other principal topic of discussion, under the topic 'Land Acquisition and Compensation'.

It was found that the communities are generally aware that the people of Ethiopia are given the right to improved living standards and sustainable development, that they have the right to be consulted with respect to policies and projects affecting their communities, and the right to sustainable development, and a clean and healthy environment. They are also aware of the right of the state to expropriate private property for public use, but that adequate compensation has to be provided, through a Woreda Valuation and Compensation Committee.

Bearing in mind that these communities have many years' experience of PSNP sub-project implementation under the present PIM, in which sub-projects giving rise to involuntary loss of assets have been ineligible, many of the informants repeatedly impressed upon the facilitators that such sub-projects lie outside the domain of the PSNP PW programme. They were at pains to explain that the current rules for PSNP PW sub-projects do not allow such sub-projects.

In an Enhanced Social Assessment and Consultation with vulnerable PSNP beneficiary groups conducted recently in connection with the Bank's *Indigenous Peoples* Policy OP 4.10, the consultants were asked to check on cases or complaints of involuntary loss of assets or access to assets. Their findings were that "in none of the PSNP woredas covered in this Social Assessment was the loss of assets or reduced assets reported as an issue". Nonetheless, having understood that the design of PSNP IV will permit sub-projects causing involuntary loss of assets or access to assets, the communities emphasized that compensation must be adequate, and no objections were noted in respect of the entitlement matrix. In almost all cases the informants stressed that PSNP PW infrastructure is normally built on 'communal' land, by public agreement with the community. Several communities stressed that they preferred sub-projects that take community land rather than private land, because "as the benefit is for the whole community, any associated problem must be equally shared by all".[5]

The community reaction to the removal of the ban of sub-projects involving involuntary loss of assets or access to assets was initially fairly slow, in view of the tradition of constructing PW sub-projects on communal land. However, all communities agreed that it could occur in some cases that there would be loss of private assets, in which case adequate compensation should be paid, as set out in the entitlement matrix.

In many of the woreda consultations there was a generally negative reaction to the proposal to allow sub-projects triggering OP 4.12, particularly in SNNPR and Oromiya regions, which account for over half the PSNP woredas. In Tigray, Amhara and Somali regions the proposal were generally accepted, though several respondents thought it unnecessary. Reasons given included that the change was unnecessary, doubt that adequate compensation would actually be provided, and "shortage of land" or "shortage of budget", if this type of sub-project were to become common. There were also widespread concerns about capacity, particularly the need for strengthening the training of the DAs.

[5] Metya Denga Kebele, Dallocha Wereda, SNNPR, 22 May 2014 at the Health Post. It may also be noted that a recent analysis of PSNP III Voluntary Asset Loss forms completed indicated that this procedure was applied overwhelmingly to community agreements to the use of communal lands.

There were strong views that is would be inappropriate for the DA to determine whether or not a sub-project involved involuntary loss of assets or access to assets, within the ESMF Screening process (which is normally delegated to the DA) – and even, in one case, that this would be "dangerous". The almost universal reaction was that if sub-projects involving such impacts are to be allowed, the decision as to how to proceed – ie deciding whether the loss is voluntary or involuntary – should be addressed at a higher level. The general opinion at woreda level is that it is not appropriate for such determination to be made at DA level, and that the matter should involve technical and administrative staff at woreda level or above. It has therefore been concluded that any sub-project with the potential to cause involuntary loss of assets or access to assets should be referred to the Woreda Valuation and Compensation Committee, or its equivalent, for further study in order to determine whether or not it triggers OP 4.12, and if required, to develop the RAP. This amendment has now been made in the ESMF and the RAP.

Concerns were also expressed as to whether it will be feasible to produce RAPs within the framework of the PSNP. Given that even ESMF Screening has to be delegated to the kebele-based DA due to limited woreda capacity, there was doubt as to whether it would be feasible to develop RAPs, except on an exception basis. Some informants said it would be "tedious", or would "take too long". Most woreda staff estimated that a RAP would take several months to collect and compile the data, draw up the RAP and get it approved. Given the large number of sub-projects (some 46,000 annually), staff capacity limitations and the relatively short annual PSNP PW project cycle, this suggests that difficulties would be encountered if sub-projects triggering OP 4.12 were to become numerous. It has therefore been concluded that the ESMF should be modified in such a way as to encourage such sub-projects to be redesigned as far as possible, to avoid involuntary loss of assets or access to assets. It is also noted that in order to satisfactorily meet the requirements of OP 4.12 it might be necessary to allow a two-year cycle for the concerned sub-projects, ie. the RAP would be developed and compiled during the year following the basic design, and implemented during the PW season the following year.

Livelihoods Strengthening ESMF Procedures

The Livelihoods Strengthening ESMF (which is an SEA approach, and is substantially the same as the HABP ESMF) was also discussed in the woreda and community consultations, focused on the two principal formats: the *Woreda Environmental Profile*, and the *Environmental Guidance for Business Plans*.

The woreda staff concerned were familiar with the procedure, and supported it; the most common concern across the regions concerned was that the DAs, who ensure that the 'negative list' is implemented, were in some cases unaware of the procedure (especially if they were new), or insufficiently trained. The logic and the benefits of the procedures were discussed with the communities. In the case of Oromiya, for example, the communities agreed with the formats but discussed at length the 'negative list' for their particular woreda, in the end agreeing with the *Environmental Guidance*. Because the community said that they have not seen any negative impacts of HABP activities to date, they questioned the need for an ESMF procedure, but were eventually satisfied that in the long term it is necessary.

In conclusion, it was agreed that the Livelihoods Strengthening ESMF is functioning but needs more support at DA level, to ensure that in the long term, there are no negative impacts. Specifically, in the design of PSNP IV there will be sufficient budgets set aside for more intensive training – including refresher training – for the DAs in the Livelihoods Strengthening ESMF than there had been for the HABP ESMF.

Annex 1: INSTITUTIONAL ROLES AND RESPONSIBILITIES FOR THE PSNP

The following roles and responsibilities are envisaged for key government agencies at each level.

1. Federal Level

(i) The Ministry of Agriculture (MoA)

The MoA is responsible for oversight and coordination of the Safety Net Programme through the Federal Food Security Coordination Directorate (FSCD), the Federal Public Works Coordination Unit, and the Livelihoods Strengthening Coordination Unit.

- provide technical support for planning and implementation of Safety Net activities, including the development of technical guidelines, and training, including for specific public works and based on request from FSCB and the regions;
- liaising with other line ministries (water, social affairs, health, education, etc) and development partners for technical assistance, for example, with respect to pastoral areas, issues such as gender, joint integrated efforts, training and technical guidelines, as necessary and based upon request.

(ii) Federal Food Security Coordination Directorate (FSCD)

The FFSCD reports directly to the Ministry of Agriculture and Rural Development. Its duties and responsibilities are to:

- Coordinate and oversee the Safety Net Programme to ensure that the programme meets food security objectives of the country;
- Allocate PSNP resources to regions and ensure that funds reach implementing woredas, and that they are properly utilized.
- Ensure appropriate linkages of the Safety net Programme with other Food Security Programme Interventions.
- Hold quarterly meetings with regional food security offices to review progress of the Safety Net Programme and discuss related safety net issues;
- Review and provide feedback on reports submitted by regional food security offices on the implementation of regional Safety Net Programmes;
- Provide support to regional food security offices on coordination and implementation of Safety Net projects;
- Mobilize technical assistance for food security coordination as needed from sectoral agencies, including those in line ministries outside of MoA;
- Provide procurement support to PSNP in accordance with PSNP Procurement Procedures, as noted in section 5.8
- Monitor overall capacity to implement PSNP food security coordination activities. Identify gaps. Ensure mechanisms are in place to address any gaps in capacity.
- Facilitate regional implementation of the Environment and Social Management Framework
- Facilitate information exchange and document experiences and lessons learned across regions;
- Submit periodic progress reports on implementation of the Safety Net Programme to MoA.
- Allocate safety net resources to regions, and ensure that they are properly utilized.
- Implement the Rapid Response Mechanism described in Annex 4.
- Monitor and evaluate adherence to PSNP procedures and guidelines, effectiveness of utilization of resources, and programme impact;

- Update PSNP guidelines and operational mechanisms in response to M&E findings, RRM and emerging issues, & disseminate as necessary

iii) Federal Public Works Coordination Unit

The Federal Public Works Coordination Unit provides overall coordination and technical oversight of the PW sub-component. The Unit is located in the Natural Resources Department of the MoA. Its duties and responsibilities are to:

- Provide technical support and ensure quality of public works through dissemination of standards, technical backstopping and implementation of the PW Environmental and Social Management Framework
- Cooperate with the regions to organise and support capacity needs assessments for public works, development of training materials, training of trainers, and other training programmes
- Report on progress and outputs of the pubic works programme at federal level
- Support the Food Security Programme M&E system and Public Works Reviews
- Support the Rapid Response Mechanism and monitor response to RRT recommendations
- Develop policies for public works planning and implementation
- Assist FFSCB in the expansion of the PSNP to new regions
- Assist the FFSCB in the development of exit strategies through the sustainable rehabilitation of watersheds.

iv) Federal Livelihoods Strengthening Unit

The Federal Livelihoods Strengthening Unit provides overall coordination and technical oversight of the Livelihoods Strengthening sub-component. Its duties and responsibilities are to:

- Provide technical support and ensure quality of livelihoods strengthening activities through the dissemination of standards, technical backstopping and implementation of the appropriate ESMF procedures.
- Cooperate with the regions to organise and support capacity needs assessments for livelihoods strengthening services, the development of training materials, training of trainers, and other training programmes
- Report on progress and outputs of the Livelihoods Strengthening sub-component at federal level
- Support the PSNP IV M&E system and targeted Livelihoods Strengthening Reviews
- Review the Livelihoods Strengthening ESMF and make amendments and improvements as appropriate.

v) Joint Strategic Oversight Committee (JSOC)

The *Joint Strategic Oversight Committee (JSOC)* provides overall advice to ensure the proper implementation of food security strategies and programmes, including the Safety Net Programme. The *JSOC* is made up of representatives from MoA (chair of *JSOC*), the Federal Food Security Coordination Directorate (secretary of *JSOC*), the Ministry of Finance and Economic Development (MoFED), the Ministry of Federal Affairs, the Early Warning and ResponseDirectorate (EWRD), the Ministry of Water Resources Development, Office of Women's Affairs, the Regional Food Security Coordination Offices, the Federal Public Works Coordination Unit (PWCU) and the representatives of the Development Partners. Its duties and responsibilities are to:

- Offer overall advice to meet food security objectives;
- Provide periodic recommendations to the MoA;
- Hold quarterly meetings, with a specific agenda for safety net issues;
- Assess the resource contribution of the Government and donors;
- Liaise closely with the Federal Public Works Coordination Unit in the MoA with regards to the provision of technical support to regions (e.g. training, development of technical manuals, and guidelines), and
- Perform annual review of the Food Security Programme and forward recommendations for implementation;
- Assess performance of monitoring and evaluation system including the Rapid Response Mechanism

vi) Early Warning and Response Directorate (EWRD)

The EWRD's primary mandate is to respond to food and other basic needs of people affected by acute, unpredictable disasters under emergency appeal circumstances. However, given its substantial logistic capacity and experience with management of food aid, as well as the relevance of some of its regular activities such as the EWS to the safety net program, it will provide the following additional support: -

- Provide National Early Warning Information;
- Participate, when conducted, in Food Security Needs Assessments for the Safety Net Programme;
- Assist on logistic issues for food resources when needed. The Ministry of Agriculture and Rural Development will give instructions to the EWRD to fulfil this function. The logistics responsibility of the EWRD will include warehousing, tendering, awarding, and contracting transporters and effecting payments.
- Participate in annual reviews conducted by MoA to identify areas where coordination needs to be improved;
- Coordinate with FSCD to ensure no gaps emerge between the PSNP and emergency assistance.
- Manage allocation of resources for the Contingent Grant jointly with FSCD.

vii) Ministry of Finance and Economic Development (MoFED)

In the context of the Safety Net Programme, MoFED is responsible for disbursing safety net resources to regions based on the size of the targeted food insecure population and in line with requests submitted by FSCB. In addition, MoFED assumes the usual financial responsibilities under the normal government financial system.

2. Regional Level

i) Regional Council/Cabinet

The Regional Council/Cabinet is the highest decision-making body at the regional level. Its major responsibilities related to the Safety Net Programme are to review and approve:

- Food security and safety net annual plans and budgets submitted by woredas through the Regional Bureau of Agriculture and Rural Development (BoARD) based on the size of chronic food insecure population; and
- Annual and biannual progress reports on implementation of the regional Safety Net Programme and utilization of its budget.

ii) Regional Food Security Steering Committee (RFFSC)

The Regional Food Security Steering Committee (RFSSC) provides advice to ensure the proper implementation of food security strategies and programmes at the regional level. The RFFSC also ensures effective integration of the regional Safety Net Programme into the regional development plan and participates in monitoring and evaluation of Safety Net Programme activities including the Rapid Response Mechanism. The RFSSC is made up of representatives from the Regional Bureau of Agriculture and Rural Development (chair of RFSSC), the Regional Food Security Coordination Bureau (secretary of FFSSC), the Bureau of Finance and Economic Development (MoFED), the Bureau of Capacity Building, the Disaster Preparedness and Prevention Bureau, the Bureau of Water Resources, the Bureau of Natural Resources and Land Administration, the Bureau of Cooperatives Promotion; and NGO representatives.

iii) Regional Bureau of Agriculture (BoA)

Its duties include:

- Overseeing the integration of safety net activities into the Food Security Programme and the regional rural development strategy;
- Providing overall guidance to the Regional Food Security Office, the Regional Public Works Focal Unit, and line bureaus to ensure coordination on planning and implementation of the regional Safety Net Programme;
- Disbursing periodic safety net budget to woredas and line bureaus based on the annual allocation approved by the Regional Council;
- Providing technical support to the Regional Food Security Office, and the Regional Public Works Focal Unit on implementation of Safety Net and related activities;
- Ensuring efficient procurement where applicable (see Section 5.8).
- Reviewing and providing feedback on reports submitted by Regional Food Security Coordination Office and the Regional Public Works Focal Unit on implementation of safety net interventions.

iv) Regional Food Security Coordination Core Process (RFSCCP)

The Regional Food Security Coordination Office reports to the Regional BoA. However, it is also technically accountable to the Federal Food Security Coordination Bureau within the Safety Net framework. The RFSCCP acts as secretary of the RFSSC and chair of the Regional Technical Coordination Committee. Its responsibilities also include:

- Developing and consolidating annual implementation plans and budgets for regional Safety Net Programmes in line with proposals from woredas, Regional Public Works Focal Unit, and line bureaus;
- Mobilizing technical assistance from the Regional Public Works Focal Unit and line bureaus;
- Identifying and monitor capacity to implement PSNP activities at regional, woreda and kebele levels. Ensuring mechanisms are in place to address any gaps in capacity.

- Holding quarterly review meetings with government and non-governmental agencies involved in implementation of the Safety Net Programme in the regions, to monitor and coordinate safety net interventions;
- Approving NGO plans of safety net activities, budget and beneficiaries, and consolidating these into regional safety net plans;
- Collecting and reviewing progress reports from woredas, Regional Public Works Focal Unit, line bureaus and other agencies engaged in safety net interventions, and providing feedback to those organizations;
- Coordinating monitoring and evaluation; and
- Preparing quarterly and annual progress reports on implementation of the Safety Net Programme for submission to the Regional BoA, as well as to the Federal Food Security Coordination Bureau.
- Ensuring to the extent possible a co-ordinated use of emergency resources for public works.
- Establishing and implementing the Rapid Response Mechanism.
- With the assistance of the social development officer, providing oversight for the management, implementation and coordination of DS activities, including technical back stopping support and facilitating coordination of DS activities with relevant sector bureaus as may be required

v) Regional Public Works Focal Unit (RPWFU):

The Regional Public Works Focal Unit is located in the Natural Resources Department of the BoARD. It has responsibility for the effectiveness of the PW programme and acts as secretary for the Regional Technical Coordination Committee. Its responsibilities include:

- Preparing and reviewing community level planning formats
- Consolidating public works plans and budgets developed in the woredas
- Overseeing integration of community watershed plans into woreda plans
- Ensure implementation of the ESMF through integration of the ESMF in the planning procedures and training for the PW programme
- Disseminating technical standards
- Overseeing woreda supervision of the PW, and providing technical backstopping
- Assessing the effectiveness of training, undertaking training needs assessments, and implementing training programmes
- Liaising with other sectors and sub-sectors
- Establishing linkages with other PW-related programmes
- Regular reporting on public works
- Participating in RRT and PW Reviews
- Supporting the M&E system of the FFSCD
- Knowledge Management including identifying and disseminating best practices, reviewing standards and work norms, and identifying new technologies to enhance the quality and impact of public works

vi) Regional Line Bureaus

These agencies:

- Incorporate PSNP activities in their yearly programmes/action-plans based upon the specific opportunities PSNP resources represent in terms of labour-based activities, capacity building and availability of supplementary non-wage costs.
- Initiate woredas LDs to include PSNP plans in their yearly programme activities/plans, including capacity building, and training in particular.

