# REPUBLIC OF RWANDA

**Rwanda Environment Management Authority**

# SECTOR SPECIFIC ENVIRONMENTAL IMPACT ASSESSMENT GUIDELINES FOR AGRO-PROCESSING INDUSTRIES

**Draft Final Report**
July 2012


**Prepared by:**

**GREEN WORLD CONSULT LTD**
P.O. Box 816 Kigali, Rwanda

# TABLE OF CONTENTS

# LIST OF TABLES



# LIST OF FIGURES

# ACRONYMS

| | |
|---|---|
| AfDB | African Development Bank |
| BOD | Biochemical Oxygen Demand |
| CBOs | Community Based Organisations |
| CDO | Community Development Officer |
| CFCs | Chlorofluorocarbons |
| COD | Chemical Oxygen Demand |
| DfID | Department for International Development |
| EDPRS | Economic Development and Poverty Reduction Strategies |
| EIA | Environmental Impact Assessments |
| EIR | Environmental Impact Review |
| EIS | Environmental Impact Statement |
| EMP | Environmental Management Plan |
| EMS | Environmental Management System |
| FAO | Food and Agriculture Organisation |
| GDP | Gross Domestic Product |
| GHGs | Green House Gases |
| GoR | Government of Rwanda |
| IEE | Initial Environmental Examination |
| IRST | Institute for Scientific and Technological Research |
| ISAR | Rwanda Institute for Agricultural Science |
| JICA | Japan International Corporation |
| Kg/t | Metric Ton |
| KIST | Kigali Institute for Science, Technology |
| KWh | Kilowatt-Hours |
| LWH | Land Husbandry Water harvesting and Hillside Irrigation |
| $M^3$ | Cubic Meters |
| Mg/l | Milligrams Per Litre |
| MINAGRI | Ministry of Agriculture and Animal Resources |
| MINALOC | Ministry of Local Government |
| MINECOFIN | Ministry of Finance and Economic Planning |
| MINEDUC | Ministry of Education |
| MINICOM | Ministry of Commerce, Industry, Investment Promotion |
| MINIJUST | Ministry of Justice |
| MININFRA | Ministry of Infrastructure |
| MINIRENA | Ministry of Environment and Natural Resources |
| MINISANTE | Ministry of Health |
| NAEB | National Agricultural Export Development Board |
| NAP | National Agricultural Policy |
| NGOs | Non-Governmental Organisations |
| NORAD | Norwegian Agency for Developmental Cooperation |
| NUR | National University of Rwanda |
| OCIR | CAFE Rwanda Coffee Authority |
| OCIR THE | Rwanda Tea Authority |
| OECD | Organization for Economic Cooperation and Development |

| | |
|---|---|
| PAPSTA | Support Project to the Strategic Plan for the Agriculture Transformation |
| PSTAII | Strategic Plan for the Transformation of Agriculture |
| RAB | Rwanda Agricultural Board |
| RBS | Rwanda Bureau of Standards |
| RDB | Rwanda Development Board |
| REMA | Rwanda Environment Management Authority |
| RHODA | Rwanda Horticulture |
| RNRA | Rwanda Natural Resources Authority |
| ROR | Republic of Rwanda |
| RSSP | Rural Sector Support Project |
| RURA | Rwanda Utilities and Regulatory Authority |
| SACCO | Savings and Credit Cooperatives |
| SEA | Strategic Environmental Assessments |
| SIDA | Swedish International Development Agency |
| SMEs | Small and Medium Enterprises |
| SQMT | Standards, Quality Assurance and Metrology |
| ToR | Terms Of Reference |
| TVET | Technical and Vocational Education and Training |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| USD | United States Dollars |
| WB | World Bank |
| WHO | World Health Organisation |

# DEFINITIONS

**Agricultural Products:** means produce of Agriculture, Horticulture, Floriculture, Medicinal plants, Fisheries, Poultry, Apiculture, Dairy and would include minor forest produce and livestock based products.

**Agro-processing Industry:** refers to the subset of manufacturing that processes raw materials and intermediate products derived from the agricultural sector. Agro-processing industry thus means transforming products originating from agriculture, forestry and fisheries.

**Agro-processing:** means processes that use agriculture products, agri-waste and intermediate agriculture products to produce products in a manner that there is a transformation in the nature of the agriculture product.

**An Impact:** is the effect of any action that affects one or more elements of the natural, social or economic environment, either adversely or beneficially.

**Authority:** means the Rwanda Environment Management Authority.

**Cumulative Impacts:** Those impacts that result from the incremental impact of the proposed action added to the impacts of other past, present, and foreseeable future actions.

**Developer:** Means a person, group of persons or agency developing a new project or proposing to extend an existing project which is subject to an EIA process.

**Direct Impacts:** Those impacts that are caused by the action and which generally occur at the same time and place as the action.

**Environment Impact Assessment:** A systematic examination conducted to determine whether or not a project will have any adverse impacts on the environment.

**Environment:** Are the physical factors of the surroundings of the human beings including land, water, atmosphere, climate, sound, odour, taste, the biological factors of animals and plants and the social factor of aesthetics and includes both the natural and built environment.

**Environmental Economic Analysis:** An analysis of the expected environmental impacts of projects from an economic perspective.

**Environmental Impact Statement:** The written report which presents the results of an Environment Impact Study.

**Environmental Impact Study:** means the study conducted to determine the possible environmental impacts of a proposed policy, project or activity, and measures to mitigate any such impacts.

**Environmental Monitoring:** the continuous determination of the actual and potential effects of any activity or phenomenon whether short-term or long term. Observation of effects of developing projects on environmental resources and values; including sampling, analysis, temporal monitoring during the project construction stage and continued periodic monitoring following commencement of project operation

**Guidelines:** the description of the methodology for conducting EIAs for projects, and the responsibilities for the different stakeholders within the EIA process.

**Impact:** Is the effect of any action that affects one or more elements of the natural, Social, political or economic environment, either adversely or beneficially.

**Indirect Impacts:** Those impacts that induce changes in the natural environment, population, economic growth, and land use, as a result of actions not directly linked to the project in question.

**Lead Agency:** any Ministry, Department, Parastatal agency, Local Government system or Public Officer in which or in whom any laws vests functions of control or management of any segment of the environment.

**Mitigation measures:** Actions which reduce, avoid or offset the potential adverse environmental consequences of a project, and include engineering works, technological improvements, management measures and ways and means of ameliorating effects to the environment and losses suffered by individuals and/or communities, including compensation and resettlement.

**Participation:** A process through which stakeholders' influence and share control over development initiatives and decisions or resources that affect them.

**Pollution:** Any direct or indirect alteration of the physical, thermal, chemical, biological, or radioactive properties of any part of the environment by discharging, emitting or disposing waste so as to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety, or welfare or to animals, plants or aquatic life to cause a concentration of any condition, limitations or restriction to a healthy environment.

**Project brief:** a summary statement designed to achieve specific objectives within a given area and the likely environmental impacts and mitigation measures thereto.

**Project:** A set of planned activities designed to achieve specific objectives within a given area and time frame.

**Proponent/Developer:** means a person, group of persons or agency developing a new project or proposing to extend an existing project which is subject to an environmental impact assessment process.

**Review:** Critical examination and assessment of an EIA/EIS and its conclusions and recommendation.

**Scoping:** Early, open identification of potentially significant environmental impacts and de-emphasis or elimination of insignificant impacts or impacts which have already been covered by other EIAs.

**Scoping:** is the early transparent process of interaction that identifies concerns, evaluates them, organizes by eliminating insignificant impacts and focusing on significant impact for further assessment so that attention and therefore resources, can be effectively and efficiently utilised.

**Screening:** Selection of actions or projects requiring EIA. Common methods for screening include: project threshold, sensitive area criteria, positive and negative list, preliminary assessment/ IEE.

**Significance:** an expert evaluation/judgment of the magnitude of impact or the degree to which a proposed activity or project may (potentially) impact on the environment if implemented.

**Significant effect:** substantial, or potentially substantial, adverse changes in any of the physical factors of the surroundings of human beings including land, water, atmosphere, climate, sound, odour, taste, the biological factors of animals and plants and the social factor of aesthetics and includes both the natural and built environment.

**Stakeholder:** Those affected by the outcome of a project or can affect the outcome of a proposed project either negatively or positively.

**Waste:** is a by-product of day to day activities or anything, which is no longer useful to someone and one need to get rid of. It is something, which the first user does not want anymore, and therefore throws it away.

