**Module 6**

**Activity 6**

**Environment and climate change mainstreaming**

**in a sector development strategy**

**Duration: 60’** (of which 20’ reading, 20’ group work, and 20’ sharing of results).

**Objectives**

You identify:

* Entry points for environmental and climate change mainstreaming in a development strategy.
* The benefits that can be derived from such integration.

**Instructions**

* Read the attached information extracts from:
  + the *Newland Agricultural Development* Strategy,
  + the *Newland State of the Environment Report* and from
  + the *Newland National Adaptation Plan of Action* (NAPA).
* Based on the available information and your experience assess the extent to which:
  + environmental issues are being integrated in the development strategy;
  + issues identified in the NAPA are already integrated in the development strategy.
* Identify any other possible entry points for integrating environmental concerns and the response to climate change in the development strategy, and discuss the benefits that could be derived from such integration.

**Documents to be used:** Extracts from Newland Agricultural Development Strategy, State of the Environment Report and NAPA

(to help focus when reading key points are in **bold** )

**SELECTED EXTRACTS FROM THE NEWLAND AGRICULTURAL DEVELOPMENT STRATEGY**

Current agricultural development in Newland is not sustainable. Without close attention to the adoption and use of modern agricultural technologies, crop yields may further decline and rural poverty will remain widespread. Over the past decade, improved agricultural technologies have played only a minor role. For example, smallholder households that use inorganic fertilizers, pesticides, animal traction, or small-scale irrigation increased to about 7 percent from a low of 4 percent. A **very limited number of smallholders use drought-resistant varieties or have access to improved seeds.** The highest- and the lowest-income quintiles were more likely to adopt new technologies compared to middle-income groups. Among determinants of crop income, use of improved technologies, especially inorganic fertilizer, significantly affects income; **as soils are extensively degraded, fertilizers are becoming increasingly necessary**.

Although constraints exist, Newland possesses the fundamentals to realize its considerable agricultural potential. The country is **endowed with natural resources, including extensive unproductive forested lands that can be put to productive use**. **Newland has 104 river basins, 20 million hectares of forests**, and a **long coast line** with three major ports.

***Main Structural Challenges: Infrastructure, Markets, and Institutions***

Poor roads and markets, **soil erosion** and **unexploited irrigation potential** are key constraints to agricultural development; recently recurrent **pest outbreaks** have been experience, brought about by the unusually high temperatures. Total irrigated area is only about 3 percent of its potential. Despite recent investments in roads, the density of the road network is the lowest in the region (32 kilometers per square kilometer), which to some extent is due the size of the country and difficulty in building and maintaining roads. With a sparse population, the unit costs of serving rural areas are high. Although building roads is essential for rural development, a major concern is the positive correlation between transport routes and transmission and prevalence of HIV/AIDS. Other **key infrastructure such as power and telecommunications are also very poorly developed.**

**Institutions in Newland are weak**, lack capacity, and were largely shaped by its history. Today, the Ministry of Agriculture formulates policies and regulations, and the private sector supplies inputs and markets. A major issue for many public sector entities is the **lack of trained personnel**. Today this deficit is a major constraint so that the country continues to **rely on outside technical assistance.** Additionally, low salaries in government departments do not attract and retain skilled and qualified staff.

***Agricultural Strategy***

A boost to the agricultural economy is critical to ensure growth of the rural sector. Any strategy must **promote sustained production and productivity for smallholders** who depend on agriculture, thus **improving their livelihood and reducing vulnerability and risk**. The transformation of agriculture from low-productivity subsistence to high- productivity commercial is long-term, and the current strategy involves short-term activities to lay a foundation for a long-term transformation. Such growth should be **highly productive and environmentally sustainable**, along with strengthening the **cash crop sector by promotion of out-grower schemes.**

Given the nature of smallholder agriculture and emerging out-grower schemes, two elements are required. For the smallholder whose efforts **produce food grains** and other products for the domestic market, **enhancing productivity is critical**. For the growing number of **smallholders who participate in out-grower schemes**, strengthening their **power to bargain** for better farm-gate prices and improve industries that add value are essential.

The food crop sector currently dominates and will for years in the future. Yield increases are required through the use of **improved seeds, inorganic fertilizers, pesticides and irrigation**. In order to increase crop yields **all efforts must be made to double the use of inorganic fertilizers and pesticides, and increase irrigated lands by at least 30%**.