- Coordinate with RPWFU the timing of various capacity efforts and ensure timely technical support and procurement of essential items.
- Provide technical assistance to Regional Food Security Coordination Office, RPWFU, and woreda line offices in planning, implementation and monitoring of Safety Net projects.
- Undertake annual reviews of technical specifications and work norms of Safety Net activities to assist in enhancing the safety net technical specifications and work norms
- Participate in the Regional Technical Coordinating Committee

vii) Regional Technical Coordinating Committee (RTCC)

The Regional Technical Coordinating Committee is chaired by the RFSCO. The secretariat is provided by the RPWFU. The RTCC coordinates the interaction and involvement of the relevant line bureaux and other PSNP actors in all aspects of the PW programme. Its responsibilities include:

- Reviewing the annual regional public works plan to ensure the feasibility of projects, a balanced portfolio of projects under PW, and inclusion of all PW actors
- Ensuring budget provision for the operation and maintenance of new infrastructure in all sectors including health and education
- Ensuring the active participation and technical inputs of the relevant line bureaux and offices in the implementation and monitoring of the PW programme.

3. Woreda Level

The Woreda is the key level of government that determines needs, and undertakes planning and implementation of Safety Net activities.

i) Woreda Council/Cabinet

The Woreda Council is the highest decision-making body at woreda level and is responsible for the allocation of safety net resources to kebeles in line with size of vulnerable population and based on the recommendations of the Woreda Food Security Task Force. It will have responsibility for:

- Assisting in resolving unresolved appeals submitted to them by the Kebele Council and sharing the outcomes of these appeals cases with the WFSTF.
- Work with Kebele Councils to ensure that up-to-date listings of beneficiaries are posted in public locations at Woreda, Kebele and community levels.
- Work with Kebele Councils to ensure that up-to-date listings of appeals and appeals resolutions are posted in public locations at Woreda, Kebele and community levels.

ii) Woreda Food Security Task Force (WFSTF)

This committee will not duplicate existing similar structures, but will build upon previous institutions such as the Woreda Development Committee or the Woreda Disaster Prevention Committee, where relevant, and will be strengthened as necessary. Where such committees do not exist the WFSTF should be made up of the head of the Woreda Rural Development Office or the Woreda Administration (who acts as chairperson), and representatives from the Woreda offices of: Food Security (who acts as secretary), Finance, Natural Resource Office, Capacity Building, Agriculture and Rural Development, Women's Affairs, and NGOs. Inclusion of women in the committee is encouraged. The Woreda FSTF's duties within the Safety Net Programme are to:

- Review and recommend kebele annual Safety Net plans for approval, including the total number of beneficiaries of the Safety Net Programme;
- Consolidate annual woreda safety net plans and budget and prepare proposals for resource allocation to be submitted to Woreda Council;
- Ensure close collaboration with Regional and Woreda Food Security Offices and Woreda Council;
- Participate in monitoring and evaluation of safety net activities, including the Rapid Response Mechanism.
- Provide direction and assistance to kebeles in establishing and training KFSTFs.
- Hold quarterly progress review meeting on safety net activities and provide implementing agencies with feedback; and
- Review monthly progress reports on safety net activities.

iii) Woreda Agriculture Office (WAO)

The Head of WRDO acts as chair of the Woreda Food Security Task Force. Other functions of the WRDO are to:

- Oversee integration of Safety Net activities into the Food Security Programme and the woreda rural development strategy;
- Provide technical assistance and training to technical personnel and Kebele staff in planning and implementation of PW activities;
- Provide support to communities for the preparation of Community Based Participatory Watershed Development Plans;
- Provide support to communities for the identification of public works projects for the annual safety net plan;
- Ensure that all public works projects comply with the ESMF;
- Ensure that all PW projects are implemented in accordance with the required standards;
- Manage and organize activities for both safety net beneficiaries and additional beneficiaries due to emergency (the latter in conjunction with DPPB).
- Coordinate implementation agencies involved in the Safety Net Programme;
- Receive and review monitoring reports from Woreda FSTF, and forward to the Woreda Council;
- Ensure provision of technical input from Woreda sectoral offices to the safety net implementing agencies;
- Submit monthly progress reports to the Woreda FSTF;
- Maintain accurate records of kebele safety net activities and beneficiary lists; and
- Gather, consolidate and maintain accurate records of appeals and appeals resolutions on a 6 monthly basis as submitted by the Woreda Council and Kebele Councils.

iv) Woreda Food Security Case Team (WFSCT)

The WFSCTs are responsible for coordination of Safety Net activities and are technically accountable to the RFSCOs. Their duties include:

- Act as Secretary for the Woreda FSTF and for the Early Warning Committee, and as a focal point for all Safety Net issues in the woreda;
- Ensure that a pipeline of projects is prepared (including those to be implemented during the annual programme cycle and those to be implemented in case of emergency) in consultation with the Kebele Food Security Task Force;
- Mobilise technical assistance as needed from woreda sectoral offices;
- Undertake regular monitoring and evaluation in coordination with woreda sectoral offices;

- Hold quarterly technical review meeting with implementing agencies;
- Submit monthly progress reports to the Woreda Rural Development Office;
- Maintain accurate records of kebele Safety Net activities and list of beneficiaries; and
- Provide information on target areas and selected beneficiaries to sectoral offices and other agencies involved in planning and implementing Safety Net activities.

v) Woreda Sectoral Offices (Line Offices)

These include woreda offices and desks of Agriculture, Rural Roads, Water, Natural Resource Management, Education, Health, Cooperative Promotion and Women's Affairs. The responsibilities of these agencies include:

- Incorporate PSNP activities in their yearly programmes/action-plans based upon the specific opportunities PSNP resources represent in terms of labour-based activities, capacity building and availability of supplementary non-wage costs.
- Provide technical assistance and training to technical personnel and Kebele staff in planning and implementation of Safety Net activities;
- Consolidate and compile the proposals of the Kebele Food Security Task Force to incorporate into the woreda Safety Net plan;
- Undertake project screening in accordance with the Environment and Social Management Framework
- Prepare activity implementation plans and request budget for implementation;
- Implement safety net activities at kebele and community levels;
- Conduct monitoring and evaluation of activities, in collaboration with other relevant woreda level stakeholders; and
- Prepare and submit quarterly progress and financial reports to WRDO.
- Assist in coordinating DS training and light labour activities, with due consideration given to gender issues.

vi) Woreda Office of Finance and Economic Development (WoFED)

The WoFED is responsible for ensuring that:

- The budget for the Safety Net Programme is received in a timely manner at the woreda level to guarantee smooth implementation of approved plan and activities; and
- Timely disbursement of the safety net budget is made to sectoral offices for safety net activities and the purchase of relevant equipment and materials, and to the implementing bodies.

4. Kebele Level

Kebele Council/Cabinet

This body is the highest political decision-making body in the kebele. The kebele council/cabinet will have the following responsibilities:

- Approve kebele Safety Net beneficiaries;
- Identify people eligible for public works and direct support;
- By participating with the people, identify activities for Safety Net purposes;
- Approve the kebele Safety Net plan;
- Visit shelf projects and adapt them to the Safety Net plan as required;
- Create an appropriate atmosphere for proper payment to the beneficiaries;

- Ensure that the Safety Net programme is linked, and consistent with, other food security interventions;
- Ensure that each Safety Net beneficiary household participates in other food security interventions as appropriate;
- Maintain records on the status of beneficiary households and keep the community informed informed by ensuring that updated listings of Safety Net beneficaries and of appeals and appeals resolutions heard by the Kebele Appeals Committee are posted in public locations at the Kebele and community levels every 6 months;
- Develop monthly reports to the woreda cabinet;
- Oversee food security activities in the kebele, including those of the Safety Net programme;
- Ensure the establishment and effective operation of a Kebele Appeals Committee whose function will be to hear and resolve appeals regarding Safety Net matters in a timely manner. The Kebele Appeals Committee will meet quarterly under the auspices of the Kebele Council. The Kebele Appeals Committee should be comprised of: 1 elected Kebele Council member (not the Chairperson); 1 (elected) female representative to the KFSTF; 1 (elected) female representative from a CFSTF; a DA; and 2 elder representatives (1 female). The Kebele Appeals Committee should submit to the Kebele Council a complete listing of appeals cases, appeals resolutions, and submission of unresolved appeals each quarter to the Kebele Council which will review them and forward them to the Woreda Council and the WRDO every quarter; and
- Participate as required in the monitoring and evaluation system for the food security programmes.

Kebele Food Security Task Force (KFSTF)

The KFSTF is a decision-making body that oversees all planning and implementation of safety net activities. It is formed in each Peasant Association (PA) or Kebele and builds upon previous institutional structures such as Kebele Development Committee or Kebele Disaster Prevention Committee. KFSTF members include the Kebele Administration, Development Agents, Community Based Health Workers (CBHW), Teachers, Youth associations, etc. The minimum composition of the KFSTF includes: a Chairperson of the Kebele council, a member from the Kebele Council, one or more Development Agents (DAs) as available in the PA; three elected representatives of women's groups; and two elected representatives from elders and youth (one from each group).

The KFSTF, in the context of the Safety Net Programme, is responsible for:

- Agreement with the woreda on the general implementation procedures and roles and responsibilities of concerned individuals;
- Community mobilisation to identify and prioritize community needs;
- Plan prioritised activities with community members;
- The KFSTF will support DAs planning work with identified communities following participatory watershed planning guidelines (MOA) and Line Bureaus specific proposals (schools, etc);
- Based on such comprehensive local/community based development plans, specific activities will be selected to constitute the safety net plan;
- The KFSTF will strive to advocate for complementary resources and additional support for the activities indicated in the overall development plan, including mobilizing self-help efforts, and other FS and development programmes;
- Target beneficiaries and participants for public works and direct support based on community targeting exercises;
- Prepare Kebele Safety Net Plan in consultation with woreda sectoral offices, including proposed activities, and identify needs for technical assistance;
- Maintain minutes of KFSTF meetings on Safety Net issues, Kebele Safety Net activities, list of participants and progress reports;

- Establish and train of Community Food Security Task Force;
- Participate in monitoring and evaluation of safety net activities including the Rapid Response Mechanism; and
- Following review of the results of monitoring and evaluation, the membership of the KFSTF may be reviewed and modified in accordance with the normal government procedure.

5. Community Level

Community Food Security Task Force (CFSTF)

The Community Food Security Task Force's primary responsibility is identification of beneficiaries of the Safety Net Programme. Its functions also include mobilisation of the community for participatory planning exercises. It is composed of a representative from the Kebele FSTF; a Development Agent (if available in the village); two or three women's representatives (elected); two or three men's representatives (elected); a youth representative (elected); and an elder's representative (elected). The responsibilities of the CFSTF are to:

- Identify the names of participants in the Safety Net Programme in their respective villages according to selection guidelines and local community knowledge;
- Undertake a needs assessment, and identify those households who can participate in public works and those without sufficient labour (particularly female-headed households), or other support who will need direct support;
- Have the proposed list of participants commented on and endorsed by the general meeting of the village residents;
- Finalize the list of participants and submit it to the Kebele FSTF for verification and action and ensure that an updated listing of beneficiaries is posted in public locations every 6 months and that these updated listings are read out at a community meeting held every 6 months;
- Inform community members at the 6 monthly meetings of the appeals process – that appeals should be taken to the Kebele Appeals Committee which will resolve the appeals or forward difficult cases to the Woreda Council for resolution;
- Ensure that an updated listing of appeals cases, appeals resolutions, and outstanding appeals resolutions forwarded by the Kebele Council to the Worda Council is posted in public locations and read out to community members at the 6 monthly community meetings;
- Prepare a pipeline of projects, including those to be implemented during the annual programme cycle and those to be implemented in case of emergency, with technical assistance from implementing agencies and NGOs;
- Monitor periodically the public works to ensure that they are undertaken as prioritised; and
- Participate as required in the regular review of safety net beneficiaries.

6. Role of NGOs

Implementation of the Safety Net Programme should utilize and benefit from the participation of non-governmental actors having relevant capacity, experience and expertise.

- The Safety Net Programme is a social security intervention and typically the government has the primary responsibility for implementation of such programmes.
- Given that the nature of the Programme is to guarantee transfers to chronically food insecure households, it is important that Programme capital and administrative cost is kept to the programme norm of a maximum of 20%.
- NGO resources should be additional to government safety net resources.
- NGOs should abide by the Government's Programme Implementation Manual.

- The government welcomes NGO participation in the Safety Net Programme if NGOs meet the above criteria.

NGOs should consult the government to discuss potential options for their involvement in the Programme, within the above guidelines.

7. Role of Donors

The Government's financing partners have several roles in the Safety Net Programme, including:

- Providing resources at the appropriate time;
- Supporting capacity building and providing technical assistance at all levels, when requested by the government;
- Documenting and disseminating lessons learned and international experience;
- Organizing joint review meetings with Government to review progress on implementation;
- Providing advice by participating in the Federal Food Security Steering Committee; and
- Participating in review missions, including site visits, monitoring and evaluation and the Rapid Response Mechanism.

ANNEX 2: SUBPROJECT SCREENING FORM

Region: …….. **Woreda: ……**

Kebele: …… **Community: ……..**

Subproject Type: …….. **D.A. (Name): …….……...**

Subproject Name: ……..

Subprojects Ineligible as PSNP PW

	Yes	No
Subproject is in, or adjacent to, an internationally-disputed area		
Subproject may involve the physical relocation of individuals or households		
Subproject incorporates a dam of more than 10 metres in height		
Subproject located in a Priority Forest Area or natural habitat		

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Subprojects Requiring Special Procedures

	Yes	No
Subproject likely to involve disposal of medical waste		
Subproject likely to use pesticides or other agro-chemicals		
Subproject incorporates a dam		
Subproject might involve involuntary loss of assets, or access to assets, such as land, pasture, water, public services, or crops, fruit trees, or household infrastructure such as toilets or kitchens.		