# Part 1: Introduction

## 1.1 The Significance of Agriculture in the Rwandan Economy

The Agricultural sector has up till now been working on securing food from existing production systems. With its projected contribution to economic growth, modernisation of agriculture is seen as one of the six pillars of Vision 2020 along with sustainable land-use management and basic infrastructure (ROR 2000). Rwanda is working on developing a strong sector that is based on irrigation as opposed to rain-fed agriculture; has appropriate post harvest infrastructure and information systems for farmers and for markets; is mechanized enough to allow farmers to explore other opportunities; and has strong institutions including farmers' coops that are capable of sustaining production and development of the sector.

About 90% of the population is engaged in agriculture (mainly subsistence) and some mineral and agro-processing. Rwanda faces serious challenges in ensuring food security for its growing population from its limited cultivable terrain. Rwanda grows a range of agricultural crops over a cultivated area of 1,205,090 Ha. The major food crops grown include maize, rice, cassava, banana (cooking, beer and fruit), sweet potato, Irish potato, maize, sorghum, beans. Coffee, tea and sugarcane are the major cash crops. Vegetables such as dodo, gourds, eggplants, onions and cabbages are also widely grown. There has been a relative change in production of major food crops over the past 4 years. The increase in production in food crops especially in 2008 is mainly due to a parallel increase in area under cultivation. The agriculture sector which currently contributes significantly to national Gross Domestic Product (GDP) of 32.6 per cent has of recent experienced remarkable growth as the 5year trends. By 2020, agriculture is envisaged to contribute 33 percent to GDP whereas industry, including agro-processing, is expected to grow from current levels of 14 per cent to 26 per cent of GDP (ROR 2000).

## 1.2 Land under Agriculture

Rwanda is a small country with an area of 26,336 $km^2$. The total arable land is about 1.4 million hectares, which is 52 per cent of the total surface area of the country. However the actual area cultivated has exceeded 1.6 million ha in recent years. Another 0.47 million ha is under permanent pasture, so well over 70 per cent of the country's total land surface is exploited for agriculture (ROR 2008). Rwanda has about 165,000 ha of marshlands of which 93,754 ha (57 per cent) have been cultivated. However, only 5,000 ha have been developed and can be cultivated throughout the year while the rest are arbitrarily cultivated by peasants grouped in organizations or by cooperatives without any technical study (ROR 2008). There is potential for arable land expansion through the use of irrigation. The Economic Development and Poverty Reduction Strategy (EDPRS) aimed at increasing the area of hillside agricultural land under irrigation from a baseline of 130 ha in 2006 to 1,101 ha in year 2012. This has implications for environmental management and thus creates urgent need to develop technical expertise within the agriculture and environment sectors to ensure that Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA) are incorporated into the crop intensification programme to guarantee that adequate

soil and water management measures are undertaken. At present, Rwanda does not have irrigation-related environment problems like salinisation and concomitant loss of land for cultivation. However, there are some problems, albeit not serious, related to use of agro-chemicals, such as fertilizers in the sugar and tea industry.

### 1.3 Main Agro-processing Industries in Rwanda

Agro-processing activities comprise two major categories; primary and secondary operations. *Primary processing operations* involve activities such as crop drying, shelling/threshing, cleaning, grading, and packaging. These activities are mainly carried out at the farm and only transform the commodity into a slightly different form prior to storage, marketing or further processing. *Secondary processing operations* entail increasing nutritional or market value of the commodity and the physical form or appearance of the commodity is often totally changed from the original. Some examples of secondary processing are milling grain into flour, grinding groundnuts into peanut butter, pressing oil out of vegetable seeds, pressing juice out of fruit, making cheese out of milk and manufacturing of mince meat. Depending on type of commodity, equipment needed for primary processing is completely different from that used in secondary processing or major adjustments/modifications need to be done to suit either. Table 1 below presents the main industrial groups/production lines for Agro-processing Industries and these have been discussed further under Part 4 of these guidelines. Annex O presents a catalogue of existing agro-processing industries in Rwanda.

**Table 1: Main Agro-processing Industries**

| No | Industrial Group | Product Lines |
|---|---|---|
| 1. | Flour mill and bakery products manufacturing plants | Grain milling and allied industries produce flours of various grains, particularly rice, maize, cassava, pre-cooked beans and wheat for making bread. |
| 2. | Sugar & Sugar confectionery | Besides sugar and confectionary, the sugar industry supplies molasses and bagass as by-products |
| 3. | Dairy industries | Dairy products, pasteurized milk, cheese, butter and yogurt are the main items processed by the dairy industry |
| 4. | Fruit and vegetable processing industry | Fruits and vegetables are supplied in the form of canned jams, marmalades, juices, nectars, pastes, etc. Vegetable oils are produced for cooking. Tomato juice and Tomato paste made out of tomatoes. |
| 5. | Meat processing factories | Meats are being produced in the form of chilled carcass, frozen meat and canned meat products |
| 6. | Coffee processing plants & Coffee washing stations | Cherries, Parchment Coffee, Green Coffee and Roasted Coffee/finest coffee |
| 7. | Tea factories | Packed tea leaves and Tea bags |
| 8. | Beverages | Bottled beer, Malt, soda and other soft drinks, Spirits, Wines |
| 9. | Fish processing plants | Fish Fillets |
| 10. | Edible oil mills | The three major edible oil products consist of crude oil and refined oil for human consumption and oil cake for animal feed or for making soap. Animal fats produce tallow used in making soap. |

Figure 1 below shows an agro processing production matrix generated after field survey.

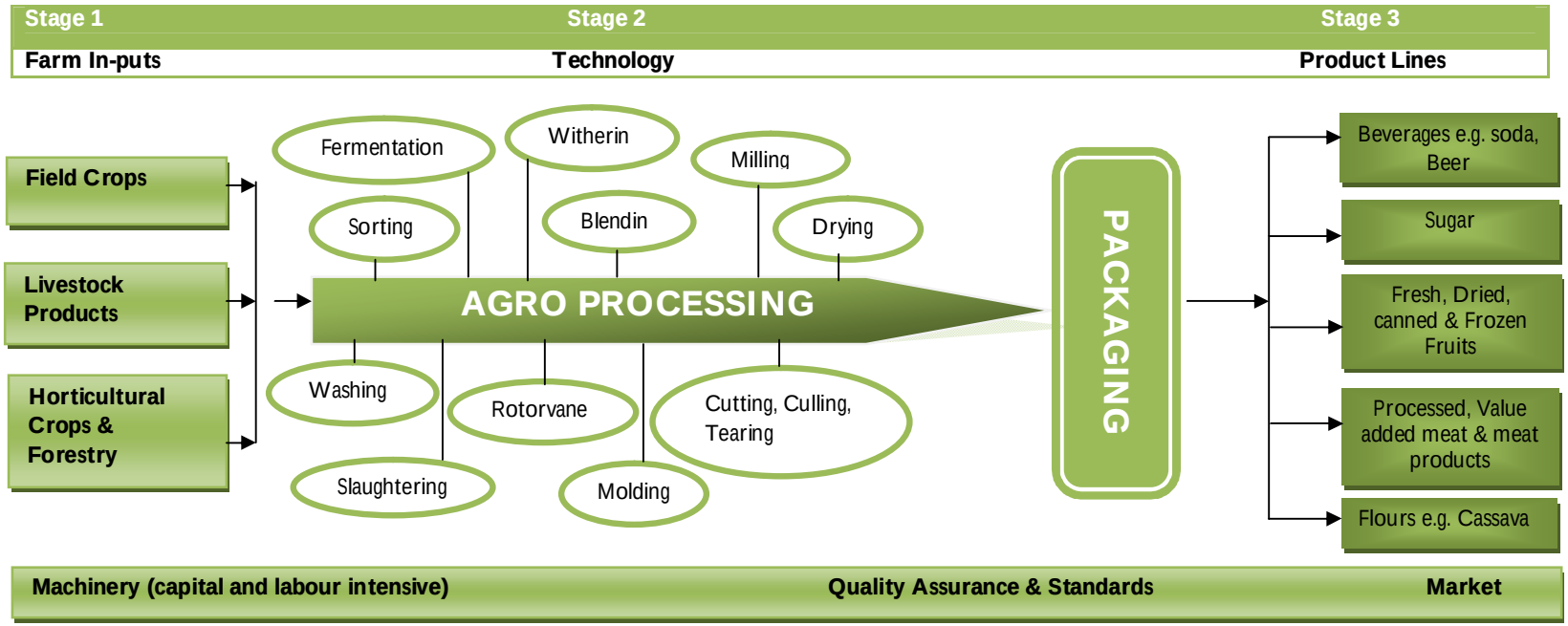



**Figure 1: Agro Processing Production Matrix**

### 1.3.1 Agro-processing Technology

It is difficult to make a sweeping generalization on the type and quality of technology being employed in the agro processing industry in Rwanda. This is because some factories are using state of the art modern technology while others are using old technologies. In other situations, although the technology being used by some may appear old, it may be the most appropriate technology under the prevailing conditions of market size, labour, business, and raw materials. But such industries have to contend with the problems often associated with high maintenance cost of old machinery and equipment. Since the cost of labour is rather low, many agro-processing factories appear to have opted for labour intensive and semi-automated technologies. In general, the more recently commissioned factories, especially large-scale industries (such as Kinazi Cassava Plant), have installed modern automated systems.