Public sector activities such as **research and extension services must be demand-driven and reach out to farmers**. Given that **most farmers are women**, extension staff should reach out to this group and ensure that appropriate technology is gender-oriented.

The cash crop sector, already an important source of income growth, has substantial potential. Depending on the crop, there is a need to develop expertise and mechanisms to balance the interests of out-growers, companies, and the institutional environment. For example, out-growers need fair prices, companies do not want to be undermined by side-selling, and both groups **need the results of research and extension to keep a competitive edge**. Farmers need to organize into producer organizations so that they have the power to negotiate with companies. **Companies need to feel the confidence to invest,** and it is important that competitors with very short-term agendas do not undermine their efforts.

**SELECTED EXTRACTS FROM THE NEWLAND STATE OF THE ENVIRONMENT REPORT (2010)**

Newland is endowed with vast natural resources and covering four different ecological areas. Its 20 million hectares of forests provide a habitat for numerous species of flora and fauna, making it one of the biodiversity hotspots in the region, and offering an enormous potential for eco-tourism. Newland is a net carbon sink, thanks to its forests. However, the forested area has been declining at a rate of 1.5% per year, having lost about 12 million hectares since 1980.

Forest clearing for agricultural production is one of the main drivers of deforestation, together with the extraction of wood. As the soils in the once-fertile valleys are being washed away and degraded, farmers expand into the forested area.

Forest clearing also provides timber, most of which is being illegally extracted. About 98% of the rural population uses firewood as its main source of energy, and there is also an increasing demand of charcoal to satisfy the energy needs of about 80% of the urban population.

The rate of soil erosion has not been estimated, but declining crop yields and the levels of turbidity and nutrient content in the river systems indicate that soil erosion is taking dramatic proportions. A recent study commissioned by the Ministry of Energy has shown that the rate of sedimentation in the Tensis hydroelectric dam is four times higher than originally calculated, which may reduce its life-span by about 20 years.

The Ministry of Agriculture has been piloting soil erosion control systems throughout the country, with only limited success. Terracing is resource-intensive, terraces degrade quickly and tree barriers take too long to grow; all this discourages farmers who find it easier to clear new lands. However farmers are quickly learning that these new lands are not as productive as their original fertile valleys. The recent trade reform has allowed easier access to inorganic fertilizers, but most farmers still cannot afford their cost.

Only 20% of the rural population, and 35% of the urban population have access to sanitation services, which is one of the leading causes of water pollution. In addition to that, the burning of biomass in the homesteads is the main cause of the large levels of acute respiratory infections. The Ministry of Health has identified that 85% of the causes of morbidity and death are related to the so-called environmental diseases. Moreover malaria remains one of the main ‘killers’ in the country, and in the last 5 years cases have been increasingly reported in the highlands, where malaria was unknown.

**SELECTED EXTRACTS FROM THE NEWLAND NATIONAL ADAPTATION PLAN OF ACTION [NAPA] (2007)**

**Executive Summary**

The occurrence of extreme climate events in Newland constitutes a great barrier to swift sustainable economic development due to human and material damages. This includes the **loss of crops due to extreme events, which can occur at least once a year, and increased incidence of pest outbreaks due to increased temperatures. As a result, the population lives in a situation of threat and instability.** The Government of Newland (GN), Non-governmental Organisations (NGOs), and Humanitarian Agencies (HA) have been working to reduce the impacts of extreme events through the elaboration of various action plans and programmes. It’s in this context that a multi- sector group called NAPA was established with the task of coordinating the elaboration and implementation of an action plan for adaptation to climate change in Newland.

The present document includes summaries of **4 initiatives, for various economic and social development sectors, with special emphasis on the prevention of natural disasters and Alert and Early Warning Systems; the agricultural, fisheries, energy, environmental and water sectors; coastal zones; and erosion control.**

**1.4 Characterization of vulnerability to extreme events**

Newland is a vulnerable country to climate change due to its geographic location (about 2,700 km of coastline, at the confluence of many international rivers flowing into the Ocean, and land area that is under sea level), high temperatures, aridness, infertile soils, many endemic diseases, lack of communication infrastructure, high level of illiteracy, high population growth rate, absolute poverty and a high dependence on natural resources that are dependent on precipitation.