Subprojects of Environmental Concern

	Yes	No
Subproject located within National Park or other designated wildlife area or buffer zone		
Subproject located within a recognised Cultural Heritage site, or World Heritage site		
Subprojects incorporates a dam of >5m in height		
Subproject involves abstraction form rivers draining into the Nile Basin		

Subproject Screening

01: Soil & Water Conservation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

02: Flood Control & Improved Drainage	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

03: Water Projects: Community & micro -level : Construction	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Increased numbers of water users due to improvements					
Increased social tensions/conflict over water allocation					
Sensitive ecosystems downstream disrupted					
Local incapacity/inexperience to manage facilities					
Other (specify):					

04: Water projects: Community & micro-level : Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Increased numbers of water users due to improvements					
Increased social tensions/conflict over water allocation					
Sensitive ecosystems downstream disrupted					
Local incapacity/inexperience to manage facilities					
Other (specify):					

05: SSI: Construction or Expansion	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Water storage requirement and viability (soil permeability)					
Vulnerability to water logging (poor drainage)					
Vulnerability to soil and water salinization					
Sensitive downstream habitats and waterbodies					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
Increased agric. chemicals (pesticides, etc) loading					
Increased social tensions over water allocation					
Local incapacity/inexperience to manage facilities					
Local incapacity/inexperience with irrigated agriculture					
Other (specify):					

06: SSI: Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Existing water sources supply/yield depletion					
Existing water users disrupted					
Downstream water users disrupted					
Water storage requirement and viability (soil permeability)					
Vulnerability to water logging (poor drainage)					
Vulnerability to soil and water salinization					
Sensitive downstream habitats and waterbodies					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
Increased agric. chemicals (pesticides, etc) loading					
Increased social tensions over water allocation					
Local incapacity/inexperience to manage facilities					
Local incapacity/inexperience with irrigated agriculture					
Other (specify):					

07: Soil Fertility Management and Biological Soil Conservation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

08: Agro-forestry, Forage Development and Forestry.	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

09: Gully Control	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Wet season soil disturbance					
Sensitive downstream ecosystems					
Introduced plant/tree species invasion of native species					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Insufficient capacity to manage Area Closure					
Insufficient capacity to prohibit or control open grazing					
Insufficient capacity to manage new plantations/pastures					
Other (specify):					

10: Community Road Earth Road (R1, R2) or Footpath Construction	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Soil erosion or flooding concerns (eg, due to highly erodable soils or steep gradients)					
Number of stream crossings or disturbances					
Wet season excavation					
Creation of quarry sites or borrow pits					
Significant vegetation removal					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
New settlement pressures created					
Other (specify):					

11: Community Road Earth or Gravel Road (R1, R2, R3, R4 or R5) or Footpath Rehabilitation	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
Soil erosion or flooding concerns (eg, due to highly erodable soils or steep gradients)					
Number of stream crossings or disturbances					
Wet season excavation					
Creation of quarry sites or borrow pits					
Significant vegetation removal					
Wildlife habitats or populations disturbed					
Environmentally sensitive areas disturbed					
Cultural or religious sites disturbed					
New settlement pressures created					
Other (specify):					

12: Social Infrastructure Activities Construction/Rehabilitation& Fencing.	Potential for Adverse Impacts				
	None	Low	Med	High	Unknown
New access (road) construction					
Alteration of existing drainage conditions					
Vegetation removal					
Wet season soil disturbance					
Construction materials impact on adjacent forests/lands					
Quarries and borrow pits created					
Cultural or religious sites disturbed					
Water supply development effects in available supply					
Effect of sanitation development on existing disposal sites					
Effects of medical waste on existing disposal system					
In-migration/settlement induced by facilities development					
Local incapacity/inexperience to manage facilities					
Other (specify):					

Mitigating Measures Required

Potential Impacts	Mitigating Measures

Approved Unconditionally: ☐

Approved subject to Special Procedures and/or Mitigating Measures: ☐

Notify to REPA as Subproject of Environmental Concern: ☐ **Rejected:** ☐

Screening conducted by:

Name……..……. Position: ……..Signature:…….....

Date:……

Screening supervised by:

Name……..……. Position: ……..Signature:…….....…...

Date:……

Annex 3: TYPICAL MITIGATING MEASURES

Many of the subprojects are environmentally benign or beneficial (e.g. land conservation measures, mulching degraded areas, planting trees, removing invasive species), but some subprojects, if not properly mitigated, could produce adverse impacts. Drawing on the list of possible subprojects, this is a list of typical mitigating measures which may be required to help avoid or reduce the potential adverse impacts. These measures may sometimes be necessary in addition to the measures built into the project design in the MoARD *Community Based Participatory Watershed Development Guideline.* Note that in addition, the RBEF may be able to provide region-specific lists of typical mitigating measures. Finally, list is for *guidance*. Ultimately all mitigating measures need to be developed on a subproject-specific basis.

Potential Impacts	Mitigation Measure
Roads and Footpaths, Stock Routes	
New access (road) construction	Ensure drainage controls on new roads and rehabilitate temporary access following subproject implementation
Soil erosion/flooding concerns	Drainage control measures to be included within construction plans
Number of stream crossing/disturbances	Minimize water crossings in road location and alignment
Wet season excavation	Schedule construction for the dry season
Quarry sites/borrow pits created	Re-contour and rehabilitate sites/pits and avoid collection of standing water; avoid creating large borrow pits.
Vegetation removal	Minimize temporary or permanent removal of natural vegetation
Wildlife habitats or populations disturbed	Identify and avoid effects on habitats and migration routes of key species
Environmentally sensitive areas disturbed	Identify and avoid forest, riparian and wetland habitats with particular biodiversity
Land Acquisition	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Private assets displaced	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide them access to alternative lands or resources
Cultural or religious sites disturbed	Identify and avoid cultural or religious sites. If disturbance unavoidable, agreement on mitigating measures must first be reached with stake holders (eg Community, mosque, church). If excavation encounters archaeological artifacts, halt construction and notify relevant authorities.
New settlement pressures created	Ensure road development is coordinated with local land use plans and discuss with the kebele
Market yards and storage	Ensure that yards and storage areas include safety measures, as well as procedures for managing waste and avoiding placement in areas that are used for pastoralism, farming, etc.
Other (specify):	

Irrigation Projects (including steam diversion, development of wells and springs, small dams, ponds, drainage and water canals, and seepage control measures)	
Existing water sources supply/yield depletion	Assess water supply and existing demands, and manage sustainability; consider local cumulative impacts of digging several wells in one area
Existing water users disrupted	Identify and avoid negative impacts on existing water users in the system design; ensure a local grievance redress system is in place
Downstream water users disrupted	Identify and avoid effects of diversion or extraction on downstream users in the system design; ensure a local grievance redress system is in place
Water storage requirement and viability (soil permeability)	Test the soil percolation and ensure an impermeable layer in the structure design
Vulnerability to water logging (poor drainage)	Assess soil characteristics and either avoid or provide drainage measures/infrastructure for areas prone to waterlogging; ensure proper design for water diversion, infiltration pits, etc.
Vulnerability to soil and water salinization	Irrigation expert to assess the potential for high salinity and ensure appropriate irrigation practices to minimize impacts
Sensitive downstream habitats and waterbodies	Identify and avoid effects of diversion or extraction on downstream ecosystems that depend on the surface or groundwater supply
Environmentally sensitive areas disturbed	Identify and avoid forest, riparian and wetland habitats with particular biodiversity.
Dam safety	Implement measures for managing dam safety risks from collapsed dams, ruptured ponds, etc.
Cultural or religious sites disturbed	Identify and avoid cultural or religious sites. If disturbance unavoidable, agreement on mitigating measures must first be reached with stake holders (eg Community, mosque, church). If excavation encounters archaeological artifacts, halt construction and notify relevant authorities.
Increased agricultural chemicals (pesticides, etc) loading	Develop an integrated pest management strategy and provide training to farmers
Land Acquisition	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Private assets displaced	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide them access to alternative lands or resources
Increased social tensions/conflict over water allocation	Establish a water users committee through the kebele and equitable rules for water allocation; ensure a local grievance redress system is in place
Local incapacity/inexperience to manage facilities	Establish an operations and maintenance manual, authority and provide training to persons responsible for operating the system
Local incapacity/inexperience with irrigated agriculture	Provide training to farmers on sustainable irrigated agriculture, including maintenance of infrastructure
Other (specify):	

Land Management	
Land reclamation of degraded or unproductive land	Ensure local communities are informed of activities and participate in decision-making about reclaimed land; ensure appropriate measures for

	sustainable management of the land, including water supply and drainage. Where necessary, prepare a Resettlement Action Plan to ensure proper compensation and resettlement (as required), and resolution of conflicts.
Gully control	Ensure measures and appropriate infrastructure are in place to avoid erosion leading to gullies
Fodder production and protection	Develop sustainable measures for vegetative fencing, paddocks, fodder belts, fodder seed collection; measures should take account of pastoral and agricultural land use, as well as local communities' agreements regarding community land; ensure a local grievance redress system is in place

Catchment, Forestry, Grasslands Projects	
Wet season soil disturbance	Schedule activities for the dry season
Potential for debris flows or landslides	Prepare a watershed plan that identifies and address drainage/slope instability
Sensitive downstream ecosystems	Identify and avoid effects of diversion or dams on downstream ecosystems
Removal of native plant/tree species	Protect and encourage regeneration of endemic species
Introduced plant/tree species invasion of native species	Local species should be planted. In those cases, where it is necessary to plant, non-native species, they should be compatible with native species
Wildlife habitats or populations disturbed	Identify and avoid effects on habitats and migration routes of key species
Environmentally sensitive areas disturbed	Identify and avoid activity in forest, riparian and wetland habitats with particular biodiversity
Land Acquisition	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Private assets displaced	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide them access to alternative lands or resources
Insufficient capacity to manage catchment ponds	Establish a water users committee, where appropriate, and/or kebele bylaws and provide training to water users
Insufficient capacity to prohibit or control open grazing	Establish a watershed committee, where appropriate, and/or kebele bylaws and provide alternative sources of fodder
Insufficient capacity to manage new plantations/pastures	Establish a local committee, where appropriate, and/or kebele bylaws and provide appropriate controls
Hill side terracing	Capacity-building in sound terracing measures to minimize erosion or collapse of the terrace
Other (specify):	
Drinking Water Projects	
Existing water sources supply/yield depletion	Assess water supply and existing demands, and manage sustainability; consider local cumulative impacts of digging several wells in one area
Existing water users disrupted	Identify and avoid negative impacts on existing water users in the system design; ensure a local grievance redress system is in place
Downstream water users disrupted	Identify and avoid effects of diversion or extraction on downstream users in

	the system design; ensure a local grievance redress system is in place
Increased numbers of water users due to improvements	Assess water supply and existing demands, and manage sustainability
Increased social tensions/conflict over water allocation	Establish a water users committee through the kebele and equitable rules for water allocation; ensure a local grievance redress system is in place
Sensitive ecosystems downstream disrupted	Identify and avoid effects of diversion or dams on downstream ecosystems
Land Acquisition	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Private assets displaced	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide them access to alternative lands or resources
Local incapacity/inexperience to manage facilities	Establish a local committee, where appropriate, and/or kebele bylaws and provide appropriate controls
Other (specify):	

School and Health Projects	
Alteration of existing drainage conditions	Drainage control measures to be included within construction plans
Vegetation removal	Minimize temporary or permanent removal of natural vegetation
Wet season soil disturbance	Schedule construction for the dry season
Construction materials impact on adjacent forests/lands	Avoid taking construction materials from adjacent forests/land; if local communities agree to such take, it should be done in a sustainable manner
Quarries and borrow pits created	Re-contour and rehabilitate sites/pits and avoid collection of standing water
Construction impacts	Construction sites should include procedures for managing waste; local communities should be informed about temporary disturbance, noise, dust, etc.
Water supply development effects in available supply	Identify and avoid negative impacts on existing water users in the system design
Sanitation development effects on existing disposal fields	Ensure the necessary facilities and capacity for upgraded facilities, consistent with health department design standards
Medical waste increase effects on existing disposal system	Prepare a waste management plan for major facility upgrades; ensure sufficient facilities and capacity for medical waste
Latrine construction	Ensure facilities are constructed according to health department design standards; latrines should be properly sited to avoid contamination of food and water
Land Acquisition	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Private assets displaced	Avoid occupied land. Prepare a Resettlement Action Plan to ensure proper compensation and resettlement (where necessary), and resolution of conflicts.
Cultural or religious sites disturbed	Identify and avoid cultural or religious sites. If disturbance unavoidable, agree mitigating measures with stake holders concerned (eg. Community, mosque, church). If excavation encounters archaeological artifacts, refer to Chance-finds procedure.
Informal land uses displaced or access restricted	Avoid interference with informal land users, and take measures to provide them access to alternative lands or resources
In-migration/settlement induced by facilities development	Control unplanned settlement near the facilities through an effective communications strategy and local enforcement
Local incapacity/inexperience to	Establish/strengthen local committees, where appropriate, through the kebele

manage facilities	and provide appropriate procedures and training to maintain the facilities
Other (specify):	

Annex 4: Integrated Pest Management Procedural Guideline

The Federal Democratic Republic of Ethiopia

Ministry of Agriculture and Rural Development
Crop Protection Department
P.O.Box 62347
Addis Ababa
Ethiopia

Guidelines on the Implementation of Integrated Pest Management (IPM) for Small-Scale Irrigation Schemes in the Productive Safety Net Programme

Introduction

At present, agricultural development is an area of top priority in Ethiopia, as is demonstrated in the Government's commitment to attain self-sufficiency in crop production, so as to sustainable ensure food security for the ever-increasing population of the country, and to ensure that food security efforts are made to intensify grain production through the utilization of agricultural input such as high yielding crop varieties, fertilizers and irrigation. Moreover, recognizing the intolerable magnitude of losses due to pests and the need to introduce ecologically preferable, socially acceptable, cost effective, rational and sustainable pest management technologies to farmers, IPM has been accepted as a strategy for tackling the problem.

Principles of IPM Implementation in Ethiopia

1. The basic need for IPM implementation in the country is to increase yields in a sustainable manner, and attain clean environment, safe food and healthy citizens.

2. The emphasis of IPM programme is on the reduction of or wherever possible, the elimination of the use of pesticides to avoid the misuse of pesticides and to prevent or at least to delay the breakdown of the agro-ecosystem through good crop management decisions. This condition will enable the prevention of unnecessary stockpiling of pesticides and their inevitable consequences of accumulating obsolete pesticides. Implementation of IPM also helps the country to produce acceptable products for the international market.

3. The basis of good crop management decisions is a better understanding of the crop ecosystem including that of pests, their natural enemies and the surrounding environment.

4. Traditional and indigenous crop protection methods that encourage the building up of natural enemies, such as crop rotation, intercropping, host plant resistance, appropriate planting time and planting density, use of local botanicals are highly encouraged.

5. Pesticides should be used only as a last resort.

6. Where pesticide use is unavoidable, it is desirable to select locally registered pesticides which are both effective at controlling pests and cause minimal damage to the environment.

7. The registered pesticide should be used according to Good Agricultural Practice (GAP) only when absolutely necessary for the right crop at recommended dose and at the right time.

8. Farmer should use pesticide safety gear whenever they apply pesticides.

9. Farmers should get training on safe use, handling and proper storage of pesticides.

10. Creating awareness among the general public about the potential risks associated with pesticide use is highly essential

Contents of an IPM Plan

In order to ensure that the above principles are followed, each small-scale irrigation scheme should have an IPM Plan.

The IPM Plan may form part of the Irrigation Project Document.

The IPM Plan should, at a minimum, contain the following components and activities:

1. *Technical Assistance*: The Woreda Crop Production and Protection Expert contacts the Plant Health Clinic/Crop Protection Section of the Regional Bureau of Agriculture and Rural Development (BoARD) for technical assistance;

2. *Training and Awareness-Creation*: The Crop Protection Section of the Regional BoARD arranges an IPM Training and Awareness-Creation workshop for the members of the scheme, incorporating the above-mentioned principles;

3. *Pest-Resistant Varieties:* The Development Agent (DA) and woreda Crop Production and Protection Expert provide advice to the members on pest-resistant crop varieties based on expertise and knowledge at regional, zone and woreda levels;

4. *Supervision:* During scheme operations, the DA visits the members, on at least a weekly basis, to ensure that the scheme is being operated as intended, to monitor the presence or absence of pests, and provide advice on the management options. Management should be

in accordance with the IPM components favouring traditional and indigenous pest management practices and conservation of natural enemies.

5. *Technical Information:* The DA ensures that information is made available to the members regarding the management of pests expected in the location concerned. In the event that the need for pesticides arises, the DA provides advice on the recommended pesticides and their usage, within the list of allowable pesticides as established by the *Pesticides Registration and Control Decree No. 20/1990* of Ethiopia, and any other relevant legislation or regulations.

6. *Safety and Storage of Pesticides:* The DA and Woreda Crop Production and Protection Expert will develop and implement arrangements for the safe use, handling and storage of pesticides, and the proper use, maintenance and storage of pesticide spraying equipment. Storage should follow the instructions provided. Pesticides should be kept separately, away from humans and animals in a closed, dry and secure place. Any surplus or unwanted pesticides should be reported to the DA for disposal.