In some factories/old establishments, there are on-going rehabilitation activities and/or expanded their facilities. Some of the private processing facilities, commissioned more recently, may have installed reconditioned processing lines. The technology or machinery and equipment have for the most part been imported from Europe. Other enterprises have tended to source from lower cost countries such as India for their machinery.

## 1.4 Objectives of these Guidelines

The overall objective of these guidelines is to ensure the sustainability of agro-processing industry in Rwanda. This will be achieved through:

i. Providing guidance for undertaking environmental impact assessment of agro-processing developments,
ii. Guiding various stakeholders on safe production, use, handling of agro-processing products; and managing adverse impacts and enhancing positive ones in a manner that add competitive value to agro-processing business.
iii. Helping enforce environmental policies and applicable environmental legislations and standards applicable to agro-processing.

## 1.5 Purpose of Guidelines

The use of these guidelines apply to all agro-processing projects and activities, as further specified in the sections below, requiring implications to be fully considered early in the planning process (and all the more so prior to taking final decisions) so as to avoid significant negative impacts of environmental or associated social nature. EIA is a tool for decision-makers to identify potential environmental impacts of proposed projects, to evaluate alternative approaches, and to design and incorporate appropriate prevention, mitigation, management and monitoring measures. EIA cannot be divorced from social impact of the project, hence the latter is considered as a key dimension of the EIA process. Examples of these close interactions can be found in the context of land tenure and rights, rural livelihoods, and traditional practices. EIA is also expected to help in ensuring protection, maintenance and rehabilitation of natural habitats and their functions.

Agro-processing projects that may not require a fully-fledged EIA may be reviewed with limited analytical effort. Still, they will need to undergo the screening procedures described under the General EIA Guidelines for Rwanda (REMA 2006) and these sector specific guidelines. Where significant potential negative impacts or areas of serious public concern are foreseen, a more detailed EIA will need to be prepared, including full technical justifications and public exposure.

In summary, these sector specific guidelines for agro-processing cover:

a) Guidance to Authority and Lead Agencies staff on the application of EIA to projects;
b) Procedures to be used in formulating and screening projects and reporting formats;
a) Standards for related documenting Important to note also is that some of the industries that could be categorised as agro-processing in nature such as slaughter houses and tanneries, have had sectoral guidelines developed as well. In such cases, for the purposes of EIAs such guidelines will supersede these agro-processing guidelines;
c) Roles and responsibilities in conducting EIA to ensure effective implementation.

The Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda stipulates in article 65(1) the establishment of Rwanda Environment Management Authority (REMA) and in Article 67 that every development project likely to have negative impact to the environment shall be required to undergo Environmental Impact Assessment (EIA) prior to its commencement. Furthermore, the law n° 16/2006 of 03/04/2006 determining the organization, functioning and responsibilities of REMA provides in its Article 3 the main responsibilities of REMA. It is in this regards that REMA developed EIA Guidelines which guide decision making and approval of the proposed projects from screening, scoping and reviewing process.

### 1.5.1 Related Guidelines

Some of the industries that could be categorised as agro-processing in nature such as slaughter houses and tanneries have had sectoral guidelines developed as well. Also see Part 2 of these sector guidelines for a detailed legislation discussion.

## 1.6 Target Group for the Guidelines

These guidelines are prepared mainly to assist regulators and lead agencies (e.g. REMA, Rwanda Development Board, and Ministry of Agriculture), EIA practitioners, and proponents/developers and, that are directly involved in the implementation of agro-processing projects. In addition, individual researchers and other interested persons can use them for different purposes, but with an overall aim of sustainable development.

Annex M and N presents a register of stakeholder consultations and issues raised by stakeholders respectively.

# Part 2: Policy, Legislation & Institutional Framework

## 2.1 Introduction

There are some state policies, laws, regulations and standards that are specifically relevant to implementing agro-processing industrial activities. The developer should first carefully study such policies and laws so that they provide the policy and legal background against which the acceptability of a proposed project shall be determined by a competent authority. Further, there are several international treaties and agreements of which Rwanda is a signatory that might also apply to a proposed project. This chapter summarizes the most relevant policies and laws, and international treaties and agreements that apply to agro-processing industry projects. It is a requirement that all aspects of an agro-processing development/project complies with such policies, laws, treaties and agreements.

## 2.2 Policy Framework relevant to Agricultural Sector

### 2.2.1 National Policy on Environment Impact Assessment

The Constitution of the Republic of Rwanda, adopted in June 2003, ensures the protection and sustainable management of environment and encourages rational use of natural resources. Organic Law (No. 04/2005 of 08/04/2005) and various socio-economic development policies and strategies such as “Vision 2020” call for a well regulated environment management system that takes into account principles of sustainable development while at the same time contributing to poverty reduction. Article 67 of the Organic Law requires that projects, programmes and policies that may affect the environment shall be subjected to environmental impact assessment before obtaining authorisation for implementation. Article 69 gives REMA legal authority and mandate to oversee the conduct of EIA.

### 2.2.2 Policy on Agriculture Sector

The National Agricultural Policy (NAP) developed by Ministry of Agriculture and Animal Resource envisions modern, professional, innovative and specialized agriculture for Rwanda. Having acknowledged that agricultural mechanization is nearly absent in the country, the NAP sets modernization of agricultural production through development of animal traction farming and agricultural machineries suitable to the real conditions as one of the specific objectives. NAP also envisages development of motorization adapted to steep gradient of the country, and post-harvest technologies. The main objective of this policy is to intensify and transform subsistence agriculture into market oriented agriculture. The use of contemporary inputs like chemicals is envisaged. Hence water treatment and effluent controls have to be introduced due to increased production in order to control environmental pollution.

### 2.2.3 National Policy on Environment for Rwanda

The policy seeks to achieve its overall objective of the improvement of human wellbeing, the judicious utilization of natural resources and the protection and rational management of ecosystems for a sustainable and fair development through improved health and quality of life for every citizen and promotion of sustainable socio-economic development through a rational management and utilization of resources and environment, integrating environmental aspects into all the development policies, planning and in all activities carried out at the national, provincial and local level, with the full participation of the population, conservation, preserve and restoration of ecosystems and maintenance of ecological and systems functions. One of the key principles mentioned among others that: Environmental impacts are to be analysed while conducting studies of development projects. The National Policy on Environment for Rwanda harmonizes other policies like on agriculture.

### 2.2.4 National Biodiversity Strategy and Action Plan

This strategy defines the objectives and priorities for the conservation and sustainable management of biodiversity. The action plan includes hillsides, wetlands and protected areas as some of the areas that need to be conserved. The strategy on biodiversity aims at: improving conservation of protected areas and wetlands; sustainable use of biodiversity in natural ecosystems and agro-ecosystems; rational use of biotechnology; development and strengthening of policy, institutional, legal and human resources frameworks; and equitable sharing of benefits derived from the use of biological resources.

### 2.2.5 National Water Resources Management Policy

This policy aims at fair and sustainable access to water, improvement of the management of water resources among others through reforestation and afforestation of hillsides and water catchments areas. This policy provides a holistic approach to the management of water resources and it integrates other policies related to it including the forest, wetlands, agriculture and land. This policy is therefore relevant because agro-processing industry use a lot of water in the production process.

### 2.2.6 Vision 2020

Government of Rwanda aspires to fundamentally transform Rwanda into a middle income economy (with a per capita income of 900 USD), reduce the people living below poverty line to 30%, and raise the average life expectancy to 55 years by the year 2020. To realize this vision, the government seeks to transform agriculture into a productive, high value, market oriented sector, with forward linkages to other sectors. Vision 2020 aims to modernize 50% of its agricultural land by 2020. Agricultural mechanization can enable farmers to intensify production and improve their quality of life as well as contributing to rural prosperity.

Vision 2020 acknowledges that Rwandans can no longer subsist on land. The government recognizes the need, instead, to devise ways and means to move the population and economy from its dependence on agriculture into the secondary and tertiary sectors. Mechanization can help attenuate labour constraints and thereby allow farm and farm

dependent families to devote more time on off-farm activities, earn additional incomes, and expand their livelihood strategies. Even in areas that are heavily reliant on crop farming, significant remuneration can be made from non-farm employment such as in small scale agro-processing industries, trading and brick-making, and thus can indirectly promote activities in other sectors.