The **geographic location is one of the key factors that contribute to the country’s vulnerability to extreme events since some of the tropical cyclones and depressions** that are formed in the Ocean cross the Newland Channel and **affect the coastal zone**. As global temperatures increase, Newland is experiencing **increases in the frequency and severity of droughts** in the interior and floods in coastal regions.

Food production needs to increase to meet the increasing demand caused by rapid population growth. However, climate **predictions indicate less rain for most areas where many farmers depend on rainfall. In addition, crop epidemics often occur during and after an extreme event, reducing agricultural production and worsening the emergency situation of agricultural families.** Food and nutritional insecurity, as well as the above mentioned epidemics can exacerbate the effects of HIV/AIDS and other diseases, **increasing people’s vulnerability to climate change.**

The most **hazardous extreme events are drought, floods and tropical cyclones. Other environmental problems that affect the country include soil erosion, deforestation, epidemics, plagues, slash-and- burn practices, and industrial effluents.**

Recognizing the need to identify and **prioritise adaptation measures** to reduce the vulnerabilities of community and sectors, a participative evaluation of 31 districts was undertaken to determine which districts should be included in the pilot phase of the NAPA program.

In this participative evaluation process, about 621 people were interviewed at national level, 37 per cent of whom in the country’s northern region, 24% in the central region and 30 % in the southern region. Replies **(45.2 %) indicate drought as the most severe event, (34.5%) floods and (20.3%) mention tropical cyclones.**

The interviewees generally mentioned the following **strategies to help minimize the effects of natural disasters:**

• Food support in the form of food for work;

• Distribution of crops that are resistant to drought

• Distribution of seeds and agricultural tools;

• Use of low-lying areas for agriculture;

• The drilling of boreholes and dams for water;

• Resettlement of people in areas not prone to floods;

• Reforestation, control of bush fires and environment education;

• Livestock and construction of basic infrastructures for livestock activity

• Publication of early warning systems;

• Rehabilitation of access roads;

• Creation of alternative sources of income;

• Expansion of the commercial network;

• Sensitisation of people to build houses in places not vulnerable to drought and other extreme events;

Considering the suggested criteria in the manual for the preparation of NAPA and the answers to the survey, criteria were prepared for use in prioritising actions and adaptation actions were defined. As a result of the seminars, ten provincial and one national seminar were held for the approval of actions and their prioritisation.

**1.4.1 Drought**

Drought and desertification are global environmental problems with serious social and economic consequences. The **social costs are high and translate into the loss of livelihood opportunities in terms of employment, subsistence farming, and the separation of families due to death or migration.** Experience shows that droughts have negative impacts on different areas of livelihood activity and can cause different effects such as the:

• Loss of crops;

• Drying of water sources (wells, lakes, streams, rivers, etc.);

• Reduction of primary productivity in coastal zones, negatively affecting fisheries;

• Reduction of grazing areas;

• Increase in the price of agricultural products and basic foodstuffs;

• Increase of food imports;

• Increase in appeals for external aid;

• Loss of human and animal lives;

• Outbreak of diseases; and

• Loss of biodiversity

**The causes of drought and desertification can be natural or anthropogenic. The natural causes are climate-driven, associated with the drastic reduction in the quantity of precipitation or changes in the precipitation regimes. The anthropogenic (or human) causes include the excessive use of soils for agriculture, over-grazing, bush fires associated with opening up new cultivation areas, fire wood gathering, charcoal production and the industrial forestry sector. The factors of human origin are closely linked to poverty of the communities, which can lead people to remove or overuse land resource unsustainably.**

**1.4.2 Floods**

Floods occur during the rainy season, chiefly within river basins, low coastal areas and areas with drainage problems. **Floods in the country are caused not only by precipitation that but also by the water discharge from dams in neighbouring countries situated upstream.** Due to the number of river basins located in the country, including 9 river basins from international rivers, the **country is currently vulnerable to floods regardless of whether flooding intensity increases.**

**1.4.3 Tropical Cyclones**

Cyclones normally occur along the coastal regions of Newland (and in some cases may also affect the interior) due to tropical depressions. Tropical cyclones are, among the meteorological events, the **strongest and the most destructive globally**. They occur in a cyclic manner, accompanied by strong winds and torrential rains. They can cause the **destruction of infrastructure, the disruption of water, sanitation and electricity supply systems, the displacement of people, the loss of lives, the destruction of private property, the degradation of the environment, redistribute flora and fauna, and disrupt normal activities.**