7. *Regular Monitoring:* The Woreda team of Experts will conduct monthly visits to the scheme, to monitor as follows:

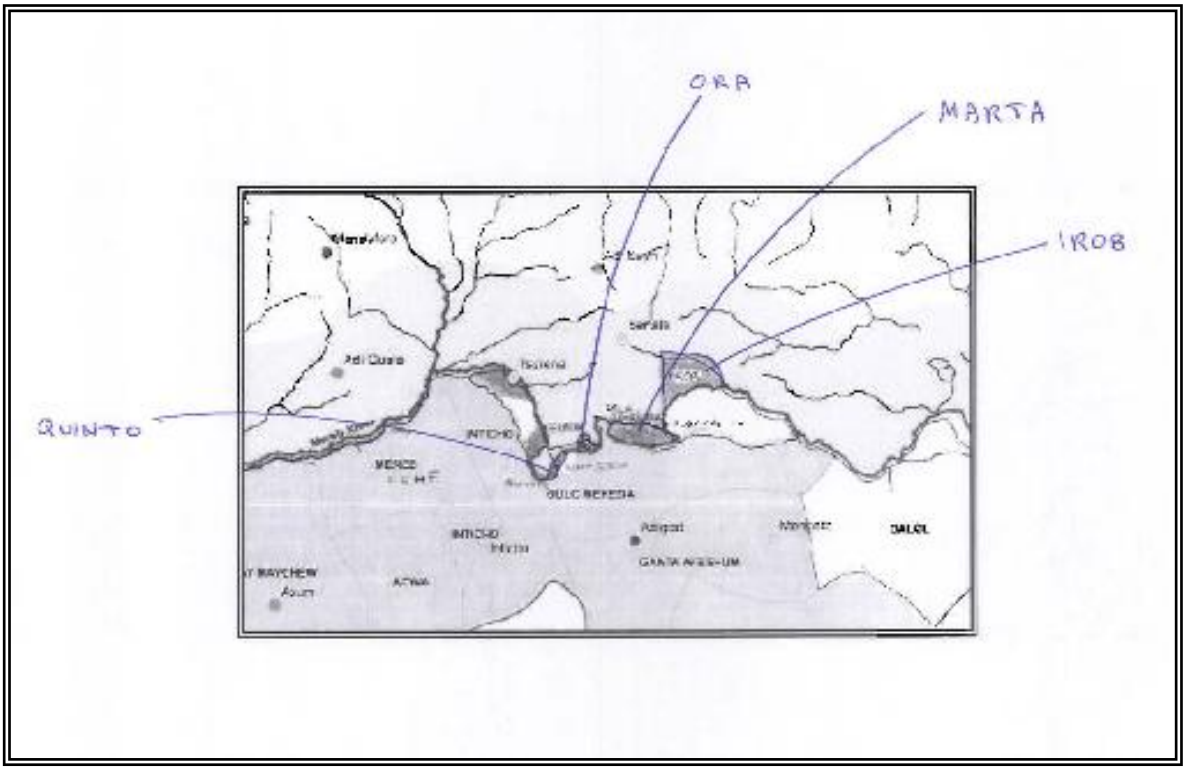
Expert Responsible	Indicators Monitored
Crop Production and Protection	Compliance with IPM good practice guidelines
Natural Resources, in conjunction with the Regional Environmental Protection Authority (EPA)	Environmental impacts including human health, soil and water pollution
Livestock	Hazards to animals, bees and aquatic life, etc.

8. *Reporting:* The Woreda team will report to the Regional BoARD (in some regions, reporting will be to the Zonal office), which will take action, if required, to rectify any shortcomings arising from the use of pesticides.

Annex 5: Internationally Disputed Areas

The ESMF disallows any PW activities within disputed areas.

The disputed areas in question are close to the Ethiopia-Eritrea border. Four such areas are identified on the sketch map below, which is based a map of the disputed areas provided to The World Bank by UNMEE in October 2004.



The disputed areas are four in number:

- Irob (in Irob Woreda)
- Marta (in Gulomahda Woreda)
- Quinto (in Gulomahda Woreda)
- Ora (in Gulomahda Woreda)

It is essential that no Public Works activities whatsoever (including SWC) are carried out in, or adjacent to, these disputed areas. Therefore if there are PSNP PW beneficiaries living in these areas, their PW activities should be organized outside the disputed area.

Annex 6: Medical Waste Management Guide

GUIDELINE

FOR WASTE HANDLING AND DISPOSAL IN HEALTH FACILITIES

Prepared by:

Industrial and other Health Institutions
Hygiene Control Team Department of
Hygiene and Environmental Health
Ministry of Health
Sept. 1990 E.C.
Addis Ababa

Note:

The Guide is translated from Amharic into English for The World Bank

1. INTRODUCTION

As the result of advancement of the knowledge of prevention and control of communicable diseases, better curing of the sick, man's average life expectancy is increasing from time to time. This is the effect mainly of advancement of science, technology and modem treatment systems.

Although the aim of establishing examination and medical service delivery system is to provide medical care, yet if these facilities are not up to the desired standard, maintained clean and safe they could pose high risk to the health care workers, patients, visitors and to the surrounding community.

For example at present it has been identified in Canada, Japan and North America that infectious wastes discharged from hospitals are becoming great concern as source of HIV and Hepatitis B infections for health workers (doctors) nurses, health assistants, custodial and maintenance workers) who are directly involved in handling infectious wastes. During the last ten years medical wastes disposed from health institutions have become worldwide political, social and economic issues.

Since the 1960s the quantity of wastes disposed from health institutions have increased tremendously.

Because of the growth and wide distribution of plastic technology, disposables (use and throw) medical supplies such as syringes, needles, plastic gloves etc the wastes disposed from research and health facilities, research laboratories etc. have increased both in quality and quantity.

According to studies done in some countries it is known that a patient on average contributes about 6.5 to 9 pounds (LB) of waste per day. Looking at Ethiopia's situation, according to a study done in 1985 E.C by the Department of Hygiene and Environmental Health (MOH), in 46 hospitals and 76 health centers, up to 178,000 pounds (Lb) of waste generated and disposed per day. Similarly a feasibility study carried out in 16 health centers and 48 clinics revealed that most of the health facilities had no satisfactory liquid and solid wastes disposed systems.

Furthermore, the situation became worse because most of the health facilities are old and did not have adequate budget nor functioning technologic etc.

Therefore, giving due attention to the problems and moving towards action is timely question of the day.

2. OBJECTIVES FOR THE DEVELOPMENT OF THE GUIDELINE

2.1 To enable health professionals to protect themselves against health – hazards, which might be encountered as result of their occupation.

2.2 To create awareness among workers in health facilities about the importance of safe disposal of wastes generated from health facilities according to this guideline.

2.3 To prevent and control environmental pollution by wastes carelessly disposed from health facilities.

2.4 To provide technical support to health professionals and environmental health workers engaged in day to day health inspection and control activities.

2.5 Comparing to the present faulty and indiscriminate infectious waste disposal pattern, this guideline may seem to be unrealistic. However, it would indicate the future direction to remedy. The situation and would lead towards establishing infectious and other wastes disposal system that would meet heath safety and hygienic standard.

3. DEFINITIONS

3.1 HEALTH FACILITIES (INSTITUTIONS)

Places in which examination and treatment, medical investigation, microbiological, chemical, toxicological, laboratory examination etc are carried out.

3.2 INFECTIOUS AGENT

An organism (usually microscopic). Such as bacteria, protozoa, fungus, rickettsia) virus helminthes that is capable of causing infection or infectious diseases in man. . The emphasis of PSNP 4 on improved cash-food parity (a new food basket with 15 kg of grain and 4 kg of pulses) is in line with the concerns raised by communities. Communities expressed the importance and interest in being consulted regarding their preference during PSNP 4

3.3 DISINFECTION

Destroying and eliminating infectious agent through chemical or physical processes.

4. SOME MAJOR TYPES OF WASTES DISPOSED FROM HEALTH FACILITIES

4.1 MEDICAL WASTE

Any waste discharged from health facilities during work process, excluding non hazardous waste.

4.2 NON-HAZARDOUS WASTES

Wastes which are dangerous to health such as produced from food preparation (kitchen Taste or garbage) offices, bath room etc.

4.3 PATHOLOGICAL WASTE

Wastes from blood and blood products, surgical remains of body parts, tissues, dead animals etc.

4.4 RADIOACTIVE WASTE

Liquid or solid wastes disposed from research laboratories nuclear treatment unit etc.

Containers of radioactive products, needles, syringes, gloves etc used in radioactive treatment processes.

4.5 CHEMICAL WASTE

Wastes resulting after usage such as antiseptic, disinfectants, chemicals of acid and alkaline nature, inflammables, corrosives, reactive etc which are capable of causing danger to the skin, or reproductive organ.

4.6 INFECTIOUS OR BIOLOGICAL WASTE

Type of waste that contains viruses, bacteria, intestinal worms, etc mostly disposed from research laboratory, surgical unit. Wound treatment room, delivery room etc.

4.7 SHARPS

Includes stitches, sucher, needle, syringe needle, broken bottle and the like.

4.8 PHARMACEUTICAL WASTE

Includes discarded or expired medicines, supplies, pharmaceutical contaminated by microorganisms.

4.9 PRESSURIZED CONTAINERS

Containers of gases under pressure such as oxygen cylinder etc.

5. HEALTH FACILITIES, THEIR UNITS, AND RESEARCH INSTITUTES WHICH GENERATE AND DISPOSED INFECTIOUS AND OTHER WASTE DURING THEIR WORK PROCESSES

5.1 HOSPITALS, HEALTH CENTERS AND CLINICS

5.1.1 Surgical department

5.1.2 Internal medical department

5.1.3 Obstetrics department

5.1.4 Genecology department

5.1.5 Microbiology laboratory

5.1.6 Nuclear medicine unit

5.1.7 Emergency department

5.1.8 Isolation and recovery unit

5.1.9 Orthopedic department

5.1.10 Pediatric department

5.1.1 1 Morgue

5.2 Research institutes

5.2.1 Microbiological laboratory

5.2.2 Toxicological laboratory

5.2.3 Chemical laboratory

5.3 ANIMAL EXAMINATION AND TREATMENT INSTITUTION

5.4 PHARMACEUTICAL FACTORIES

6. BASIC PRECAUTIONARY MEASURES TO BE CONSIDERED BEFORE STORAGE OF INFECTIOUS WASTE

6.1 Packaging condition of waste

6.2 Temperature level of the storage place and storage time. During storage it is preferable that the storage time be four days at below 0 to 10 degree centigrade. This is because higher temperature level increases bacterial multiplication rate thus accelerated decomposition followed by emission of foul smell.

6.3 Storage location and adequacy of the design

6.4 Suitability of the storage place for making it free from microorganisms, and conduciveness of pickup site

6.5 Ensuring that storage place is inaccessible to insects and rodents

6.6 Ascertaining that the containers of waste, cold storage place etc. have clearly visible International Biohazard label or mark.

7. WASTE STORAGE

One of the first job should be proper collection and storage of wastes generated during work processes. The wastes collected from different work places or department must be segregated or sorted out and must be stored properly arranged in temporary container or storage tanks.

The job of proper collection and storage of wastes produced from different work units require the director indirect participation of most of the doctors, nurses, laboratory technicians, health assistants, custodial workers etc. IF these professionals participate in proper management of waste disposal, then:

1. It is possible to maintain cleanliness of the inside and outside of the health facility.
2. It is possible to follow up the health status of the workers engaged in moving waste from place to place.
3. The cost of treating the waste can be minimized.

7.1 WASTE SEGREGATION AND STORAGE METHOD

7.1.1 Then wastes discharged from different units must be segregated and placed in leakage roof, non corrosive iron sheet barrel or plastic containers. This alone is not adequate, hence, the inside of the container should have plastic sheet, cover in order to avoid possibility of leakage.

For example wastes collected from administration, doctors or nurses offices should not be stored with wastes disposed from - the delivery and operation rooms. In addition infectious waste should not be put in any container but stored in leakage proof strong plastic' bag or plastic jar properly sealed or tied up.

7.1.2 Workers directly involved in handling wastes should identify each kind of waste carefully and put in easily identifiable different colour plastic bag or container. This will enable to collect and dispose hazardous wastes. This can be done us follow:

7.2 BLACK PLASTIC

This bag must be used to store wastes discharged from food preparation area and officers.

7.3 YELLOW PLASTIC BAG

The yellow plastic bag should be used to store waste discharged from:

- Surgical unit
- Internal medical unit
- Delivery room
- Isolation unit
- Recovery unit
- Infectious wastes produced from examination and treatment unit etc.
- Instruments like sharps must be stored in bags not likely to be torn or pierced.

For example, used blade, stitching needle, syringe etc. are contaminated, hence if one carelessly or accidentally cut or pricked by these sharps, it will expose one to HIV and other infections.

7.4 RED PLASTIC BAG

Chemicals and the related medicines should be stored in red plastic bag properly tied or sealed.

- The plastic bag should be stored in leakage proof and non corrosive plastic or iron sheet barrel.
- The storage capacity of the barrel preferably be of 100kg for solid waste and 50 letter for liquid waste.
- Each unit should have (as needed) of similar kind and capacity waste collection barrel.
- All units, except the isolation word, should have place for placing non-dangerous items.
- For tying or sealing it is not necessary to wait until the bag is full to the brim.
- Even though it is necessary to treat-disinfect infectious as soon as possible, yet if it is not possible for various reasons the follow steps should be taken:

1. Protect the waste from wind and rain.
2. First dispose the waste which can decompose quickly
3. If the waste storage place is outside the house, it should be placed in a reliable and secure container.
4. The waste should be protected from access to flies, rodents and similarly from scavengers.

8. HANDLING

- The plastic containers in operation room and recovery word should be emptied at least to twice daily in to the main collection tank and new clean plastic bag be replaced immediately.
- The waste should be handled only by the person who is assigned for the job.
- In case the waste is accidentally scattered spilled in the rooms or in other places. it should be cleaned immediately and carefully be disinfected by disinfectant meant for the purpose.
- It is possible to dispose non-hazardous waste through the municipal management system or to transport by vehicle to the final disposable site.
- Inorder to safeguard the health, and to avoid accident such as cuts by sharps etc the porter must be provided with acceptable work clothes, gloves, protective eye glasses, muffles for mouth and nose and work shoes.
- It is necessary to assure that reusable or multiple use examination and treatment supplies and other items should be properly cleaned and sterilized.
- For transporting the waste container or barrel from place to place there must be trolleys or carts. The trolleys should be carefully handled to avoid tipping off the content.
- All wastes produced from health facilities, except those from offices, kitchen, compound cleaning, should be transported by specially designed closed containers.

9. NEED FOR TREATING SOLD INFECTIOUS WASTE

9.1 Need for disinfection infectious waste before disposal

Wastes generated during work processes from health facilities must be made free from microbial contamination before transporting to the find disposal site for the following reasons:

1. Treating the waste by chemicals, holding under high temperature heat, exposing to radiation energy or burning the waste can destroy microorganism in the waste.
1. Thus, the risk to human health and environment pollution can be prevented.
2. Breaking into smaller pieces or shredding the waste can reduce the bulk volume of the waste
3. Body parts removed during surgical operation should be shredded before disposal to avoid aesthetically unacceptable contrition.
4. To avoid problem which might arise from disposable supplies such as needles, syringe etc after they have been used

9.2 WASTE TREATMENT FACILITY

Selecting and setting up processes of waste treatment facility depends on the following factors:

1. Type and quantity of infectious waste to be disposed.
2. Availability of waste treatment technology nearby or around the surrounding area.
3. Having financial capability to procure necessary equipment.
4. Availability of professional to operate and maintain the equipment.
5. The equipment and work process should satisfy the requirement of the area..
6. Opinions and goodwill of the community where the waste treatment activities is to be a carried out.

9.3 METHODS OF DISINFECTING WASTE

Before final disposal the waste must be disinfected inorder to avoid health risk to man and environment pollution.
The infectious waste collected from different activity units must be treated before hand to prevent spread of microorganisms in the waste by applying chemical treatment, radiation energy or other similar treatment method.

Provided the treatment is reliable, the treated waste can be disposed with municipal disposal system, if no such system the waste can be transported by sucking truck to the selected final disposal site.

However, discarded materials such as syringe, needle etc must be disposed carefully in case they might fall in the hands of scavengers to be sold for reuse.

9.3.1. Chemical Disinfection

Chemical treatment is a process of destroying microorganisms in the waste by using liquid chemical disinfectants.

To disinfect using chemicals:

- Select appropriate chemical for the job.

- Determine the concentration level of the chemical selected.
- Determine the contact time of the chemical with the waste
- Reduce the bulk volume of solid waste by grinding, shredding or similar method.
- This will help to avoid reuse of such material at syringes, needles etc.
- Some strains of pathogens may be resistant to chemicals, hence medical wastes treated by chemicals should be considered as hazardous to health and be handled carefully.

Therefore, it is necessary to make bacteriological test on the waste treated to ensure its safety.