Vision 2020 also seeks to develop an efficient private sector in all sectors and expects it to be driven by the spirits of competitiveness and entrepreneurship. Rwanda have entrepreneurs/farmers who are ready to invest in draught animals, machinery and implements for use on their farms as well as for providing mechanization services to the small-scale farmers who are unable to gather such levels of capital investments. If the tractor and irrigation markets could be expanded, the opportunities for agro processing and manufacturing and/or assembling industry would also open up in Rwanda. Furthermore, mechanization can also prompt development of small-scale agro-processing industries. Thus, this policy legislation is applicable to the agro processing industries.

### 2.2.7 Economic Development and Poverty Reduction Strategies

Economic Development and Poverty Reduction Strategies (EDPRS), the medium term strategy for 2008-2012 developed by the Government of Rwanda, seeks to increase economic growth through modernization of agriculture. The productive expenditures under EDPRS aims to (i) address skills shortages and (ii) modernize the agriculture. EDPRS acknowledges that the low level of agricultural productivity in Rwanda is due to the low level of agricultural technology. EDPRS also intends to assign a greater role in policy implementation to markets and the private sector. To promote commodity chains and support the development of agri-business, EDPRS intends to subsidize the acquisition of key inputs by farmers' cooperatives.

Agricultural mechanization can act as a catalyst in all of these main programs by reducing/eliminating the fallow period and promote crop sequencing, by minimizing the time for field operations, the farmers can find more time to improve their technical capabilities in agricultural production and by improving the quality of production commodity chains can be strengthened, by encouraging the private sector and entrepreneurship, rural financial markets can be developed and the supply of agricultural credit from private and/or public sources to both men and women can be improved. This will in the end promote agro processing industries hence the need to ensure environmental protection.

### 2.2.8 Strategic Plan for the Transformation of Agriculture in Rwanda

Strategic Plan for the Transformation of Agriculture (PSTAII) which outlines MINAGRI's activities has developed agendas for intensification and development of sustainable production systems under its mainstream programs. Under Program 1, the strategic plan intends to promote the use of farm mechanisation in appropriate forms, along with animal traction. The sub-program 1.5.2 intends to inform farmers of appropriately scaled mechanisation options and offer training and access to finance to local entrepreneurs who wish to acquire tractors and other machinery and rent the machinery or sell mechanisation services to farmers. It intends to explore the opportunities for (i) adopting animal traction

need as they are environmentally and economically more appropriate and (ii) options such as small tillers, of the kind used in East Asia.

### 2.2.9 Small and Medium Enterprises Development Policy

The Government of Rwanda (GoR) has a vision to become a middle-income country. In order to achieve this goal the medium term Economic Development and Poverty Reduction Strategy (EDPRS) states that it must achieve an annual GDP growth rate of 8.1% and increase off-farm employment to 30% by 2012. Small and Medium Enterprises (SMEs) and micro enterprises in Organization for Economic Cooperation and Development (OECD) countries account for over 95% of all firms, 60-70% of employment and 55% of GDP and create the majority of new jobs, indicating the impact SMEs have on employment. In contrast, currently over 80% of Rwandans are engaged in agricultural production. The SME sector, including formal and informal businesses, comprises 98% of the businesses in Rwanda and 41% of all private sector employment — though the formalized sector has much growth potential with only 300,000 currently employed. Most micro and small enterprises employ up to four people, showing that growth in the sector would create significant private sector non-agricultural employment opportunities. The Rwandan SME Policy is designed to complement a set of existing policies/strategies that aim to increase non-farm employment, develop business and technical skills in the Rwandan workforce, support targeted value-added clusters, strengthen the financial sector, grow the tax base and facilitate investment finance to generate industrial growth.

**The SME policy is supported by the following policies, laws and strategies:**

- **Organic Law Determining the Use and Management of Land in Rwanda (2005)**
- **Trade Policy (2006)**
- **Industrial Policy (2006)**
- **Handcraft Policy (2006)**
- **National Policy on the Promotion of Cooperatives (2006)**
- **Economic Development and Poverty Reduction Strategy (EDPRS-2007)**
- **National Microfinance Policy and Implementation Strategy (2007)**
- **Financial Sector Development Plan (2007)**
- **Rwanda Tea Strategy (2008)**
- **Rwanda Coffee Strategy (2008)**
- **Strategic Plan for the Transformation of Agriculture in Rwanda (2009)**
- **Technical and Vocational Education and Training (TVET) policy (2009)**
- **Companies Act (2009)**
- **Law Regulating Labour in Rwanda (2009)**
- **National Savings Mobilization Strategy**
- **SACCO (Savings and Credit Cooperatives) Strategy (2009)**
- **MINICOM Strategic plan 2009-2012**
- **Rwanda Craft Industry Strategic Plan (2009-2013)**

## 2.3 Legal Framework relevant to Agricultural Sector

### 2.3.1 The Constitution of the Republic of Rwanda 2003

As the supreme law of the country, the constitution of the Republic of Rwanda stipulates that the state shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Rwanda. This constitution entrusts the government with the duty of ensuring that Rwandese enjoy a clean and healthy environment. Article 49 states that every citizen is entitled to a healthy and satisfying environment. Every person has the duty to protect, safeguard and promote the environment. The state shall protect the environment. The law determines the modalities for protecting, safeguarding and promoting the environment.

### 2.3.2 EIA Guidelines for Rwanda, 2006

The Organic Law on environment protection made EIA mandatory for approval of major development projects, activities and programs in the Republic of Rwanda. By mandate of parliament of the Government of Rwanda, as conferred upon the Minister responsible for environment, in the Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, the following guidelines pertaining to the contents of Chapter IV, articles 67-70, concerning Environmental Impact Assessment by the REMA and as endowed with this power in Chapter III, paragraph 1° of Article 65. Thus, these EIA guidelines serve as a protocol for use by various stakeholders involved in the conduct of environmental impact assessment.

However, besides the legislation, guidance is needed of a more technical nature to streamline the conduct of EIA and appraisal of EIA reports. As such, the establishment of *"General Guidelines and Procedures for Environmental Impact Assessment",* which unifies the legal requirements with the practical conduct of EIA, meets a need in the pursuit for sustainable development in Rwanda. EIA is a tool for prevention and control of environmental impacts caused by socio-economic development. The *"General Guidelines and Procedures for Environmental Impact Assessment"* were prepared to contribute to improvement of EIA practice in Rwanda and they aim to serve agencies and individuals taking part in the EIA process. These guidelines were designed to ensure that participants in the EIA process understand their roles and that laws and regulations be interpreted correctly and consistently. Two main principles underlie these general guidelines:

i. They comply with the legal and institutional frameworks on environmental protection in Rwanda and;
ii. They contribute to improvement of quality and efficiency of EIA process in the country, and as such merge, step by step, with general global trends and practice of conducting EIA.

These general guidelines were developed with the aim of providing information necessary when carrying out an environment impact assessment.

### 2.3.3 Environment Protection and Management Legislation

The Organic Law on Environmental Protection, Conservation and Management stipulates the general legal framework for Environment protection and management in Rwanda. This legislation focuses on avoiding and reducing disastrous consequences on the Environment. The Ministry of Environment and Natural Resources (MINIRENA) is charged with the responsibility of propagating this organic law regarding environmental conservation.

Legislative and regulatory framework related to Environmental management is established by Government of Rwanda in organic law N° 4/ 2005 of 2005. Chapter IV of Title III provides for Environmental Impact Assessment as a requirement for every proposed project that might affect the environment. Article 67, stipulates that: "Every project shall be subjected to environmental impact assessment, before obtaining authorization for its implementation. This applies to programmes and policies that may affect the environment. An order of the Minister having environment in his or her attributions shall determine the list of projects mentioned in this organic law". Article 68 provides the guidelines for conducting Environmental Impact Assessment.

Article 69 stipulates that: "The environmental impact assessment shall be examined and approved by the Rwanda Environmental Management Authority or any other person given a written authorisation by the Authority. The proponent pays a levy deduced from the operating cost of his or her project excluding the working capital. This tax is determined by the law establishing the National Fund for the Environment. The environment impact assessment shall be carried out at the expense of the proponent". Article 70 provides for: "An order of the Minister having environment in his or her attributions establishes and revises the list of planned works, activities and projects, and of which the public administration shall not warrant the certificate, approve or authorize without an environmental impact assessment of the project. The environmental impact assessment shall describe direct and indirect consequences on the environment".

It is in line with the above legal provisions and Article 95 which stipulates that: "Any one or association that does not carry out environmental impact assessment prior to launching any project that may have harmful effects on the environment is punished by suspension of his or her activities and closure of his or her association and without prejudice to be ordered to rehabilitate the damaged property, the environment, people and the property.

