

Improving Productivity and Market Success of Ethiopian Farmers

ENVIRONMENTAL MONITORING PLAN

Alaba Wereda

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Environmental Monitoring Plan (EMP): Alaba Wereda

1. Introduction

The project covered by this EMP is the 2006 programme of technology packages being introduced in Alaba Wereda, SNNPR, a Pilot Learning Wereda (PLW) of IPMS Ethiopia, that are considered likely to have potential environmental impacts.

Three types of potential impact of the programme of intervention are considered in the *Environmental Screening and Assessment Report (EASR)* for this PLW:

- Principal environmental impacts, defined as potential effects directly attributable to the concerned IPMS activity (see Table (i) of the EASR);
- Cumulative environmental impacts, defined as the possible long-term effects of the concerned activity, including the accumulated effects of multiple activities that may arise in association with, or encouraged by, the concerned activity (see Section 5 of the EASR);
- Impacts of the environment on the performance of the concerned activity (see Section 6 of the EASR).

A follow-up program to ensure that the recommended mitigating measures are implemented as required will be conducted by the staff of the Environment and Natural Resources Unit in the Wereda Office of Agriculture, with support from IPMS as appropriate. This EMP provides the basic framework for the follow-up.

2. Mitigating Measures to be Monitored

The following Tables set out the potential impacts and related mitigating measures, and the monitoring to be conducted for each mitigating measure.

Table (a) shows the indicators to be monitored for the implementation of mitigating measures designed to address the **potential impacts** of the following activities:

- Expansion of improved haricot bean for export and new pepper varieties
- Enhancement of irrigation water use
- Cultivation with agrochemicals,
- Use of livestock drugs and chemicals.

Table (b) shows indicators to be monitored for the implementation of mitigating measures designed to address the **potential cumulative impacts** of:

- The general encouragement of cash crop production;
- Expanded growing of new crops under irrigation;
- Peri-urban dairy

It should be noted that the cumulative impacts considered *should include those regarded as unlikely but possible*. It is important to be able to show that IPMS has looked ahead, and has taken precautions to deal with such eventualities, should they occur, unlikely though some people may consider them to be.

Table (c) shows indicators to be monitored for implementation of mitigating measures to address the **potential impacts of the environment on the activity**:

- Extended periods of drought
- Flooding

In each case, the statement of impacts and mitigating measures are set out in summary. More detail can be found in the *Environmental Assessment and Screening Report* for Alaba Wereda.

Table (d) in Section 3 summarises the basic information on the indicators and how the data will be collected.

Table (a) Matrix of Potential Environmental Impacts

Activities	Expanded prod. of improved haricot beans and peppers	Expanded growing of new crops under irrigation	Cultivation with Agrochemicals				Use of Livestock Drugs & Chemicals		
Likely Impacts	Genetic erosion of the locally available <i>Red Wolayta</i> and pepper land races.	Seepage of agrochemicals into rivers, leading to negative effects on human and animal health and fauna down stream.	Uncontrolled or careless use of agrochemicals leading to pollution of groundwater, leading to health hazards for human and animal life, and bees.				Uncontrolled or careless use may pollute groundwater, leading to health hazards for human and animal life.	As a result of improved livestock health, numbers may increase, leading to overgrazing. ¹	
Mitigating Measures	Ensure that there is a balance of these types produced in the wereda.	Train farmers and other concerned parties on the side effects of the use of agrochemicals in irrigation.	Draw up an Integrated Pesticide Management (IPM) plan covering natural methods, and acquisition, application, accidents, storage and disposal of agrochemicals.	Implement IPM plan	Train DAs and farmers on IPM	Take into account proximity to kebeles dependent on apiculture, when determining location of use	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	Encourage enhanced community-based veterinary service delivery mechanisms, awareness and market linkages, to ensure env. sustainable livestock production.
Indicator	The ratios of production of improved: locally available varieties	The number of trainees	Existence of IPM plan	IPM plan being used by DAs and farmers	Number of DAs and farmers trained in IPM	Coverage of topic in location plan.	Existence of DCM Plan	DCM plan being used by DAs and farmers	DAs and WoA are promoting these initiatives in FTCs
Who collects?	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO
How?	Collect market survey data	Collect data from RDO	Check whether IPM plan is published	Make spot checks on site	Reports	Check activity design document ²	Check whether DCM plan is published	Make spot checks	Check FTC curriculum
When?	Annual	Annual	Annual ³	Annual	Annual	Before activity starts	Annual ⁴	Annual	Annual
Where?	Wereda Office	RDO in PLW	IPMS Office	Activity site	Wereda Plan office	RDO/IPMS	IPMS Office	Activity sites	Wededa FTC Office