Method of disposing the chemical used for the treatment should be planned because the chemical mixed with the liquid waste could create health hazard (see Annex 2)

9.3.2. Thermal Sterilization

Thermal sterilization is a method of treating waste by applying steam at 160 degree centigrade temperature level in autoclave

- Autoclave is used for sterilizing surgical and bacteriological equipment and supply.

In order to ensure the effective functioning of the autoclave:

- Large and solid material like syringes, needles etc. should be reduced to small size by breaking and compacting.
- Capable person be assigned for operation and maintenance of autoclave.
- The amount of waste produced and the capacity of the autoclave must compatible.

9.3.3. Sterilization by microwave

This is a disinfecting method of waste produced during work processes by burning in microwave oven.

- Small size of microwave oven can be applied for relatively small amount of waste discharged from laboratory, while larger quantity of waste produced from health facility require larger size microwave oven.
- Large and solid waste can be reduced to smaller size by shredding the waste.
- The waste must be held in the microwave oven for at least 30 minutes at 100 degree centigrade.
- The disinfected waste bailed out from the microwave oven must be disposed carefully.

9.3.4. Electromagnetic Radiation

This is a method of destroying microorganism in the waste by applying gamma ray or electron beam. In order to destroy effectively the microorganisms in the wastes large and sold waste have to be reduced to smaller size by grinding and compacting:

- Using electron magnetic beam or gamma ray for treatment method is relatively more effective than other methods, however the cost is too high.
- The waste after disinfection must be carefully transported and buried.

9.3.5. Incineration

This is a method of destroying microorganisms. By incinerating or burning the waste in a high temperature heat.

- If the health facility does not have its own incinerator, it is necessary to transport the waste to the nearby unit which has incinerator and do the job carefully.
- If the facility has its own incinerator, ensure that the combustion of the waste in the incinerator takes place at 1000 degree centigrade heat inorder to reduce the smoke and foul smell emitted.
- The incinerator must be designed and constructed with scrubber or cyclone device which serves to control floc gas emitted during combustion process.

The purpose of the scrubber or cyclone is to filter out the floc gas emitted into the air.
Nowadays simple type of incinerators are designed and constructed at low cost. However, since these incinerators function at relatively low temperature (heat), they emit smoke and foul smell, thus contribute to environment.

When building small scale incinerator, it is necessary to take into consideration the height of the chimney and wind direction for the purpose of reducing smoke and foul smell emission.

In places where high combustion calorific value, such as paper and the like is scarce, it is possible to use kerosene oil etc. to facilitate combustion process.

- However, using radioactive material, pressurized gas in containers etc. should not be used to start combustion.
- For small health facility a 200 litter capacity iron barrel or similar design can be set up and used (Annex 4)
- Ashes drawn from the incinerator can be disposed in places designated by the municipal or town administration.

9.3.6. Mechanical treatment

This method involves the process of such as cutting or slicing to pieces the' removed body parts into smaller size, compressing discarded syringes etc and then disinfecting by applying steam or disinfecting chemicals. Care should be taken not to spill blood or body fluid while cutting or shredding process in order to avoid contaminating the workers or the surrounding. Special care must be taken also white shredding such things as syringes and needles because the bacteria-load fluid content can spread in aerosol form and contaminate the air.

10. TREATMENT OF FLUID WASTE

10.1 FOR SMALL HEALTH FACILITIES WASTE

Infectious wastes disposed from various treatment units are:

- Blood and blood product
- Biological culture

- Urine and stool
- Sputum and nasal discharge
- Waste water from washing floors, walls and latrines.

The infectious waste from the above sources should be disinfected by applying chlorine solution, phenol, creosol, lysol etc disinfectants and then must discharged into septic tank. The amount of disinfectant applied should not be more than needed to do the job; otherwise it will interfere with the decomposition process in the septic tank. Similarly disposable (single use) medical supplies, after use should be disinfected by chlorine solution etc and then be disarranged into the septic tank prepared for this purpose. The disinfected waste can be collected and discharged into municipal system, if there is such, or can be transported by suck truck to the final disposed site.

10.2 For larger health facilities

10.2.1 Sewage screening and treatment method

The treatment system can be small or large, depending on the volume of liquid waste to be treated. Nevertheless, there must be provision for liquid waste treatment.

The liquid waste clarification process includes the following:

10.2.2 Screening for removal of large size solid waste

This is a process in which liquid waste collected from different units before entering into the sedimentation tank, is lead to pass through screen for retaining relatively large size solid waste. In this screening process:
The Purpose of Screening is:

- To reduce workload on the next process of treatment steps.
- To avoid blockage of the flow pipe line for removal of sludge.
- To reduce solid material which can be collected in the aeration and sludge digester tanks.

The wet solid material collected during screening process be placed in plastic bag sealed and disposed carefully by burning at selected place.

10.2.3 Floating mechanical aerator

The aeration process is one of the steps of the biological treatment system.
Aeration process helps to decompose organic and floating waste component and to reduce bacterial multiplication in liquid waste.

10.2.4 Sedimentation tank

The liquid waste coming from the floating mechanical lank is lead to the sedimentation lank. Here floating and organic parts in the waste is made to sediment by adding ferrous

sulphate to accelerate the process. This process is assumed to reduce about 60% of solid and floating waste and decrease the pollution rate of the waste by about 35%. However, after this process chemical treatment is needed

10.2.5 Sludge trickling and driving bed

The sludge collected in the sedimentation tank is bailed out by pumping and spread over the sludge truckling and drying bed. The sledge trickling and drying basin contains gravel over which the wet sludge is spread and made to trickle. After this the liquid component is returned to the mechanical aeration and floatation chamber. The sludge that is collected over the basin is dried by sunlight or electric drier and disposed by burning.

10.2.6 Chlorination tank

The liquid waste (effluent) discharged after sedimentation process must be disinfected by applying calcium hypochlorite solution through automatic feeder.

10.2.7 The chemically treated

Liquid waste (in 10.2.6 above) is made to flow slowly in a zigzagging tank to ensure proper disinfection before discharging to the environment.

11. DISPOSAL METHOD FOR OTHER KINDS OF TOXIC WASTE WHICH REQUIRE PECIAL ATTENTION

11.1 Drugs that can cause serious damage to human tissues

Drugs for cancer control i.e anticoplastic or thermotupuetic drugs, similarly empty containers of drugs like vials and bottles, needles and syringes used for injections, gloves, bandages and other items related to the drugs must be incinerated by professionals, disposed after detoxified by chemicals. However, diluting the drugs with water and discharging to sewer line must be recognized as a dangerous act.

11.2 Radioactive Materials

- Radioactive wastes discharged from examination and treatment facilities generally have low radioactivity and short shelf life. Therefore, it is possible to store them and hold until the radioactivity level is drastically reduced to zero or eliminated before disposal.
- Items such as gloves, syringes, gauze and other items which had contact with, after their service is over should be disposed of after holding them for adequate period. However for items in which radioactive was brought, or empty containers, the Radiation Control Authority should be consulted.

1 1.3 High Pressure Contained Disposal

When there is need to dispose containers which hold air under pressure, they should be buried in a prepared deep pit or they should be returned to the dealer who provided them. However, it should not be forgotten that burning these item is very dangerous act.

12. SOLID WASTE DISPOSAL

Before transporting and disposing the waste collected from the health facility, in designated place, the following factors must be considered:

- Wastes disposed from health facilities under conditions which are injurious to human health, and pollute the environment; such wastes as syringes, needles drug container and bottles, plastic dextrose bags, gauze, bandage and other items, disposed from health facilities under dangerous conditions pose high risk to human health and the environment. Furthermore, special care should be taken because these items can be puked up by illegal scavengers and could be sold for other use.
- Improperly stored waste provides breading place for flies and harborage for rodent.
- In addition it can create conditions favorable for spread of commutable diseases.
- It also spoils the aesthetic condition of the environment.
- The smoke emitted as result of burning the waste can contaminate the surrounding with carbon monoxide, particulate and impart foul smell. In addition it can contribute to the transmission of respiratory illness.
- Solid waste contain pollutants of chemical and biological nature and when discharge into rivers or water body, they are dangerous to aquatic organisms.

Furthermore, discarded items, such as needle, syringe and similar items of medical waste can be carried by water flow to the coastline and could create health hazard to people recreating in the water.

Therefore, in order to prevent and control the above listed problems as well as to prevent danger that might arise from hazardous waste, health facilities preferably have compounds with adequate space from proper disposal of waste.

However, if the area allotted to the health facility is inadequate, then the waste can be incinerated or treated by chemical and can be buried in accordance to the guideline requirement.

12.1 FOR SMALL HEALTH FACILITIES

12.1.1 Incineration

Solid wastes (such as syringes, needles, sharps, bandages, discarded blood bags etc.) can be incinerated in incinerators and the resulting ashes can be buried in the composed in pits designated for the purpose (See Annex 4)

12.1.2 Disposal of waste inside the health unit compound

If the health facility has adequate space, a circular or rectangular pit can be dug and prepared for disposal of waste by burial method.
The depth of pit must be adequate for the waste generated. The walls and floor of the pit be made of stone, the base should be raised from ground cover. The pit should have an openable slab cover made of reinforced (with iron bar) concrete slab. The concrete slab cover serves to prevent access of children, scavengers or animals to the buried waste (See Annex 5)

13. MAINTAINING CLEANLINESS OF MEDICAL SUPPLIES, CLOTHING AND ROOMS

13.1 Various non disposables (multiple uses) medical supplies after service, must be cleaned, by emersing in chlorine solution or phenol compounds before sterilizing in autoclave in addition:

13.2 Instruments which can stand high temperature heat can be sterilized by holding at 160 degree centigrade for one hour in the autoclave.

13.3 Instruments sensitive to high temperature heat can be disinfected with chlorine solution or phenol compounds before reuse. In addition they can be effectively disinfected (if possible) with gama ray or ethylene oxide gas before reuse.

13.4 Enamels made of iron or plastic, or beds painted in various colours; carts, drawers and items of plastic covers must be properly washed with savelon or similar chemicals.
Materials meant for single use (disposables) must be disposed immediately after use.

13.5 When patients are discharged after cure or expired, the room and all medical and other items used by the patient should be cleaned with chemicals and then sterilized before use by new admission.

13.6 Work clothes, gowns, especially those which had contact with infectious waste must be sterilized in autoclave before sending to the laundry. The inside and outside of shoes should be cleaned with phenolic compounds and be disinfected at least once per day and sterilized in autoclave.

13.7 The floor, walls and ceiling must be made of cleanable materials and be cleaned with phenolic compounds at least once per day.

13.8 It is necessary to use wet vacuum or filter dry mopping method for cleaning the floor. But dry mopping or sweeping of floor raise dust, hence is strictly forbidden.

13.9 The mop should be cleaned with soap and water and then be immersed in Phoenolic compound and kept in it for a reasonable time.

13.10 All lavatory seats, fittings, wash hand basins, bathtubs etc. must be washed with powder detergent and then cleaned by savelon.

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Categories of institutions' Waste

1. General Waste

1.1 Paper
1.2 Wood
1.3 Ashes
1.4 Card board
1.5 Cartons
1.6 Plastics
1.7 Rags
1.8 Wood scraps
1.9 empty Cans
1.10 Food Remains
1.1 1 Vegetable remains
1.12 Toilet Waste

2. Infectious Waste

2.1 Isolation Room Waste
2.1.1 Waste from patients with diseases considered communicable (blood, excretion, exudes, secretions)

2.2 Cultures
2.2.1 Culture and stocks of infectious agent from clinical and research laboratories
2.2.2 Disposable culture dishes,
2.2.3 Devices used to transfer, inoculate and mix culture
2.2.4 Discarded live and attenuated vaccines

2.3 Animal Waste
2.3.1 Contaminated animals carcasses
2.3.2 Body parts
2.3.3 Beddings of animal that were known to have been exposed to infectious agent
2.3.4 Human Blood and Blood Products
2.3.5 Waste blood
2.3.6 Serum
2.3.7 Plasma
2.3.8 Blood products
2.3.9 Fluids. /residuals
2.3.10 Containers which were used in patient care, testing, laboratory, analysis, intravenous bugs.

2.4 Pathological waste (removed during surgery, autopsy & biopsy)
2.4.1 Tissue
2.4.2 Organs
2.4.3 Body Parts Limbs

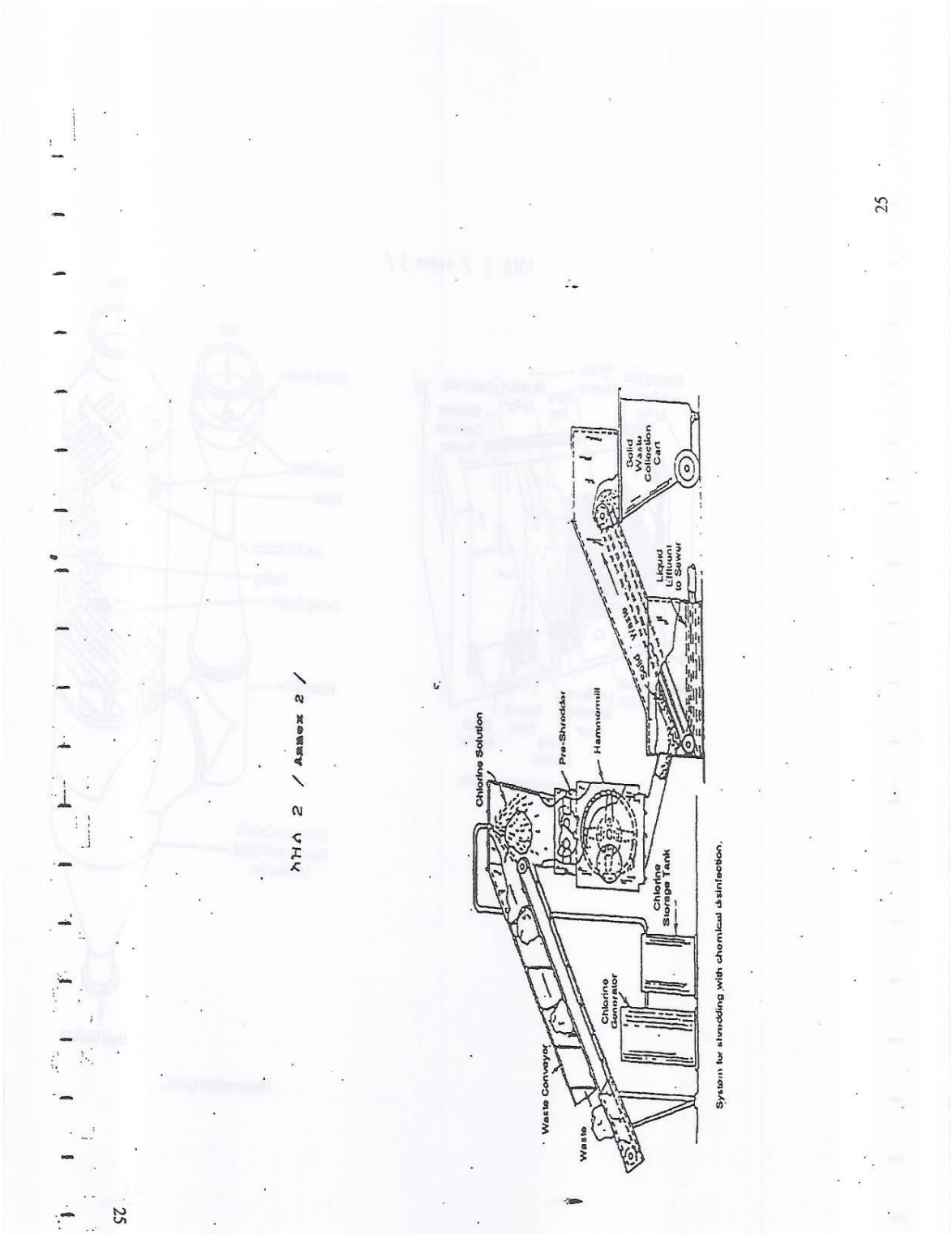
2.4.4 Blood
2.4.5 Body fluid and their containers
2.4.6 Obstetrical Waste (Placenta, Still birth)