Ministerial Orders relevant to Agro-processing Sector

- **Ministerial Order relating to the requirements and procedure for EIA.**
- **Ministerial Order establishing the list of protected animal and plant species.**
- **Ministerial Order preventing activities that pollute the atmosphere.**
- **Ministerial Order determining the list of chemicals and other prohibited pollutants.**
- **Ministerial Order establishing modalities of inspecting companies or activities that pollute the Environment.**
- **Ministerial order establishing special regulations relating to burying toxic wastes**
- **Ministerial order on the list of works, activities and projects that have to undertake an EIA**
- **Ministerial order preventing activities that pollute the atmosphere**

- **Prime Minister's order determining the list of chemicals and other prohibited pollutants**
- **Instruction of the Minister of Trade and Industry N°11/2011 of 06/06/2011 on Rice processing and Trading**
- **Ministerial Orders N°01/09/MINICOM of 08/05/2009 Determining Small Private Limited Company**
- **Ministerial Order N° 012//11.30 Of 18/11/2010 on Animal Slaughtering, Meat Inspection**
- **Ministerial Order N° 011/11.30 of 18/11/2010 on the Importation, Marketing and Distribution Modalities of Aquaculture and Fisheries Products, Equipment and Materials.**

Other relevant Policies and Laws include:

- **Environmental Impact Assessment Sector Guidelines for the Waste Management, Nov.2008**
- **National Policy for Water Resources Management.**
- **Agro-chemical Law 2012 (still under review)**
- **Rwanda water law**
- **Organic Law determining the modalities of protection, conservation and promotion of environment in Rwanda**
- **Organic Law determining the use and management of land in Rwanda**
- **Law regulating the use, conservation, protection and management of water resources**
- **List of prohibited chemicals (last version 22.09.08)**
- **Environmental Policy**
- **Land Policy**
- **National Industrial Policy**
- **Rwanda National Export Strategy**
- **Rwanda Competition and Consumer Protection Policy**
- **Law N°07/2009 OF 27/04/2009 Relating to Companies**
- **National Policy on promotion of cooperative**
- **National Decentralization Policy, 2001**
- **Community Development Policy**
- **Organic Law N° 53/2008 Of 02/09/2008 Establishing Rwanda Development Board And Determining Its Responsibilities, Organisation And Functioning**
- **Rwanda Investment Code**
- **Catalogue of Rwanda Standards, 2011**
- **Law no.43/2006 of 05/10/2006 determining the responsibilities, organization and functioning of RBS**
- **Law °39/2001 of 13/09/2001 Establishing Agency for the Regulation of Certain Public Utilities**
- **Guidelines on solid wastes management in terms of collection, transportation, treatment and disposal and on the management and establishment of disposal sites**
- **Guidelines on Required Minimum Service Level for Water Service Provision**
- **Guidelines for solid waste management**
- **Guidelines on Liquid waste disposal and treatment**
- **Directives on Minimum Requirements for Liquid Wastes Disposal and Treatment**
- **Standards on the Management of Waste Disposal Sites/Landfills**

## 2.4 Implementation of National Agricultural Legislation

The institutional framework for environmental management is registered in the Organic Law of Rwanda determining the modalities of protection, conservation and promotion of the environment in Rwanda, published in the Official Gazette RWA Nº 9 of the 1st May 2005, particularly in its chapter III relating to the establishment of the institutions. Article 65 provides for the establishment of the REMA and entrusts it with the responsibility for the follow-up of the environmental impact assessments concerning investment and development projects.

### 2.4.1 Rwanda Environment Management Authority

To effectively manage environmental challenges, the Government of Rwanda (GoR) established Rwanda Environmental Management Authority (REMA), under Organic Law No. 04/2005 of 08/04/2005. Under Article 64 REMA is charged with the coordination and overseeing all aspects of environmental management for sustainable development. One of REMA's principal functions is to oversee the conduct of EIA and take a decision on proposed development projects to be undertaken by both public and private sectors. In regard to the EIA process, REMA and Lead Agencies are tasked to:

i. Receive and register EIA Applications (Project Briefs) submitted by developers;
ii. Identify relevant Lead Agencies to review Project Briefs and provide necessary input during screening,
iii. Review Project Briefs and determine project classification at screening stage,
iv. Transmit Project Briefs to relevant Lead Agencies and concerned Local Governments to provide input on Terms Of Reference (ToR),
v. Publicise Project Briefs and collect public comments during development of ToR,
vi. Approve EIA Experts to conduct EIA studies,
vii. Receive EIA documents submitted by a developer and verify that they are complete,
viii. Transmit copy of EIA Reports to relevant Lead Agencies, Local Governments and Communities to review and make comments,
ix. Review EIA reports and make decision on approval, organize and conduct public hearings, appoint an officer from the Authority to chair public hearings, receive public comments and compile public hearing reports,
x. Appoint the Technical Committee and its representative to the Technical Committee,
xi. Appoint an Executive Committee, and its representative to the Technical Committee,
xii. Forward EIA Documents (EIA Report, Environment Monitoring Plan and Public Hearing Report) to the Technical Committee,
xiii. Chair the Executive Committee which makes final decision on approval of a project,
xiv. Communicate decision on whether or not a proposed project is approved,
xv. Issue to developers EIA Certificates of Authorisation if their projects are approved,
xvi. Enforce compliance through inspection, environmental monitoring and auditing,
xvii. Ensure compliance with EIA provisions,
xviii. Manage the production and updating of guidelines on EIA practice, procedures and regulations,
xix. Preparation of sector-specific EIA guidelines,
xx. Maintain a register of projects being appraised under the EIA process,

xxi. Maintain a central library of approved EIA reports,
xxii. Register and maintaining a directory of registered EIA Experts.

### 2.4.2 Rwanda Development Board

This is a one stop institution bringing together several government bodies in Rwanda focused at promoting investment in Rwanda. Initially the responsibility for reviewing and approving EIA reports was entrusted to REMA, this duty has now been transferred to the newly created Rwanda Development Board (RDB) where a department of EIA has been created and tasked with review and approvals of all EIA reports for proposed projects and programmes before they are approved for implementation.

### 2.4.3 Ministry of Environment and Natural Resources

The Ministry of Environment and Natural Resources is responsible for developing environmental policies and procedures (including impact assessments), protection of natural resources (water, land, flora, and fauna), environmental legislation, biodiversity, and other environmental aspects. Chapter IV of the Organic Law Article 65 clearly calls for the need to subject projects to mandatory Environmental Impact Assessment. Article 65: Further specifies that every project shall be subjected to environmental impact assessment prior to its commencement. It shall be the same for programs, plans and policies likely to affect the environment. Specific details of projects referred to in this Article shall be spelt out by the order of the Minister in charge of environment. MINIRENA is one of the lead Agencies / Line Ministry as provided by the General Guidelines and Procedure for EIA.

MINIRENA like any other Lead Agency is supposed to perform the following functions in the EIA process:

i. Participate in screening at the request of REMA,
ii. At the request of REMA, review Project Briefs so as to advise on Terms of Reference,
iii. Ensure that their own projects adhere to EIA requirements,
iv. Ensure that private-sector projects in fields over which they have jurisdiction comply with EIA requirements,
v. At the request of REMA, review EIA reports,
vi. Serve on REMA's Technical Committee,
vii. Serve on REMA's Executive Committee,
viii. Provide information or advice to developers and EIA Experts during EIA process,
ix. Participate as panelists at public hearings held during the conduct of EIA,
x. Advise developers on the requirement for EIA (where relevant) before licensing their projects,
xi. Assist in inspecting and monitoring environmental compliance by ensuring that licensing terms and conditions are met, including those specified by REMA.

### 2.4.4 Ministry of Agriculture and Animal Resources

Ministry of Agriculture and Animal resources (MINAGRI) mission is to initiate, develop and manage suitable programs of transformation and modernization of agriculture and livestock to ensure food security and to contribute to the national economy. MINAGRI's Vision is to modernize Agriculture and Livestock to achieve food security. One of the key pillars of this vision is the transformation of Agriculture from subsistence to a productive high value; market oriented farming that is environmentally friendly and has an impact on other sectors of the economy. This will ultimately result in the increase of agro processing industries hence the need to regulate the sectors activities. Some of MINAGRI's institutions include: National Agricultural Export Development Board (NAEB) and Rwanda Agricultural Board (RAB). MINAGRI's current projects include: Support Project to the Strategic Plan for the Agriculture Transformation (PAPSTA), Rural Sector Support Project (RSSP), Land Husbandry Water harvesting and Hillside Irrigation (LWH).

### 2.4.5 National Agricultural Export Development Board

National Agricultural Export Development Board (NAEB) is registered under the Ministry of Agriculture. Rwanda Tea Authority (OCIR THE), Rwanda Coffee Authority (OCIR CAFE) and Rwanda Horticulture (RHODA) were merged to form NAEB. The Formation of NAEB is aimed to improve the balance of payment of Rwanda Economy through increased agricultural exports. NAEB's responsibilities include the following:

- To participate in elaboration of policies and strategies for developing exports of agricultural and livestock products;
- To implement policies and strategies for promoting and developing agricultural and livestock products for export.

