



# LAKE NAIVASHA BASIN ECOSYSTEM BASED MANAGEMENT PROJECT

## Environmental and Social Management Plan (ESMP) for Standard on Pest Management

## 1. Project Background

Lake Naivasha is one of the two freshwater lakes in the Kenyan part of the Rift Valley. The Lake Naivasha Basin (LNB) is challenged by land degradation, water pollution and loss of biodiversity, resulting in a reduction in provision of ecosystem services. This is caused by a number of threats, in particular (i) poor agricultural practices by small scale farmers in the upper catchment; (ii) overgrazing and illegal logging in the lower, middle and upper catchment; (iii) pollution of water bodies from farmlands, settlements and industries; (iv) over-abstraction of water resources; (v) urbanization, agricultural expansion, infrastructure development and other types of development associated with land use change; and (vi) impacts of climate change.

The key objective of Lake Naivasha Basin (LNB) Ecosystem Based Management Project is to restore forest ecosystems and reduce land degradation in the LNB catchment for increased protection of Lake Naivasha's water resources, biodiversity, and associated ecosystem services to support the local and national economy. The project is being implemented over a period of four years and is funded by the Global Environment Facility (GEF) through the Worldwide Fund for Nature (WWF-US). The project aims to promote sustainable agricultural practices, enhance farmer capacity, and strengthen community-based natural resource management within the Lake Naivasha Basin.

The project is structured around 4 key components:

1. Component 1: Strengthening the enabling conditions for integrated landscape management in Lake Naivasha Basin
2. Component 2: Market and financial mechanisms for implementation of the LNB Integrated Management Plan
3. Component 3: Improved land management in LNB
4. Component 4. Knowledge Management and Monitoring and Evaluation

The National Environment Trust Fund (NETFUND) is the Lead Executing Agency for the project. The day-to-day management of the project is being undertaken by the Project Management Unit (PMU), with responsibilities for the coordination of work between the various partners in the project and leading on specific components of work. Several executing partners most notably Kenya Forest Services (KFS) and National Environment Management Authority (NEMA) are engaged in the implementation and coordination of specific project components.

In compliance with WWF Environmental and Social Safeguards Framework (ESSF), as detailed in WWF's Environmental and Social Safeguard Integrated Policies and Procedures (SIPP), the Lake Naivasha Ecosystem Based Management Project was screened according

to WWF's Standard on Environmental and Social Risk Management. The Project has been categorized as a Category "B" project, given that it is essentially a conservation initiative expected to generate significant positive and durable social, economic and environmental benefits.

WWF's safeguards standards require that any potentially adverse environmental and social impacts are identified and avoided or mitigated. The Project triggers WWF's Standard on Pest Management. This standard has been triggered because, while the project will not procure any pesticides, participating farmers may involve the use of registered biopesticides and conventional pesticides in class III and IV. The project will adopt an integrated pest management approach (which considers cultural, mechanical, physical and chemicals methods), minimized use of pesticides will promote environmental conservation and human health and ensure economical management of pests.

## 2. Purpose of the ESMP

This Site-Specific ESMP is a project-specific source document detailing the environmental and social protection requirements to mitigate and minimize the adverse impacts. ESMP's primary purpose is to ensure that the environmental requirements and social commitments associated with the project are carried forward into implementation and operational phases of the project and are effectively managed. The specific objectives of this ESMP are:

- i. Minimizing any adverse environmental, social and health impacts resulting from the project activities,
- ii. Conducting all project activities in accordance with the relevant Kenyans Laws and WWF's safeguard operational policies and guidelines,
- iii. Preventing environmental degradation because of either individual subprojects or their cumulative effects,
- iv. Enhancing the positive environmental and social outcomes of project activities.
- v. Ensuring that the proposed mitigation measures are feasible and cost-efficient,
- vi. Providing an Action Plan to ensure that the project impact mitigation measures are properly implemented and monitored,
- vii. Ensuring that all stakeholders are equitably engaged in the project's activities preparation and implementation, that their concerns are fully addressed and their own goals and desires are considered.

## 3. Planned Activities

The activities that relate to this ESMP include **Establishment of model farms to demonstrate sustainable farming methods**. This activity will be implemented under component 3, on improved land management in upper LN. The project will support smallholder farmers through training and facilitation to adopt best farming practices that enhance soil and

water conservation to increase farm production. Where pesticides are needed, as a last resort, only green and blue label pesticides would be applied.

#### **4. Potential Social and Environmental Impacts**

**Potential negative impacts** for the planned activities may include use of pesticides and fertilizers by farmers which may cause water and soil pollution, affecting local biodiversity and people. Specifically, use of pesticides and fertilizers may have negative impacts causing:

**i. Human health impacts**

Farm workers face highest exposure including acute poisoning, skin/eye irritation and respiratory issues. Long-term exposure to pesticides has also been linked to cancer, endocrine disruption, neurological disorders, and reproductive issues. Ingesting contaminated food and water may also affect people and animals' health.