2.5 Contaminated equipment (Medical & Surgical)
2.5.1 Blood transfusion sets
2.5.2 Catheters
2.5.3 Colostomy bags
2.5.4 Examination gloves
2.5.5 Surgen gloves
2.5.6 Ryle's tubes
2.5.7 Sputum Container
2.5.8 Needles
2.5.9 Syringes
2.5.10 Spigots
2.5.11 Oxygen mask
2.5.12 Iv. Cannulae & infusion sets
2.5.13 Urine, drainage bags and tubs
2.5.14 Spatulae renal tubes
2.5.15 Tracheostomy sets
2.5.16 Scalpel blades
2.5.17 Pasteour pipettes
2.5.18 Blood vials (Slides and Convers Slips)
2.5.19 Broken and unbroken glass ware
2.5.20 Swabs, absorbants
2.5.21 Tougne depressers
2.5.22 Beddings, Shavings, Feacal Matter
2.5.23 Gauze, pads, bandages and garments
2.5.24 Plastics, etc.
2.5.25 Bed Pan covers
2.5.26 Dressing towels

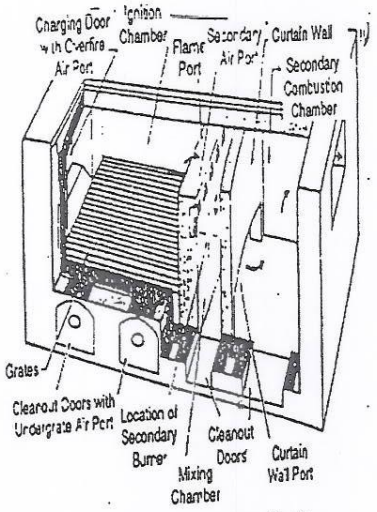
3. Laboratory and Pharmaceutical Chemicals (Care should be taken in handling

3.1 Alcohols
3.2 Disinfectants
3.3 Antineoplastic agent
3.4 Heavy metals
3.5 Insecticides
4. Radioactive Waste
4.1 Nuclear medicine diagnostic and therapeutic
4.2 Contamination of radioactive spills
4.3 Solid, Liquids and gases from analysis procedure, body organism imaging and tumors localization, and treatment

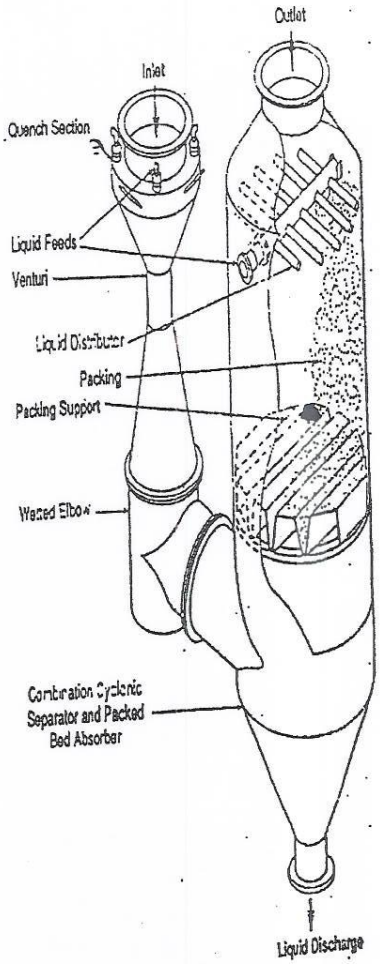
Diagrams 1


Solid Waste Collection Cart
Liquid Effluent to Sewer
Waste Pipes
Pre-Shredder
Hammermill
Chlorine Solution
Chlorine Storage Tank
Chlorine Generator
Waste Conveyor
Waste
System for shredding with chemical disinfection.

ANA 3 / Annex 3 /



-flame multiple-chamber incinerator with grate.



Venturi-scrubber system.

26

27
ANNEX 4 / Annex 4 /
Cut away provides ventilation and supports the fire bed
200 litre oil drum or similar
Perforated fire bed made from the drum top
Small incinerator made from an oil drum
27

Figure 7.1 Pit for on-site disposal of sharps

Use of a pit for disposal of small quantities of waste

Annex 7: Safety Guidelines for Small Dams

1. Introduction

The overarching dam safety objective is to protect people, property and the environment from the harmful effects of mis-operation or failure of dams and reservoirs. To ensure that dams and reservoirs are operated and that activities are conducted so as to achieve the highest standards of safety that can reasonably be achieved, measures have to be taken to achieve the following three fundamental safety objectives:

- To control the release of damaging discharges downstream of the dam,
- To restrict the likelihood of events that might lead to a loss of control over the stored volume and the spillway and other discharges,
- To mitigate through onsite accident management and/or emergency planning the consequences of such events if they were to occur.

These fundamental safety objectives apply to dam and activities in all stages over the lifetime of a dam, including planning, design, manufacturing, construction, commissioning and operation, as well as decommissioning and closure.

2. Planning of Small Dams

There are some fundamental principles which should be applied through the investigation, design, construction and commissioning stages to achieve an adequate level of safety. The principles are:

i. the competence and experience of the owner's agents relative to the nature and dam hazard category of the dam, must be appropriate in all areas;
ii. there must be a cooperative and trusting relationship between the owner and technical advisers, and the designers must be given full control over decision making in critical areas;
iii. the owner must agree to apply the appropriate level of funding for investigations, design and construction to reduce the chances of critically important issues (particularly related to foundations) being not sufficiently well assessed or under protected;
iv. the designer/technical adviser has a duty not to compromise unduly due to financial pressures from the owner, developer or contractor;
v. continuity of key technical advice should be maintained throughout all stages of the dam from development, through design, construction and commissioning, to reduce chances of critical points of design philosophy and intent being misinterpreted during construction or commissioning.

Dam site investigation

Selecting the Dam Site

When choosing the location and size, the dam owner should also take into account what would happen if the dam failed suddenly and whether it would result in loss of life, injury to persons or livestock, damage to houses, buildings, roads, highways or railroads. The owner of the dam should ensure to avoid locating the dam where run-off from houses, dairies or septic systems can pollute the water.

Considerations at Investigation Stage

Technical Consideration

Site selection and site investigations are critical components to the success or failure of a dam. Regarding the technical consideration the following important aspects should be considered:
a. The catchment is the area of land from which run-off is to be collected. If it is the main source of water supply, make sure that it is capable of yielding enough water to maintain both, the supply in the dam and the required releases over all periods of intended use. The catchment area however should not be too large, as it will then require a big and expensive overflow system (or spillway) to safely pass excess run-off from heavy rainfall without overtopping the dam.
b. Topographical features such as slope, width and height of dam, as well as reservoir capacity will influence construction costs.
c. Conducting site tests to establish the material properties for the embankment and foundation.
d. A good location for a spillway that will effectively handle runoff and minimize erosion.
e. Watershed activities that can affect the water quality or quantity of runoff.

Environmental Considerations

Dams with their associated reservoirs can have substantial environmental effects and any existing dam or new project must comply with the Ethiopian environmental and environmental legislations and associated licensing or permit requirements. It also complies with World Bank Safety of Dam Operational Policy (OP/BP. 4.37). It should be recognized at the outset that dam developments have effects extending beyond the immediate confines of the dam and inundated areas. For example;
a. Reservoir slope stability may become a dam safety issue due to the risk of overtopping caused by large volumes of reservoir water being displaced by slope failures.

b. Sitting of the dam/reservoir must take into consideration the local earthquake and faulting activity which may cause breaching of the dam
c. Groundwater level changes may affect stability and land use around the reservoir margins and possibly adjacent to the downstream river, as a result of changed water levels.
d. Trapping of sediments in the reservoir can result in upstream shoaling and loss of reservoir storage.
e. Flora/fauna effects may occur in storage basin, downstream, and in passage around and through the dam.
f. Minimum flow maintenance downstream of the dam to ensure the survival of flora and fauna, and to reduce causes of stream bed deterioration.
g. Social development/changes to downstream use given the changed flood situation.

Dam Design

Embankment dams Design
The single most common cause of earthen dam failures is overtopping of the embankment. An undersized spillway will lead to overtopping; therefore spillway design is critical to reservoirs. The spillway must be located such that discharge will not erode or undermine the toe of the dam. If the banks of the spillway are made of erosive material, provision must be made for their protection. Consideration must be given to the hazard to human life and potential property damage that may result from the failure of the dam or excessive flow rates through the spillway. Further consideration must be given to the likelihood of downstream development that may result in an elevation of the hazard classification.

Extreme Events
Large earthquakes, storm/flood activity and failure of upstream dams can be considered extreme events. The risk of failure from these events is minimized by using engineering design standards and relevant guidelines incorporating adequate margins of safety. Emergency preparedness set up well in advance is the only available measure of reducing the impact when a dam failure is about to happen.

Sedimentation
The effective life of many of small dams is reduced by excessive siltation – some small dams silt up after only a few years. This issue is poorly covered in the many small dam design manuals that are available, as they mostly focus on the civil engineering design and construction aspects. Appropriate methods/tools have to be chosen to predict, and where possible reduce, siltation rates in small dams.96

3. Construction of a Dam

The quality of construction is all-important to dam safety. As far as construction is concerned, the following requirements are necessary from the dam safety viewpoint:

• the contractors must be suitably experienced and committed to achieving the standards of work specified;
• the level of supervision of the works, quality assurance procedures and designer continuity, must be appropriate to the scale and complexity of the dam;
• the owner must recognize that inherent uncertainties may remain after design investigations and only be revealed during construction, and have funding in place to deal with costs arising from additional requirements identified during construction;
• any area identified in the design process as requiring confirmation by the designer during construction, must be totally under the designer's control, and no design change, however small, shall be made without the designer's review and formal approval;
• a suitably detailed design report and drawings showing the as-built structure of all components of the dam and foundation shall be developed as an on-going and integral part of the construction supervision process, and be prepared after completion of each component so that there is a reliable record to refer to at all times in the future.

Therefore, the dam owner should ensure all the above mentioned requirements are fulfilled and complied.

Selecting the contractor

The use of inexperienced contractors and/or inadequate supervision can develop into an expensive liability. Nothing can take the place of a reputable contractor, using appropriate equipment and experienced machine operators and working under supervision of an experienced engineer.

Construction Supervision

Construction supervision is an important phase of dam construction. Supervision is meant to ensure that the design factors and specification requirements have actually been included in the final product.
If foundation preparation, material selection, outlet/spillway installation and embankment compaction are not properly carried out then the safety of the dam will 97 be compromised. So, for all small dam types (both earthen and rock fill) expected to be constructed, all the dam safety requirements applicable should be considered accordingly.

4. Safety Surveillance

Purpose of Regular Inspection

The purpose of a dam safety surveillance program is to avoid failure of the dam, by giving early warning of any kind of symptom of trouble as early as possible. It is the most economical and effective means an owner has of maximizing the long-term safety and

survival of the dam. Its primary purpose is to monitor the condition and performance of the dam and its surroundings.

Frequency of Inspections

The frequency of inspection required for an effective program of surveillance depends on a variety of factors including:
• Size or capacity of the dam;
• Condition of the dam; and
• Potential for damage resulting from failure of the dam (represented by the hazard category).

Adoption of the inspection frequency for a particular dam is the responsibility of the owner, though professional advice should be sought for large dams or those categorized under significant and high hazard dams.
According to the dam safety guidelines prepared for AGP, the suggested inspection frequencies for small dams of less than 15 m height for the two levels surveillance (quick visual inspection and comprehensive examination) is presented in the table below and should be followed critically.

Quick Visual Inspection

Dam Hazard Potential classification	
	twice weekly
High	
Significant	weekly
Low	fortnightly

Comprehensive Examination

Dam Hazard Potential classification	
	monthly
High	
Significant	3-monthly
Low	twice-yearly

Special Inspections

Special inspections will be required after unusual events such as earthquakes, major floods, rapid drawdown or volcanic activity. Special inspections should enable the dam owner to become aware of faults before partial or total failure occurs. Times when inspections additional to those above are recommended are:
• before a predicted major rainstorm (check embankment, spillway and outlet pipe);
• during and after severe rainstorms (check embankment, spillway and outlet pipe);
• after any earthquake, whether directly felt on the owner's property or reported by local news media (check all aspects of the dam).

Inspections should be made during and after construction and also during and immediately after the first filling of the storage.

Dealing with Problems

A systematic program of safety surveillance should maximize the likelihood that any developing conditions likely to cause failure would be found before it is too late. Surveillance will also help early detection of problems before they become major repair bills. As identified earlier typical problems (many of which are treatable if found early enough) are most likely to fall into one of the following categories: seepage/leakage; erosion; cracking; deformation/movement; concrete structure defects; and spillway blockage.

Instrumentation and Monitoring

Instrumentation at a dam furnishes data to determine if the completed structure is functioning as intended, provides a continuing surveillance of the structure, and is an indicator of developments which may endanger its safety. Typical items instrumented or monitored include:

• profiles and condition, deformations, seepages or damp areas (visual)
• reservoir water levels which relate to dam loads and flood behavior
• local rainfall which relates to background seepages
• drainage and distinguishable seepages which relate to control of leakage water flow
• Clarity of seepage flow which relates to potential erosion of embankment or foundation material.
• water pressures within the dam and foundations which relate to structural behavior
• movement or deformation of the dam surface and internal structure which relates to structural behavior
• stresses within the dam which relate to structural behavior
• seismic acceleration which relates to structural behavior

5. Operation and Maintenance of Dams

Effective and ongoing operation, maintenance and surveillance procedures are essential to ensure the continued viability and safety of a dam and its appurtenant structures. Poor operation, maintenance and surveillance will invariably result in abnormal deterioration, reduced life expectancy and possibility of failure. The proper operation, maintenance and surveillance of a dam provide protection for the owner and the general public. Furthermore, the cost of good operation, maintenance and surveillance procedures is small compared with the cost and consequences of a dam failure which could include major repairs, loss of life, property damage and litigation.

Because many small dams fail through lack of maintenance, it is prudent to have a definite and systematic maintenance plan.

The maintenance plan should be decided upon when the construction work on the dam is completed. It will affect the life of the storage if you do not maintain it properly. A good plan

should include the practices to be used, as well as the approximate time of the year when they are applicable.

Annex 8: Physical Cultural Resources: Chance-Finds Procedure

(A) Individual Small Artefact

If PW subproject excavation or construction encounters an individual small item of movable physical cultural resource (PCR) such as a coin, work can proceed but the artefact should be handed to the DA. The DA will then perform the following tasks:

1. The DA will take the artefact to the Woreda Office of Tourism and Culture, together with a brief written *Chance Finds Report* (copied to the Woreda ESMF Focal Person) containing:
    a. The date and time of discovery
    b. Location of the discovery
    c. Description of the PCR
    d. Estimated weight and dimensions
2. The DA will then arrange for the work force to resume work as before.
3. If further artefacts are found in the same or similar location, the DA will follow procedure (B) below.

(B) PCR Site or Cluster of Artefacts

If PW subproject excavation or construction encounters substantial PCR such as an archeological sites, a historical sites, a group of cultural or historic artefacts, a graveyards or individual grave(s) or any apparently human remains, the DA will perfom the following tasks:

4. The DA will stop the construction activities in the immediate area of the chance find, and proceed with alternative works elsewhere within the subproject;
5. The DA will delineate the discovered site or area;
6. The DA will secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, the DA will arrange for day and night guards until the Woreda Office of Tourism and Culture can take over;
7. The DA will submit to the Woreda Office of Tourism and Culture and the Woreda Environmental ESMF Focal Person a brief written *Chance Find Report*, containing:
    a. The date and time of discovery
    b. Location of the discovery
    c. Description of the PCR
    d. Estimated weight and dimensions
    e. Temporary protection measures implemented.
8. The Woreda Office of Tourism and Culture and/or Woreda Environmental Environmental/ESMF Focal Person will notify other concerned local authorities if necessary (eg. Church, police, etc.);
9. The Woreda Office of Tourism and Culture will be in charge of protecting and preserving the site before deciding on the appropriate procedures. This may require a preliminary evaluation of the findings to be performed by the archeologists or other experts of the Woreda Office or the Regional Bureau of

Tourism and Culture, who will ascertain the significance and importance of the findings, according to the various criteria relevant to cultural heritage;

10. As soon as possible the Woreda Office of Tourism and Culture should notify the DA what measures are being taken to safeguard or remove the PCR, and whether, and when, work can resume in the concerned area. This notification may require the DA to change the design or layout of the subproject.
11. Implementation for this decision shall be communicated in writing to the Woreda ESMF Focal Person and DA by the relevant local authorities. Construction or excavation work in the concerned area may be resumed only after such permission is received.