- **Horticulture Policy**
- **National Tea Strategy**
- **New Coffee Strategy**
- **Coffee Washing Stations**

### 2.4.6 Rwanda Agriculture Board

Rwanda Agriculture Board (RAB) has the general mission of developing agriculture and animal husbandry through their reform and using modern methods in crop and animal production, research, agricultural extension, education and training of farmers in new technologies. RAB's responsibilities include the following:

- To implement the national policy of agriculture and animal husbandry;
- To contribute in determining policy in agriculture, animal husbandry, agricultural and animal husbandry research and technology;
- To provide farmers and consumers of agricultural products with information, techniques and services meant for improving their profession and supplying the

internal market with increased and quality production thereby raising their agricultural and animal husbandry incomes.

### 2.3.7 Rwanda Bureau of Standards

Rwanda Bureau of Standards (RBS) was established by Rwanda Government legislation no. 03/2003 of 19/01/2002, reviewed by the Law no.43/2006 of 05/10/2006 determining the responsibilities, organization and functioning of RBS. It undertakes all activities pertaining to the development of standards, quality assurance and metrology (SQMT) in the Country and it is the only body with powers to define and possess national standards. Public or private firms must present their standards for adoption to RBS. Annex I presents Rwanda Standards.

### 2.4.8 Local Governments

Local Governments under the General Guidelines and Procedure for EIA are tasked to perform the following functions:

i. At the request of REMA, review Project Briefs so as to advise on Terms of Reference,
ii. Provide information or advice to developers and EIA Experts when consulted during EIA process,
iii. At the request of REMA, review EIA reports and provide comments to REMA,
iv. Assist REMA in organising public hearings,
v. Host public hearings,
vi. Host individual consultations,
vii. Gather written comments from public and transmit them to REMA.

### 2.4.9 Other Key Institutions in EIA Process

To implement MINIRENA Sectoral strategies, other Ministries are involved such as the Ministry of Agriculture and Animal Resources (MINAGRI), the Ministry of Infrastructure (MININFRA), Ministry of Commerce, Industry, Investment Promotion, Ministry of Local Government (MINALOC), Ministry of Finance and Economic Planning (MINECOFIN), Ministry of Justice (MINIJUST), Ministry of Health (MINISANTE), Ministry of Education (MINEDUC) are involved to ensure sustainability in line with the efforts of achieving Millennium Development Goals (MINECOFIN, 2007).

Public institutions such as Rwanda Utilities and Regulatory Authority (RURA), as well as higher teaching and research institutes such as the National University of Rwanda (NUR), Kigali Institute for Science, Technology (KIST), Rwanda Institute for Agricultural Science (ISAR), Institute for Scientific and Technological Research (IRST) also are important institutions for environmental management in Rwanda.

There are also Non-Governmental Organisations (NGOs) and partner agencies that are involved in environmental management activities in Rwanda. These organisations include among others the United Nations Food and Agriculture Organisation (FAO), United Nations

Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Children's Fund (UNICEF), World Bank (WB) and USAID.

## 2.5 International Treaties and Agreements

Rwanda has signed and /or ratified several international agreements relating to the environment, both global and regional. Agreements of potential importance are briefly outlined in the box below.

**International Agreements to which Rwanda is Party:**

- The 1992 Rio Convention on Biological Diversity, ratified by Rwanda on 18 March 1995
- The United Nations Framework Convention on Climate Change, signed in RIO DE JANEIRO in BRAZIL on 5 June 1992, Presidential Order n° 021/01 of 30 May 1995;
- BASEL Convention on the Control of Transboundary Movements of Hazardous wastes and their disposal as adopted at BASEL on 22 March 1989, Presidential Order n° 29/01 of 24 August 2003
- The Convention on Prior Informed Consent (PIC), which applies to dangerous chemicals and pesticides sold across national borders, signed on 11 September 1998
- The Rotterdam Convention on the establishment of international procedures agreed by states on commercial transactions of agricultural pesticides and other poisonous products, by Presidential Order n° 28/01 of 24 August 2003
- The Convention on Substances that Deplete the Ozone Layer,, Presidential Order n° 30/01 of 24 August 2003
- The Kyoto Protocol to the Framework Convention on Climate Change ratified by Law n° 36/ 2003 of 29 December 2003;
- The Cartagena Protocol on the Prevention of Biotechnical Hazards, part of the convention signed in Nairobi in May 2000
- The Stockholm Convention on Persistent Organic Pollutants (POP), ratified in June 2002.

## 2.6 Donors and Financing Institutions

Other donor agencies, notably JICA, AfDB, SIDA, DfID and NORAD have developed their own EIA guidelines. The guidelines apply to all forms of development assistance initiated and supported by these agencies. It is a standard requirement that developers seeking any form of support from such agencies must comply with the EIA guidelines of the relevant agency.

The World Bank Group has developed safeguard policies for environmental and social issues that project sponsors/developers ought to review before conducting their assessments. During the Bank's appraisal process, policies that apply to a specific project are identified. Projects seeking support from the World Bank will, therefore, have to adhere to the guidelines in *The Environment Assessment Sourcebook (1991)* and the *Environmental Sourcebook Updates issued periodically since 1993.* The World Bank Group has a range of relevant requirements and guidelines that apply to agro-processing projects outlined in the box below.

**Relevant Requirements and Guidelines by World Bank for Proposed Projects:**

- OP 4.01 Environmental Assessment
  Outlines the general requirements regarding environmental assessment, and defines the possible instruments which include EIA.
- OP 4.04 Natural Habitats
  The Bank is committed to protecting natural habitats and provides for compensatory measures when lending results in adverse impacts. The Bank promotes conservation and management of wetlands (e.g. estuaries, lakes, mangroves, marshes, and swamps).
- OP 4.07, Water Resources Management
- OP 4.11 Cultural property
  Confirms the Bank's commitment to protect archaeological sites, historic monuments, and historic settlements
- OP/BP/GP 4.12 Involuntary Resettlement
  Provides guidance on projects involving involuntary resettlement
- OD 4.20 Indigenous People (to be reissued as OP/BP 4.10)
  Provides specific guidance on addressing the rights of indigenous peoples, including traditional land and water rights
- OP 7.60 Projects in Disputed Areas
  Induced development and other socio-cultural aspects. Secondary growth of settlements and infrastructure often referred to as "induced development" or "boomtown" effects, can have major indirect environmental impacts, which local governments may have difficulty to address.
- International treaties and agreements on the environment, natural resources, and cultural property. The EA should review the status and application of such current and pending treaties and agreements, including their notification requirements.
- Land settlement. Land settlement should generally be carefully reviewed because it can have complex physical, biological, socio-economic, and cultural impacts.
- Natural hazards. The EA should review whether the project may be affected by natural hazards (e.g., earthquakes, floods, volcanic activity) and, if so, should propose specific measures to these concerns (see OP/BP 8.50 Emergency Recovery Assistance).
- Occupational health and safety. All agro-processing projects should include formal plans to promote occupational health and safety (see World Bank's Occupational Health and Safety Guidelines).

# Part 3: EIA PROCESS

### 3.1 EIA Process in Rwanda as Applicable to the Agro-processing Sector

EIA is a systematic step by step process that is initiated by the proponent/developer and it involves many stakeholders whose contributions are vital to cause informed decision on a proposed project. The steps of carrying out EIA are outlined here below and summarized by Figure 2. Annex A and B presents list of projects considered for EIA and composition of EIA team respectively. The relevant components can be applied to policies and projects during the conceptual and design stages, or after completion of policy and/or project formulation and design but before actual implementation. The basic components of EIA process are described as follows:

### 3.2 Project Brief

A developer is required to prepare a project brief which is a description of the project. This is background information on the project for consideration by REMA. The EIA process normally begins once the developer has submitted the project brief to REMA for comments. Suggested format for a Project brief is presented in Appendix I (also see general Guidelines for EIA, REMA 2006).

#### 3.2.1 Specifications in the Brief

Given the cross sectoral nature of Agro-processing Industries, and the overall agriculture sector, the project briefs should provide detailed information regarding the extent of the project in relation to the stages given in the matrix (Figure 1). It should be clear in the brief how the project's agro-processing inputs are relating to the potential indirect agricultural inputs and activities that could contribute or result into wider impacts. In some cases, the EIA studies will need to consider stages before the agro-processing activities i.e. the agricultural production chain or raw material (input) sourcing.