**ii. Economic impacts on farmers**

High cost of purchasing pesticides increases financial burden. Resistance of crops to pesticides and fertilizers may also force farmers to use more or switch to more expensive chemicals. Health impacts due to exposure of pesticides lead to lost workdays and high medical expenses.

**iii. Food safety concerns**

Pesticide residues on crops can adversely affect the market for the farm products. High levels of residues may lead to product rejection in the market.

**iv. Social inequalities**

Social inequality may occur in instances where small scale farmers lack training and work in poor conditions with limited protective gear.

**v. Environmental pollution**

Pesticides and fertilizers may lead to water and soil pollution. Polluted water may cause eutrophication in water bodies causing death of fish. Soil pollution may cause harm to soil micro-organisms.

Establishing model farms to demonstrate sustainable farming methods will create wide-ranging environmental, economic, and social benefits. These include:

- i. Increased farm yields
- ii. Improved soil health through crop rotation, cover cropping, composting, and reduced chemical use
- iii. Reduced pollution from minimized use of synthetic fertilizers and pesticides
- iv. Higher long-term productivity due to healthier soils
- v. Reduced input costs from efficient resource use and organic alternatives
- vi. Access to new markets that prefer sustainably grown products
- vii. Empowerment of smallholder farmers with practical skills

## 5. Mitigation Measures for Environmental and Social Impacts

Potential impact	Impact scale	Proposed mitigation measures	Responsible party
<b>Human health impacts</b>	Long term High impact	<ul style="list-style-type: none"> <li>• Train farmers on Integrated Pest Management (IPM) whereby farmers are encouraged to use biological controls (natural predators, resistant crop varieties, crop rotation).</li> <li>• Apply pesticides only as a last resort and based on monitoring and economic thresholds.</li> <li>• Regular training for farmers on safe handling, mixing, and application and correct dosage and timing</li> <li>• Create awareness on health risks and first aid for pesticide poisoning and safe Storage and disposal of pesticide containers</li> <li>• Train farmers on use of Personal Protective Equipment (PPE)</li> </ul>	NETFUND County Government
<b>Economic impacts on farmers</b>	Long term Medium impact	<ul style="list-style-type: none"> <li>• Reduce dependency on chemicals by training farmers on low-cost alternative fertilizers e.g. organic fertilizers (compost, manure), crop diversification and intercropping</li> <li>• Encourage soil health management to reduce pest outbreaks</li> <li>• County governments and Agricultural Training Centers provide agricultural advisory services on pesticide management</li> </ul>	NETFUND County Governments of Nakuru and Nyandarua
<b>Food Safety Concerns</b>	Long term Medium impact	<ul style="list-style-type: none"> <li>• Create consumer awareness to promote washing, peeling, and proper food preparation methods. This will be undertaken during public barazas in project area.</li> <li>• Train farmers on Adherence to Maximum Residue Limits (MRLs) and follow recommended pre-harvest intervals.</li> <li>• Train farmers on good agricultural practices e.g. maintaining spraying records.</li> </ul>	NETFUND County Governments of Nakuru and Nyandarua, KEPHIS

Potential impact	Impact scale	Proposed mitigation measures	Responsible party
Social inequalities	Short term Medium impact	<ul style="list-style-type: none"> <li>Ensure small-scale farmers, women, and vulnerable groups receive equal access to trainings.</li> <li>Adhere to occupational health and safety standards.</li> </ul>	NETFUND County Governments of Nakuru and Nyandarua
Environmental pollution		<ul style="list-style-type: none"> <li>Train farmers adopt crop rotation; reduced tillage, use of organic fertilizers and regular soil testing to avoid over-application.</li> <li>Train farmers on proper disposal of unused chemicals and containers.</li> <li>Comply with FAO's International Code of Conduct on the Distribution and Use of Pesticides and its associated technical guidelines, and procure only pesticides, along with suitable protective and application equipment, that will permit pest management actions to be carried out with well-defined and minimal risk to health, environment, and livelihoods.</li> </ul>	NETFUND County Governments of Nakuru and Nyandarua

## 6. Consultation, Disclosure and Grievance Mechanisms

Community consultations and screening were held in each sub-catchment to identify risks and mitigation measures. Awareness of the existence of relevant Grievance redress mechanisms was also undertaken with training of GRM champions from identified community groups. Any grievances arising due to implementation of the Lake Naivasha Project will be handled as described in the project's Environmental Social Management Framework. This is through existing county systems, the project-level grievance desk, NETFUND GRM and WWF's independent grievance mechanism

For Complaints and Compliments in relation to this Environmental and Social Management Plan (ESMP):

Write to:

The Chairperson Public Complaints Committee,  
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