Annex 9: Woreda *Environmental Profile*: Exemplar Woreda *(Hypothetical Example)*

Environmental Baseline

Exemplar Woreda, with an estimated 2008 population of 150,000 consists largely of a valley running between two ranges of small, undulating mountains which are very steep and have low vegetative cover. Some 75% of the woreda is covered by an alluvial floodplain consisting of silt deposition from seasonal rivers running in mountain gulleys, forming a relatively fertile, loamy soil. However, as most of the top soils from the mountains of the surrounding woredas is eroded. Soil carried by floodwater is not fertile; instead it covers the already existing fertile soils in the plains of the woreda. To the west is a 'peninsular' of mountainous, intermediate highland landscape.

The main road from Town One (to the north) and Addis Ababa (to the south) runs through Exemplar town, the principal town of the woreda. Traffic presently using the northern section of this road will in due course be diverted to a highway presently being reconstructed to the west of the woreda. All other roads in the woreda are secondary dirt roads linking areas in the east and west to the main road.

The farmers cultivate largely cereals (principally teff and sorghum) and vegetables, and keep cattle and sheep. The woreda is drought-prone and the farmers traditionally employ only surface water and spate irrigation. The woreda is classified as chronically food insecure. Paradoxically, the annual run-off has led to a steadily increasing volume of unutilized ground water, resulting in a high water-table.

Household energy fuel is mainly sorghum residue. When not available (in the dry season), animal dung is often used.

There are no natural forests in the woreda. Vegetation on the mountain slopes consists mainly of bushes and shrubs. Acacia woodlands are found in some parts of the alluvial plain.

Fauna is limited mainly to the mountainous areas.

Cultural sites are principally churches, mosques and burial grounds. It is not considered likely that there are significant unregistered cultural sites in the woreda.

Environmental Issues

There are six significant environmental issues in this woreda:

(i) Exemplar woreda is located in a low-lying area surrounded by mountains to the north and west, in adjoining woredas. This has made it vulnerable to flooding, and consequent environmental problems: (a) Danger to human life;

(b) Fertile croplands are covered by silt; and (c) Newly built roads and bridges are being damaged.

(ii) Within the woreda, the steep slopes of the mountain slopes are being continually suffering loss of top-soil and vegetation, particularly from free-ranging livestock such as goats. Remedial actions taken so far have focused mainly on limited area closure to enable revegetation, and basic soil & water conservation measures.

(iii) Malaria and bilharzia have in recent years become increasingly common in the woreda, due largely to (a) the increasing stagnant water in the wetlands, and (b) the increasing number of water-harvesting ponds.

(iv) Expansion of the wetlands has been accompanied by the appearance of plants and toxins in the water both of which have proved injurious to livestock, with consequent reduction in milk yield and water quality.

(v) Although salinity has not typically been a problem in the woreda, due to recent evidence of salinity in areas now used for cotton under irrigation, steps are being taken to investigate the problem and come up with suitable solutions.

(vi) The presence of Congress Weed is proving to be an environmental problem in the woreda. The woreda agricultural office proposes to employ community mobilization to eradicate it.

Annex 10: *Environmental Guidance for Business Plans:* Exemplar Woreda (Hypothetical Example)

1. Livelihoods Activities Likely to Lead to Negative Cumulative Impacts

Of the activities available under the Livelihoods Strengthening component in Exemplar Woreda, the following are considered likely to prove popular, and likely to give rise to cumulative impacts if adopted by a large number of households:

(i) Cash-crop cultivation, typically using water-harvesting ponds, shallow wells, or river or lake water;
(ii) Cutting and mixing sorghum reside as animal feed (an income-generating scheme, utilizing a simple piece of equipment);
(iii) Animal purchase and fattening.

For each of these activities, potential negative environmental impacts have been identified. These impacts and recommended mitigating measures are as follows:

Table: Matrix of Potential Environmental Impacts and Mitigating Measures
(Indicative Example)

Activities	Development of Irrigation Potential	Animal Feed Production	Animal Purchase and Fattening
Potential Impacts	(i) Extensive use of irrigation may result in salinisation and consequent soil encrustation. (ii) Extensive use of irrigation may result in depletion of ground water. (iii) Shallow wells and water harvesting ponds may pose a hazard to human and animal life, especially children. (iv) Uncontrolled or careless use of agrochemicals may pollute the groundwater, resulting in health hazards for human and animal life, and may pose a hazard for bees..	The reduction in the availability of sorghum residue for household energy may cause a significant increase in the use of animal dung or fuelwood, with subsequent loss of dung for fertilizer, and deforestation.	(i) Careless use of veterinary chemicals can pollute the groundwater, resulting in health hazards for human and animal life. (ii) Uncontrolled grazing can cause environmental degradation.
Mitigating Measures	(i) Where drip and sprinkler irrigation is used, there are not expected to be major issues. However, in other areas measures will include balanced surface water use, choice of salinity-tolerant crops, and spate irrigation for flushing as appropriate. (iii) It is *intended* that there should be water-table reduction, to reduce the extent of waterlogged land. Water-table levels will be monitored by woreda agric. office. (iii) For shallow wells there should be cover or protection, and designs enabling anyone who falls in to climb out. For ponds: protection, and safer designs. (iv) An Integrated Pesticide Management (IPM) plan covering use of a combination of natural methods and agrochemicals will be drawn up and implemented, covering acquisition, application, accidents, storage and disposal of agrochemicals. In addition, the location of use will take into account proximity to PAs dependent on apiculture.	The likely depletion of household energy supply will be determined by the woreda agricultural office, which is engaged in a parallel programme to propagate the use of energy-saving stoves. New fuelwood and multipurpose crops will be introduced, to provide additional household energy sources to the extent that proves necessary.	(i) A Drugs and Chemicals Management Plan will be drawn up and implemented, covering acquisition, application, accidents, storage and disposal of livestock veterinary drugs and chemicals. (ii) This activity will be allowed only if there is adequate forage available from Area Closure or from the animal feed plant.

2. Guidance on Potential Longer-term Environmental Impacts

2.1 Lowering of Water-Table

Widespread success of the growing of irrigated crops resulting in high water extraction, leading to a significant reduction in the water-table. The woreda agricultural office will closely monitor the water-table and will control any further establishment of shallow wells, etc., by informing the Woreda Extension Unit so as to avoid an undesirable reduction in ground-water levels.

2.2 Ratio of Cash: Food Crop Production

If the cultivation of cash crops becomes so popular that cash crops come to displace food crops to a significant extent, this could produce an imbalance that might lead to food shortages within, or outside, the woreda. However, the Woreda Agriculture Office and the Regional Food Security Office have planning systems to address such a trend before it becomes a problem.

2.3 Loss of Species Diversity

Uncontrolled adoption throughout the woreda of a newly introduced crop species could lead to a situation whereby the genetic base of the crop concerned is unduly narrowed. This could mean, for example, that in the event of an outbreak of disease, there is no alternative strain available.

It is thus recommended that the regional or woreda agricultural office should monitor production rates of new crop varieties, and should liaise with the Biodiversity Institute to ensure that the gene banks contain alternative varieties.

2.4 Urban Zero-Grazing

Although the Project is not promoting zero-grazing in high-density urban areas, the zero-grazing being promoted (which by reducing grazing and often livestock numbers is generally environmentally beneficial) in the less dense area may eventually lead to uncontrolled adoption of zero-grazing in urban areas, with resultant health hazards, noise and smell pollution. To avoid this happening, the Woreda Extension Unit will liaise with the urban Public Health authority to ensure that any regulations controlling the keeping of cattle in the urban areas are recognized and enforced.

3. Possible Effects of the Environment on the Project

3.1 Rising Water Table

The most likely effect of the environment on the project would be a rising water-table, which would continue to have an increasingly detrimental impact on human and animal

heath and a reduction in cultivatable land. However, with expanded use of irrigation particularly for cotton, will help to reduce the water-table, this impact is not expected to occur.

3.3 Drought

Extended periods of drought would reduce the availability of surface water for irrigation of the small-scale cultivation of fruit and vegetables. However, the encouragement of individual shallow wells is designed to offset such eventualities.

3.4 Flood and change of course by seasonal rivers

Much of Exemplar Woreda is situated in the lowlands where flood water deposits silt from the surrounding mountains. As a result, fertile soils in the bottomlands of the woreda are being silted, affecting productivity of many farmlands. Although the woreda uses a lot of the flood water as a source of spate irrigation, when the intensity of the floods increase the floods make river courses to change and hence make a significant amount of farmlands out of production. It is expected that the surrounding woredas will enhance their watershed management schemes so that flood water affecting Exemplar is substantially reduced.

4. Ineligible Subprojects

Given the current environmental issues in the woreda, the following Livelihoods activities will not be eligible under the PSNP Livelihoods Strengthening component:

- Charcoal production
- Fuelwood production and trading
- Manufacture of traditional stools.

Annex 11: Environmental Monitoring Plan (EMP): Exemplar Woreda
(Hypothetical Example)

The following Table sets out indicators for monitoring the implementation of mitigating measures designed to address potential environmental impacts

Environmental Monitoring Plan (Exemplar Woreda - Indicative Example)

Activities	**Development of irrigation potential**					**Animal Feed Production**	**Animal Purchase and Fattening**		
Likely Impacts	Extensive use of irrigation may result in salinisation and consequent soil encrustation.	Shallow wells and water harvesting ponds may pose a hazard to human and animal life, especially children.	Uncontrolled or careless use of agrochemicals leading to pollution of groundwater, leading to health hazards for human and animal life.			The reduction in the availability of sorghum residue for household energy may cause a significant increase in the use of animal dung or fuelwood, with subsequent loss of dung for fertilizer, and deforestation	Uncontrolled or careless use may pollute groundwater, leading to health hazards for human and animal life.		As a result of increased livestock purchases and improved health, numbers may increase, leading to overgrazing.
Mitigating Measures	Drip and sprinkler irrigation should be encouraged	Recommend for shallow wells cover or protection, and designs enabling anyone who falls in to climb out. For ponds: protection, and safer designs.	Draw up an Integrated Pesticide Management (IPM) plan.	Implement IPM plan	Take into account proximity to kebeles dependent on apiculture, when determining location of use	Propagate the use of energy-saving stoves and plant multipurpose trees (MPTs).	Draw up a Drugs and Chemicals Management (DCM) plan, covering acquisition, application, accidents, storage and disposal of livestock veterinary drugs and chemicals.	Implement DCM Plan	Free-grazing to be prohibited. Forage should come from area closure, to ensure sustainable livestock production.
Indicator	Area under drip/sprinkler irrigation	Number of shallow wells with cover/safely designed ponds;	Existence of IPM plan	IPM plan being used by DAs and farmers	Coverage of topic in location plan.	Number of stoves distributed and MPTs planted	Existence of DCM Plan	DCM plan being used by DAs and farmers	DAs and WoA are promoting these initiatives in FTCs, and they are being enforced
Who collects the data?	WoA	WoA	WoA	WoA	WoA	WoA	WoA	WoA	WoA
How?	Collect data from RDO	Planning office reports/Visits	Check whether IPM plan is published	Make spot checks on site	Check activity design document	Reports from Planning office	Check whether DCM plan is published	Make spot checks	Check FTC curriculum, and physical observation.
When?	Annual	Annual	Annual	Annual	Before activity starts	Annual	Annual[6]	Annual	Annual
Where?	WoA/RDO	WoA	WoA/RDO	Activity site	RDO/IPMS	WoA	IPMS Office	Activity sites	Woreda FTC Office

[6] Once publication of the DCM plan has been verified, subsequent annual checks should record reprints, updates, etc.

Annex 12: ESMF Training Budget

Estimated Annual Budget

ESMF/RPF training will form part of the annual cascade training programme.

1. PW ESMF/RPF

Training of Trainers

30 trainees x 3 locations = 90 trainees
90 trainees x 2 days = 180 trainee-days

		Birr	Birr
Travel Expenses:	90 trainees x Birr 1,000	90,000	
Per Diems:	180 trainees x Birr 204	36,720	
Estimated Overheads and consumables:		20,000	
Sub-t**otal ToT**			**145,720**

Training of DAs

2,000 trainees x 2 days = 4,000 trainee-days

Travel Expenses:	2,000 trainees x 100 birr	200,000	
Per Diems:	4,000 trainee-days x Birr 204	816,000	
Overheads: 100 woreda locations x birr 1,000		100,000	
Sub-total DA Training			**1,116,000**
Grand Total PW ESMF/RPF Training Budget		**Birr**	**1,261,720**
	Equivalent US $		**$ 63,000**

2. Livelihoods Strengthening ESMF

Estimated pending detailed Livelihoods Strengthening Schedule: $ 30,000

Annex 13: PSNP IV Draft Guidelines for Health, Safety and Child Labour on PSNP PW Construction Sites

1. Introduction

In order to minimise the risk of accidents and other hazards potentially involved in the implementation of PSNP IV PW subprojects, and to ensure that the issue of child labour is adequately addressed, it is proposed that the following simple guidelines, based on relevant sections of the performance standards of the World Bank Group, be incorporated in the Project Implementation Manual (PIM).

In all cases the guidelines would be adopted by the DAs, who supervise the work and who will be trained in these topics as part of the annual PW training programmes.

2. General Objective

These guidelines are intended to ensure that the arrangements for community work on PSNP PW subprojects provide to the extent possible a safe and healthy work environment, particularly taking into account threats to women and children. All measures possible should be taken to prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of such hazards.

The DA should;

(i) identify potential hazards to workers, particularly those that may be life-threatening;
(ii) provide to the extent possible preventive and protective measures,
(iii) train workers in adherence to these Guidelines;
(iv) document and report occupational accidents, diseases, and incidents.

3. Specific Hazards and Measures to be Taken

3.1 Over-exertion

Over-exertion, and resultant injuries and illnesses, such as repetitive motion, over-exertion, and manual handling, are among the most common causes of injuries in construction sites. Recommendations for their prevention and control on PSNP PW subproject sites are:

· Training of community workers in lifting and materials handling and lifting techniques including the placement of weight limits above which mechanical assists or two-person lifts are necessary. Such guidance would be especially relevant in subprojects such as stone bunds, dam construction and road-building, particularly where concrete pipes are involved.

· Implementing appropriate administrative controls into work processes, such as women's work norms, job rotations and rest or stretch breaks

3.2 Slips and Falls

Slips and falls on the same elevation associated with poor housekeeping, such as debris, loose materials and slippery, wet surfaces, are also among the frequent cause of accidents at construction sites globally.

It is recommended that for the prevention of slips and falls from, or on, the same elevation, the DA should ensure the implementation of good house-keeping practices, such as allocating some of the workers to sort and place loose construction materials or demolition debris in established areas away from foot paths, and clean up excessive waste debris.

3.3 Work at Heights, and Accidents caused by Falling Objects

Falls from elevation associated with terracing on steep gradients and partially built structures can cause fatal or permanent disabling injury. There may occur fall of stones, other materials or tools, which can result in injury. Techniques for the prevention and control of these hazards should include:

· Using a designated and restricted waste drop or discharge zones
· Maintaining clear traffic ways
· Evacuating areas below activities such as terracing and stone bund building.

3.4 Dust

Dust suppression techniques should be implemented, particularly where babies or young children may be carried by mothers. DAs should ensure that methods such as applying water to minimize dust are used, for example during road-construction.

3.5 Confined Spaces and Excavations

Examples of confined spaces that may be present in construction or demolition sites include: latrines, under-road pipe-laying and shallow wells. Ditches and trenches may also be considered a confined space when access or egress is limited. The hazards associated with confined spaces and excavations in construction and decommissioning sites should be avoided by adopting the following recommendations:

· Controlling site-specific factors which may contribute to excavation slope instability including, for example, the use of excavation dewatering, side-walls support, and slope gradient adjustments that eliminate or minimize the risk of collapse, entrapment, or drowning
· Providing safe means of access and egress from excavations, such as graded slopes, graded access route, or ladders

3.6 Water Hazards

Plastic-lined excavations such as water-harvesting ponds and water-tanks pose a risk of drowning, particularly to children and animals. These should be designed to provide flat floors to the extent possible, to allow anyone who falls in to extricate themselves, or ladders where appropriate, and should be fenced.

Water projects such as protected springs providing potable water for human consumption need to be fenced in order to keep out cattle, which can contaminate the water, and which can result in serious public health hazards if the water is distributed in pipes.