### 3.3 Phase 1: Screening

This is the task of deciding whether or not an EIA is required for a particular project. Basic details of the proposed development will be needed for the project to be screened. Screening results in the categorization of the proposals in three categories:

i. No EIA required (Project Exempted)
ii. Initial Environmental Examination (IEE)required for confirmation if EIA is required or not
iii. Full EIA required

Appendix III presents key steps in screening projects. For agro-processing projects factors like the category of waste, the size of the population to be served by the project or impacted by the project and project location are the critical information required to determine whether

an EIA is necessary. The general Guidelines for EIA in Rwanda (REMA 2006) provide the general criteria for screening. EIA Regulations and General EIA guidelines must have list of projects that EIA is mandatory and those that are exempt. In Rwanda this is provided by the Ministerial Order establishing the list of works, activities and projects that have to undertake Environmental Impact assessment. However every project will have unique associations to require screening. A summary of information on screening is provided in the Table 2.

**Figure 2: Steps in carrying out EIA displayed as a Flow Chart**

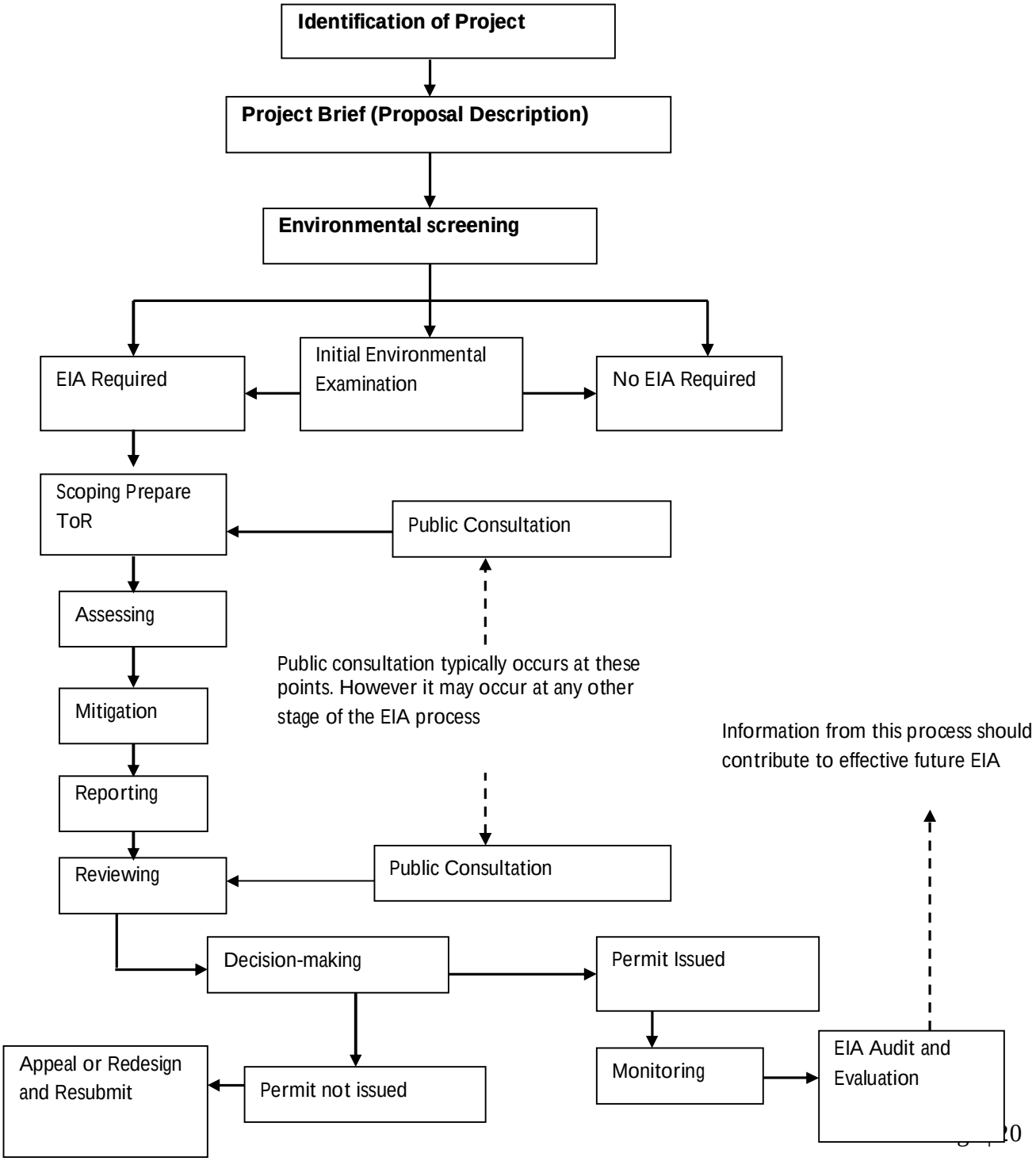


**Table 2: Summary information on screening**

| Screening | Typical proposal that require full-scale EIA | Screening methods | Screening information required by decision-makers | Typical project list categories |
|---|---|---|---|---|
| It is a process for determining whether or not a proposal requires full-scale EIA and the level at which the assessment should occur | • Natural resources exploitation<br>• Infrastructure<br>• Industrial activities<br>• Extractive industries<br>• Waste management and disposal | • IEE<br>• Project lists - inclusive<br>• Exclusive list<br>• Decision-makers' discretion | • Information on the proposal and its potential impacts<br>• Level of confidence of predictions- impacts<br>• Characteristics of the environment and its resilience<br>• Planning, environmental management and decision-making framework<br>• Degree of public interest | • Full-scale EIA required<br>• Some further environmental analysis required<br>• No EIA required |

If a decision is made at screening stage to exempt a project, or to approve its environmental aspects the basis of identified mitigation measures, such a decision shall be contained in a *Certificate of Approval of the Environmental Impact Assessment* issued by the Authority (EIA Unit at RDB).

If, however, after screening, it is determined that the project requires a detailed Environmental Impact Study, such a certificate shall only be issued after approval or disapproval of an Environmental Impact Assessment. See also section 2.1.2 of the General EIA Guidelines for Rwanda that lists the project categories (IL1, IL2 and IL3).

## 3.3 Phase II: Environmental Impact Study

### 3.3.1 Scoping

Scoping, or identification of potential environmental impacts, is an important early stage of the EIA process to ensure that the EIA is properly carried out. For a project to be properly scoped, a site visit and preliminary consultations with relevant regulatory authorities (e.g. REMA, MINIRENA) and lead agencies (e.g. MINAGRI, MINALOC, MINICOM, etc) must be included at the scoping stage. Ideally public consultation should also be carried out the scoping stage. Consultations should involve exchange of information about the characteristics of the proposed project, and assistance to the consultant in identifying regional and local issues and/or sources of information of relevance to the EIA process. From consultations and a preliminary assessment of baseline conditions the consultant must:

i. Identify the characteristics of the proposed development that are likely to give rise to impacts.
ii. Identify what type of impacts that may arise that need to be addressed in the EIA study.
iii. Determine which environmental resources and people in the vicinity of the proposed site are likely to be particularly sensitive to the above impacts, and what categories of impacts are likely to be a problem in this respect.
iv. Suggest delineation of the appropriate boundaries to be considered in the EIA Study.
v. Provide questions about the proposed project which should be answered through the EIA Study.
vi. Give alternatives to the proposed action.
vii. Indicate the full range of stakeholders to be consulted and suggestions for full public involvement in the process.
viii. Identify the full range of stakeholders who may be affected or are interested in the proposed project.
ix. Provide other technical aspects related to the proposed action.
x. Identify other past, or foreseeable future projects in the area that may be impacted upon by, or will impact on the proposed project; and
xi. State how the proposed project conforms to existing laws, policies and regulations.

In case the project characteristics or the boundaries of the proposed site changes, the potential impacts may also change, and the scope of the EIA will need to be reviewed.

There are generally benefits from focusing attention on the key issues of concern. Not all issues identified will have the same degree of relevance for all proposals. The identification and prioritization process should therefore result in:

i. A list of all issues with a preliminary estimate of the relative significance of their impacts.
ii. Identification of the key issues.
iii. An explanation as to why other issues are not considered to be very important in the proposal.

The EIA should address the key issues as fully as practicable. However the level of analysis should reflect the level of significance of the impacts and their importance for the proposal. Lesser attention should be given to those issues which have lesser significance. For significant issues, there should be sufficient analysis to develop a sustainable mitigation strategy for any potential adverse impacts. The consideration of alternatives, particularly alternative sites or schemes, during the scoping stage is often a good idea. The scoping report should indicate why the preferred alternative was chosen on environmental grounds. The main part of the EIA can then concentrate on the preferred option. Alternative processes within the scheme may be dealt with as mitigation measures. An important output of scoping is the Terms of Reference (ToR) for the EIA study. Guidelines for preparation of ToR are in Appendix 4 of the General Guidelines for EIA for Rwanda.