¹ It is expected that as livestock marketing is enhanced, market take-off will increase and intensive livestock management will be encouraged. As a result, this impact is expected to have a low probability.

² PLS *Diagnosis and Programme Design* or subsequent addendum.

³ Once publication of the IPM plan has been verified, subsequent annual checks should record reprints, updates, etc.

⁴ Once publication of the DCM plan has been verified, subsequent annual checks should record reprints, updates, etc.

Table (b) Matrix of Potential Cumulative Impacts

Activities	General encouragement of cash crops	Expanded Irrigated crop production		Peri-urban dairy		
Potential Cumulative Impacts	Crop production imbalance, leading to food shortages within, or outside, the PLW.	Loss of species diversity, leading to undue narrowing of the genetic base of the crop concerned. This could mean, for example, that in the event of an outbreak of disease, there is no alternative strain available.		Uncontrolled adoption of zero-grazing in peri-urban and high-density urban areas, leading to health hazards, noise and smell pollution.		
Mitigating Measures	Ensure that the Wereda Agriculture Office and the Regional Food Security Bureau have planning systems to address such a trend before it becomes a problem.	Regional or Wereda Agricultural Office should monitor the production rates of new crop varieties, and should liaise with the Biodiversity Institute to ensure that the gene banks contain alternative varieties.		The project will liaise with the urban Public Health authority and will include their representative in training workshops, in order that any regulations controlling the keeping of cattle in the urban areas are recognized and enforced.	The project will draw upon the results of the specialized research into this issue being promoted by IPMS, and implement as appropriate	
Indicator	Existence of Wereda/Regional food production planning system	Production rates of new crop varieties,	Inclusion of alternative varieties in Biodiversity Institute gene bank	Participation of Public Health representatives in training workshops	Evidence that regulations are being enforced	To be identified
Who collects?	WoA/RDO	Regional or Wereda Agricultural Officer	Regional or Wereda Agricultural Office	WoA/RDO	WoA/RDO	WoA/RDO
How?	Meet Wereda/Regional Crop Head	Collect market survey data	Collect gene bank data	Check workshop participation list	Physical observation	To be identified
When?	Annual	Annual	Annual	Annual	Annual	To be identified
Where?	Wereda/Regional Agric Office	Wereda Office	Biodiversity Institute	IPMS Office	Urban and peri-urban areas	To be identified

Table (c) Matrix of Potential Impacts of the Environment on the Project

Environmental Phenomenon	Extended Periods of Drought	Flooding				
Potential Impacts	Reduced food and feed availability, leading to deterioration in household livelihoods.	Reduction in crop and livestock productivity			Conducive environment for malaria to breed	Spread of water borne diseases
Mitigating Measures	The encouragement of individual water harvesting ponds and river diversion schemes.	Reclamation of abandoned land	Training of farmers in improved land management tools.	Implementation of improved land management tools.		
Indicator	Number of individual water harvesting ponds and river diversion schemes operational in the wereda	Area of land reclaimed this year	Number of farmers receiving training in improved land management tools	No. of farmers using improved land management tools		
Who collects?	WoA/RDO	WoA/RDO	WoA/RDO	WoA/RDO		
How?	Data check on water harvesting ponds and river diversions	Physical observation and data check	Collect workshop participation data	Physical observation – sample survey		
When?	Annual	Annual	Annual	Annual		
Where?	Wereda ARD Office	On site and Wereda Agric. Office	WoA/IPMS Office	Wereda sites		