3.7 General Site Hazards

Risks may arise from inadvertent or intentional trespassing, particularly by children, in excavations and structures which may pose falling and entrapment hazards. Risk management strategies may include:

- Restricting access to the site, through a combination of institutional and administrative controls, with a focus on high risk structures or areas depending on site-specific situations;
- Wherever possible, babies and children of community labourers should be cared for in a suitable community facility, to avoid being present on the subproject implementation site.

3.8 Child Labour

The PSNP IV PIM does not allow children below the age of 16 years to be employed on a PW subproject site. Neither should any child be employed in a manner likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

At the time of checking the roll-call, the DA should ensure that no child under the age of 16 years is working on site, and should identify the presence of all persons under the age of 16, ensuring that no child under the age is employed in hazardous work.

The DA will also endeavour to ensure that the subproject implementation does not employ forced labor, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty, or with exposure to physical, psychological, or sexual abuse, or under difficult conditions such as long hours or late night.

Annex 14: Community Consultations – Participant Lists

Amhara

Name, status, sex and age of participants at Libokemekem Woreda Shamo Godguadit Kebele

NO	Name	Status	Sex	Age
1	Worku Dessalegn	Farmer	M	20
2	Desale Engdayehu	Farmer	M	50
3	Guadie Embiale	Farmer	M	52
4	Wagshum Beyene	Farmer	M	56
5	Yirsaw Tigabie	Kebele Cabinet	M	45
6	Belayhun Engdaw	Land admin committee	M	52
7	Endalkew Chanie	Watershed committee	M	27
8	Muche Ferede	Farmer	M	69
9	Mekuria Andargie	Farmer	M	45
10	Berie Taye	Farmer	M	21
11	Kiflie Garede	Farmer	M	46
12	Dires Yalew	Farmer	M	65
13	Getaneh Sintie	Kebele court Judge	M	38
14	Mengesha Asefa	Farmer	M	28
15	Bosena wellie	Farmer	F	40
16	Maralem Muche	Women affairs	F	29
17	Gebayenesh Engdaw	Farmer	F	39
18	Lalew Abie	Admin & security affairs	M	36
19	Abeba Yigzaw	Watershed comittee	F	40
20	Mastewal Wubit	Farmer	F	26
21	Bewuketu Mesfin	Cooperative leader	M	47
22	Mastewal Wubet	Farmer	F	26

Amhara:

Name, status ,sex and age of participants at Lay Gayint woreda 01 kebele

NO	Name	Status	Sex	Age
1	Zewudu Desalegn	Farmer	M	38
2	Engdashet Jenber	Farmer	M	70
3	Kes Abebaw Aber	Speaker of Kebele council	M	35
4	Asmare Tesema	Farmer	M	76
5	Adane Asmie	Land admin committee	M	42
6	Amerie Yimam	Farmer	M	65
7	Misgan Tadesse	Farmer	M	60
8	Chekolech Dessie	Farmer	F	43
9	Sintayehu Terefe	1 for 5 leader	F	42
10	Tritie Yibabie	Farmer	F	35
11	Yeshi Baye	Local arbitrator	F	58
12	Fentaye Admasu	Farmer	F	53
13	Godada Admasu	Farmer	F	55
14	Alemnat Fentaye	Farmer	F	48
15	Siyoum Fentie	Farmer	M	35
16	Anley Amare	Farmer	F	48
17	Wuletaw mekonnen	Farmer	M	28
18	Debrie Tegegne	Farmer	F	60
19	Mebrie Addisie	Farmer	M	66
20	Alemnew Wubie	Kebele Administrator	M	42

SNNPR

PSNP IV ESMF and RPF Consultation HABP

Place of Discussion: Homacho, Gibe Woreda, SNNPR

Date of Discussion/Interview: 13/09/2006 E.C / May 21, 2014

No	Name	Status	Sex	Age	Signature
1	Lapiso Wololoro	Com-mem	M	30	
2	Eliso Lalago	Com-mem	M	32	
3	Mishamo Sumebo	Com-mem	M	29	
4	Dafar Manichiche	Com-mem	M	48	
5	Wolde Anna	Com-mem	M	60	
6	Kebede Abame	Com-mem	M	40	
7	Ayelech Eliko Cho	Com-mem	F	35	
8	Adanech Gotachow	Com-mem	F	28	
9	Dano Anulo	Com-mem	F	50	
10	Kibinash Abayesus	Com-mem	F	40	
11	Fekadu Afe	Com mem	M	40	
12	Etike Daubelo	Com-mem	F	45	
13	Abarach Gebure	Com-mem	M	48	
14	Dagale Etago	Com-mem	M	42	
15	Shelamo Gobore	Com-mem	M	58	
16	Tumebo Fikre	Com-mem	M	45	
17	Workalem Tiremo	Com-mem	F	35	
18	Amare du Abare	Com-mem	F	34	

SNNPR

PSNP IV ESMF and RPF Consultation HABP

Place of Discussion: Matiya Dangpe, Dalocha-woreda, Silte Zone, SNNPR

Date of Discussion/Interview: 14/06/2006 E.C / 22,5,2014

No	Name	Status	Sex	Age	Signature
1	Sirmolo Husen	Com.mem	M	55	
2	Sharame Mehamed	Com.mem	M	45	
3	Wakeka Tawo	Com.mem	M	75	
4	Yekas Husen	Com.mem	M	42	
5.	Mestawot Belayneh	Com.mem	F	35	
6	Fedila Mussa	Com.mem	F	35	
7	Wolde Tefera	Com.mem	M	42	
8	Sturala Wabala	Com.mem	M	37	
9	Kamila Nasir	Com.mem	M	30	
10	Ritbeli Mosa	Com.mem	F	35	
11	Jemila Abdilselam	Com.mem	F	31	
12	Abshir Jemal	Com.mem	M	40	
13	Kultamo Mahamed	Com.mem	M	60	
14	Nisir Ditamo	Com.mem	M	55	
15	Nuri Ebro	Com.mem	M	35	
16.	Shenegash Mosa	Com.mem	M	50	
17	Kemal Shejemal	Com.mem	M	35	
18	Shemsu Jewar	Com.mem	M	35	
19	Sultan Ferejo	Com.mem	M	40	
20	~~Kofale Are~~				
20.	Husen Shukure	Com.mem	M	35	
21.	Endelikachew walelaw	Com.mem		35	

OROMIYA

PSNP IV ESMF and RPF Consultation

Place of Discussion: Koloba Bale of Sire woreda

Date of Discussion/Interview: 14/05/2014

No	Name	Status	Sex	Age	Signature
1	Tuse Remata Shube	Forman	M	38	
2	Hussien Ahmed umer	Forman	M	42	
3	Abdujabar Kedir Tuse	vice chairman	M	40	
4	Tahir Kajela Guye	beneficiaries	M	38	
5	Bekele Shumi	Elders	M	53	
6	Baicha Bati	Youth	M	38	
7	Medina Wayessa	beneficiaries	F	40	
8	Tesfaye Demise	beneficiaries	M	35	
9	Ashano Yimam	"	M	45	
10.	Mussa Abdurod	"	"	31	
11.	Muhammed Kado	"	"	32	
12	Birke Asfaw	"	F	30	
13.	Abish Kedir	"	M	31	
14	Debo Husen	"	M	42	
15.	Amana Tolla	"	M	35	
16	Husen Boru	"	M	38	
17	Mellesa Badada	DA	"	32	
18.	Ahmed Muhammed	"	"	30	
19	Dinku Menfistu	"	"	30	

OROMIYA

PSNP IV ESMF and RPF Consultation

Place of Discussion: Koro Degaga kebele of Dodota woreda

Date of Discussion/Interview: 13/05/2014

No	Name	Status	Sex	Age	Signature
1	Ereena Gdow	Kebele Chairman (Keb. Admi)	M	42	
2	Ahmed Sultan		M	26	
3	Ahmed kadir		M	30	
4	Sultii Tusir		M	57	
5	Ahmed keso		M	30	
6.	Abbu Mohamed		M	45	
7	Mohamed Huseh		M	40	muhamed
8	Sultan Haji		M	25	sulixa
9	Aliy Teylen		M	22	
10	Menza Abdule		M	28	
11	Husen Doni		M	55	
12	Teju Ahmed		M	24	tajju
13	Eteno Bedo		F	35	
14	Sofiya Abbu		F	25	
15	Ibrahim Jera		M	50	
16	Mohamed Lenjisu		M	46	muhamed
17	Jemal Mohamed		M	52	
18	Ahmed Lenjisu		M	43	Ahimedi
19	Sultan Hirphaye		M	21	
20	Sultan Mohamed	DA	M	29	
21	Ture Kadiro	Farmer	M	36	

AFAR

PSNP IV ESMF and RPF Consultation

Place of Discussion: Adaak woreda, Jeldi kebele

Date of Discussion/Interview: 30 May 2014

No	Name	Status	Sex	Age	Signature
1	Mohammed Liben Mohammed		M	25	
2	Hawei oumer dedu		F	35	
3	Arebu Hamedu liben		M	38	
4	Dehilei Hass Ali		F	36	
5	Medina Hassen Ali		F	46	
6	Ali Mohammed Gassen		M	30	
7	Mohammed Humed Haleto		M	35	
8	Fatuma oumer Ali		F	40	
9	Arbahim Ali Hawino		M	28	
10	Ahmed Haleto Arbahim		M	28	
11	Zehara Dega oumer		F	37	
12	Ibrahim Hassen		M	30	
13	Ali doga Deto		M	30	
14	Zehara Seid Ali		F	22	
15	Maelka Hassen Ali		F	28	
16	Abdu Hassen Ali		M	29	
17	oumer Mohammed		M	29	
18	Zehabu Hamed Hussein		M	32	
19	Fatuma Ali Gassim		F	25	
20	Humed Hassen Ali		M	27	

SOMALI

PSNP IV ESMF and RPF Consultation

Place of Discussion: HIGLALEY - KABALE

Date of Discussion/Interview: 23, MAY, 14

No	Name	Status	Sex	Age	Signature
1.	ALI ARALE	Kabale Chairman	M	52	
2.	Abdifatid Bashir	Manager	M	24	
3.	Mohamed Ahmed Ogle	Educator	M	29	
4.	Bashir Moalim Osman	Elder	M	38	
5.	Fadumo Abdifatar	Women Affairs Head	F	37	
6.	Abdahman Abdi Sheik	Youth	M	24	
7.	Abshir Mohamed Noor	D. A	M	32	
8.	Ahmed Jama	Elder	M	54	
9.	Fatuma Tahir	Mother	F	49	
10.	Abdahman Mohamed Nur	Elder	M	36	
11.	Monitor Mohamud Mohamed	Elder	M	55	
12.	Farax Abdikadir Mohamed	Elder	M	36	
13.	Tahir Mohamed Abdi	Religious leader	M	44	
14.	Sheik Ahmed Abdi	Elder	M	62	
15.	Ebyan Abdi Ali	Mother	F	45	
16.	Kadra Osman Ismail	Youth	F	23	
17.	Mohamed Omar Ahmed	Elder	M	59	
18.	Shuria Sheik Ahmed	Elder	M	54	
19.					

SOMALI

PSNP IV ESMF and RPF Consultation

Place of Discussion: Bodhley Kabare

Date of Discussion/Interview: 23. May-14

No	Name	Status	Sex	Age	Signature
1.	Ibrahim Here	Kabare Chairman	M	49	Ibrahim
2.	Idin Abdi Hussen	Manager	M	25	
3.	Amino Osman	Women Affairs	F	32	
4.	Nur Yusuf	D.A	M	25	
5.	Mohamed Deh	educati	M	27	
6.	Sheik Ahmed	Religious leader	M	64	
7.	Muse Abdirashid	Youth	M	21	
8.	Haji Ahmed Abdi	Elder	M	49	
9.	Tahir Mohamed Ali	Elder	M	51	
10.	Fatuma Ibrahim Mod	Women affairs	F	34	
11.	Amina Abdi Abdisell	Youth	F	24	
12.	Farah Dubad	COUNCIL	M	45	
13.	Elmi Adeys Abdi	Council	M	32	Elmi
14.	Abdikadir Mohamed Ali	Elder	M	56	Cabdi
15.	Abdirahim Osman Ahmed	Elder	M	60	
16.	Halima Muhumed Bodel	Mother	F	52	Xalima
17.	Jamal Abdiqani Ibrahim	Elder	M	39	
18.	Ahmed Shamarke Bihi	Elder	M	56	
19.	Kaman Mohamed Gedi	Elder	M	66	

~~Afar~~? SOMALI

PSNP IV ESMF and RPF Consultation

Place of Discussion: Guyo - Kabale

Date of Discussion/Interview: 25. May. 14

No	Name	Status	Sex	Age	Signature
1.	Abdi Ahmed Adan	Kabale Chairman	M	48	Abdi
2.	Hussan Hashi	Council	M	43	Xusen
3.	Maryan Ahmed Hayte	Woman Affairs	F	36	
4.	Ahed Affiko	D. A	M	24	
5.	Mirzan Dey	Youth	F	21	
6.	~~Farah~~ Mohamed	Education Expert	M	27	Foran
7.	Sheik Mukter Abdullahi	Religious leader	M	50	
8.	Asha Aw-Kashi	Women Affairs	F	36	
9.	Abdi-rahman Mohamed Shaw	Manager	M	26	
10.	Abdi Budul Mohamed	Elder	M	59	Cabdi
11.	Abdi-rahman Mohamed Ekri	Elder	M	63	
12.	Masal Ahmed Noor	Mother	F	40	
13.	Fayah Yusuf Ahmed	Elder	M	44	
14.	Faduma Abdi Alo	Youth	F	22	Faduma
15.	Wa'ays Ibrahim Abdi	Elder	M	56	
16.	Mohamed Abdi Ahmed	Elder	M	71	
17.	Abdi Da'ud Egal	Elder	M	~~42~~	
18.					
19.					

~~Afar~~?
SOMALI

PSNP IV ESMF and RPF Consultation

Place of Discussion: Gayli Kabale

Date of Discussion/Interview: 25. May. IX

No	Name	Status	Sex	Age	Signature
1.	Mohamed Rashid	Kabale Chairman	M	46	
2.	Abdi Malik Mohamed	Kabale Manager	M	32	
3.	Rukia Sayid Ali	Women Affairs	F	36	Rukiya
4.	Kamal Mukhtar Galol	D. A	M	32	
5.	Asad Abdulahi Sheik	Youth	~~F~~ M	24	
6.	Sheik Afrahman Dub	Religious Leader	M	49	
7.	Sabah Mohamed Ahmed	Elders	~~F~~ M	55	
8.	Amina Mohamed Abib	Women Affairs Member	F	48	
9.	Mohamed Mahamud Abib	COUNCIL	M	57	
10.	Abdi-nasir mohamed fatah	Council	M	32	
11.	Mohamed AW. Omar Jibril	~~Elder~~	M	62	
12.	Mohamed Ahmed Yasin	Elder	M	43	
13.	Abdullahi Sheik Mohamed	Eldey	M	52	
14.	Kalif Bade	Elder	M	89	
15.	Shara Gudal Agus	Youth	F	24	
16.	Noor Ahmed sheik osman	Youth	M	19	
17.	Ali Abdulahi Abdi	Elder	M	48	Coli
18.	Budul Ahmed Muse	Elder	M	49	
19.	Said Sheik Dahir	Women Affairs	M	72	

TIGRAY

ESMF and RPF Consultation

Place of discussion **ARATO FARMERS TRAINING CENTER**

No.	Name	Status	Sex	Age	Signature
1	Berhe G/michel	PA Leadership member	M	35	
2	Mebrhate Tadele	Community Member	M	30	
3	Haftu Tadesse	Community Member	M	25	
4	Ayalew G/hiwet	Community Member	M	27	
5	Timinit Kebede	Community Member	F	30	
6	Teklu G/kidan	Community Member	M	24	
7	Teamer Selemon	Community Member	F	27	
8	Tsega Tesfay	Community Member	F	19	
9	G/amlak Berhe	Community Member	M	22	
10	Zafu Halefom	Community Member	F	18	
11	Elfu Desta	Community MemberF		18	
12	Kidan Weldu	Community Member	F	32	
13	Abadit Mehari	Community Member	F	22	
14	Aberu Bayru	Community Member	M	25	
15	Tekea Asefa	Community Member	F	25	
16	Molach Asmerom	Community Member	F	25	
17	Kidu Gubru	Community Member	F	22	
18	Kidanane Abreha	Community Member	M	28	
19	Abera Hagos	Community Member	M	32	
20	Brhanu Desta	Community Member	M	29	