Table (d): Summary of Mitigating Measure Indicators

Indicator	Who collects	How	When	Where
For Potential Impacts:				
Ratios of prod. of improved: locally available varieties (<i>beans & peppers</i>)	WoA/RDO	Collect market survey data	Annual	Wereda Office
The number of trainees in use of agrochemicals in irrigation.	WoA/RDO	Collect data from RDO	Annual	RDO in PLW
Existence of IPM plan	WoA/RDO	Check whether IPM plan published	Annual ⁵	IPMS Office
IPM plan is normally being used by DAs and farmers	WoA/RDO	Make spot checks on site	Annual	Activity site
Coverage of 'adjacent apiculture weredas' topic in activity location plan.	WoA/RDO	Check activity design document ⁶	Before activity starts	RDO/IPMS Office
Existence of DCM Plan	WoA/RDO	Check whether PCM plan published	Annual ⁷	IPMS Office
DCM plan is normally being used by DAs and farmers	WoA/RDO	Make spot checks	Annual	Activity sites
DAs and WoA are promoting these initiatives in FTCs	WoA/RDO	Check FTC curriculum	Annual	Wereda FTC
For Potential Cumulative Impacts:				
Existence of Wereda food production planning system	WoA/RDO	Meet Wereda Crop Head	Annual	Wereda Agric Office
Existence of Regional food production planning system	WoA/RDO	Meet Regional Crop Head	Annual	Reg. Agric Office
Production rates of new crop varieties,	Reg/Wereda Crop Expert	Collect market survey data	Annual	Wereda Office
Inclusion of alternative varieties in Biodiversity Institute gene bank	Reg/Wereda Crop Expert	Collect gene bank data	Annual	Biodiversity Institute
Participation of Public Health representatives in training workshops	WoA/RDO	Check workshop participation list	Annual	IPMS Office
Evidence that Public Health regulations are being enforced	WoA/RDO	Physical observation	Annual	Urban and peri-urban areas
Additional zero-grazing indicators to be identified from special research	WoA/RDO	To be identified	To be identified	To be identified
For Potential Impact of Environment on the Project				
No. of water harvesting ponds and river diversion schemes in wereda	WoA/RDO	Data check	Annual	Wereda ARD Office
Area of land reclaimed this year	WoA/RDO	Physical observation and data check	Annual	On site and Wereda Agric. Office
No. of farmers receiving training in improved land management tools	WoA/RDO	Collect workshop participation data	Annual	IPMS Office
No. of farmers using improved land management tools	WoA/RDO	Physical observation – sample survey	Annual	Wereda sites

⁵ Once publication of the IPM plan has been verified, subsequent annual checks should record reprints, updates, etc.

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⁷ Once publication of the DCM plan has been verified, subsequent annual checks should record reprints, updates, etc.

4. Environmental Indicators

Note that the mitigating measure indicators listed in Tables (a) to (c), and summarised in Table (d), are designed to verify that the mitigating measures are being implemented as intended. It is not intended that the long-term effect of the mitigating measures on the environment should be formally monitored within the scope of the IPMS project, particularly as in most cases such 'state of environment' changes will be measurable only in the long-term. Such monitoring is normally the responsibility of the Wereda authorities. However, the IPMS staff concerned will be alert to any significant environmental change that may occur during the implementation of the programme.

There may be exceptions to this general rule. In the case of special topics of environmental concern on which IPMS is arranging for special research to be conducted, the monitoring will include actual environmental impacts. In the case of Alaba Wereda, *The Potential Cumulative Environmental Impacts of the Promotion of Peri-Urban Zero-Grazing* is one such topic. Depending on the outcome of this research, additional environmental indicators may in due course be generated for inclusion in the regular monitoring programme outlined in the present EMP.

5. Sources for the EMP

The sources of information used for this Environmental Monitoring Plan are as follows:

- The data provided in *Environmental Assessment and Scoping Report, Alaba Wereda*, June, 2006;
- The contributions of participants in the IPMS Environmental training Workshop, Yirgalem, Dale Wereda, SNNPR, 1-2 June, 2006, including the IPMS RDO and wereda Experts;
- Consultation with: IPMS staff, Dirk Hoekstra and Kahsay Berhe.