The scoping exercise shall conclude with the identification of the relevant inter-disciplinary expertise necessary to address the identified significant impacts. The names and qualifications of the experts identified to undertake the Environmental Impact Study shall be approved by the Authority. Summary of information on scoping is provided in the Table 3. Annex D presents issues to be considered in the EIA study.

**Table 3: Summary information on scoping**

| Scoping | Purpose of scoping | Steps in scoping process | Who is involved in scoping | Outline of ToR |
|---|---|---|---|---|
| • A process of interaction<br>• Identifies<br>i. Boundaries of EIA study<br>ii. Important issues<br>iii. Information for decision-making<br>iv. What to be considered during EIA<br>• Identifies concerns, evaluates, organizes, presents to assist decision-making | • Consider project alternatives<br>• Inform affected public<br>• Identifies impacts<br>• Understand local values<br>• Evaluated concerns<br>• Define EIA boundary<br>• Determine methodology and consultation procedures<br>• Establish ToR for EIA | • Prepare outline of the EIA scope<br>• Develop the scope through informal discussion<br>• Make the draft scope widely available<br>• Identify issues of concern<br>• Evaluate concerns<br>• Incorporate concerns<br>• Develop strategy for addressing concerns<br>• Provide feedback | • The Proponent<br>• The Authority<br>• Lead Agencies<br>• Environmental Practitioners, Experts, consultants<br>• Those affected by the project<br>• The wider community | • Background to the proposal<br>• Context of the issues<br>• Alternatives<br>• Institutions and public involvement<br>• Required information<br>• Analysis of impacts<br>• Mitigation and monitoring<br>• Conclusions and recommendations<br>• Requirements for managing the EIA |

### 3.3.2 Baseline Environmental Conditions of the proposed Project

Based on the information from the scoping exercise as contained in the Terms of Reference, an Environmental Impact Study shall be conducted and an Environmental Impact Statement (EIS) prepared.

Existing data should be collated as the first step in collection of baseline information. It can then be reviewed for its relevance to the proposed site, its being current or not, and used as a basis for determining what survey work may be needed. Original site surveys are almost always bound to be required for most categories of effect, such as air quality, odours and noise; socio-economic situation; water quality and aquatic biology; terrestrial ecology; landscape. In most cases published information usually does not exist at a suitable scale, or is not generally applicable to the development in question. Original surveys should be conducted initially at a general level to identify whether more detailed survey will be required.

Where baseline data is to be collected first hand, careful consideration must be given to the design of the survey and sampling programme. Data collection must focus on the key issues needing to be examined for the EIA (identified during the Scoping process), and should be collected at the appropriate time(s) of year taking into consideration seasonal climatic variables. Consideration of likely monitoring requirements should be borne in mind during survey planning, so that the data collected is suitable for use as a baseline to monitor impacts or success/failure of mitigation measures in the future.

The need for long-term sampling should also be assessed as early as possible. This will maximize the time available for this to be carried out. Data should be collected over a sufficiently wide area to make sure that any effects likely to be caused by the development can be assessed. The area involved will not only vary for different proposals, but for the same proposal, will vary for each specialist type of data collected. For example, effects on watercourses (e.g. rivers) should be assessed as far up and downstream as necessary to assess and monitor beneficial or deleterious changes in water quality or aquatic biota. The distances involved will depend on the characteristics of any existing waste dumping, landfills or discharge close to the watercourse(s) in question, and on the location and characteristics of other discharges affecting the watercourse(s).

### 3.3.3 Prediction of Impacts

Impact prediction must encompass the whole waste management cycle from waste generation, temporary storage, transport, landfill (construction and operation) for solid wastes and for wastewaters both construction and operation of the wastewater works. Impacts should be quantified wherever possible, or fully described if not quantifiable. The following regarding impacts should be considered:

i. Nature ( positive, negative, indirect, direct) of impact;
ii. Magnitude of impact;
iii. Duration (short term, long term, intermittent, continuous) of impact;
iv. Extent and location (area/volume covered, where impact occurs)of impact;
v. Whether impacts are reversible or permanent;
vi. Timing (during construction, operation, immediate, delayed, decommissioning) of impact;
vii. Likelihood (risk, uncertainty or confidence in prediction) of impact;
viii. Significance (local, regional, global) of impact

Impacts on the following specific aspects of the physical, socio-cultural and biological environment must be assessed:

i. Water quality (surface and groundwater pollution);
ii. Air quality (odour, dust, aerosols, CFCs, GHGs);
iii. Social, economic and cultural environment;
iv. Waste management (pre project waste management activities e.g. the Kigali solid waste dump site);
v. Flora and fauna;
vi. Transport and access;
vii. Hydrology and groundwater;
viii. Visual environment, aesthetics and landscape;
ix. Risk and hazards (accidents; contamination; infections such as hepatitis, cholera; other health issues, etc).

Impacts of the scheme as proposed should be clearly identified, so that if for any reason mitigation is not implemented, the consequences will be clearly identified in the EIA. The impacts and the assigned mitigation measures must be presented clearly for easy understanding and adoption of the mitigation measures.

### 3.3.4 Evaluation

Criteria for evaluation of impacts must be stated. Where possible, legislative standards or international standards should be followed (e.g. discharge standards, waste management regulations, etc). If no suitable standards exist, descriptive criteria may be used, but must be fully explained. Evaluation of significance of impacts should take account of the magnitude, duration and extent of impact, and whether the impact is temporary or permanent. All predictions of impacts have an element of uncertainty associated with them. The consultant should identify and, where possible, quantify the level of uncertainty associated with these predictions. Some indication of probability of occurrence of impacts should also be included.

### 3.3.5 Mitigation

Mitigation strategies must be considered both in relation to individual impacts and collectively for all impacts. Many mitigation measures can be incorporated into the early design stages of the project by regular communication between the consultant and developer or designer of the project. Reporting of mitigation should include such specific features which have been incorporated during the EIA process into the planning and design of the proposed development. Where mitigation has not already been incorporated into the design or siting of the proposed project during the EIA process, or specific commitment to mitigation measures from the developer has not been obtained, mitigation measures should be included as recommendations, and should be clearly identified as such.

Mitigation must cover all the phases of the project (construction, operation/implementation and decommissioning). The whole waste management chain from generation, removal, transportation and final disposal must comply with the national legal instruments. In cases where licenses or permits are required they must be obtained before implementation of the project. For solid wastes recommendations for monitoring impacts in the form of an environmental management plan (EMP) should be included.

### 3.3.6 EIA Report

Details of EIA report reparation is provided in Part 3 of these guidelines, where all the sections of the report are discussed to help on the report preparation. See also Annex S.

## 3.4 Review

Review of the EIA Report /Environmental Impact Statement (EIS) is normally done by the authority (REMA), a government lead agency or an independent panel of reviewers. In this review, the level of address of the Terms of Reference set out for the study shall be considered. The Lead Agency, stakeholder and public comments shall be taken into account in making a decision by the Authority to approve or disapprove the EIS. Based on the contents of the EIS, and taking into account the Lead Agency review findings and the stakeholder and public comments on the EIS, the Authority shall, undertake to approve or disapprove the environmental aspects of the project, or part thereof, and issue a Certificate of Approval of the Environmental Impact Assessment. The Authority may also issue such approval subject to such conditions it deems necessary.

After approval or disapproval of the environmental aspects of the EIS by the Authority, the Lead Agency decision makers and licensing authorities, will be the taken appropriate action to approve or deny the project based on all of its merits (environmental, social, economic, political or other factors) and a Record of Decision shall be prepared. After reaching a decision on the proposed action, if it is approved, the developer will be licensed or permitted to implement the project in accordance with the mitigation measures stipulated in the Environmental Impact Statement and any other terms and conditions attached to the approval. If it is denied, the developer may, if such denial is based on environmental considerations that can further be improved, be urged to revise the proposed action to eliminate adverse impacts. The developer may appeal against the decision. In case a proponent is not satisfied with the decision on the EIA, he may lodge an appeal.

## 3.5 Monitoring and Audits

Monitoring is normally adopted as a mechanism to check that any conditions imposed on the project is being enforced or checks the quality of the affected environment. Audits are a periodic assessment to test the accuracy of impact predictions and check on environmental management practices for compliance with statutory requirements.

## 3.6 Public Consultation

Involvement of the public or stakeholders in the EIA process is widely recognized as a fundamental element of the process. Timely, well planned and well implemented public involvement in the EIA process contributes to successful design, implementation, operation and management of projects. The typical ‘Public’ consulted during EIA are stakeholders such as:

i. Local people/community (e.g. community close to the project site)
ii. Proponent and beneficiaries
iii. Government lead agencies (e.g. Local Government, Town/Municipal Councils, etc)
iv. NGOs and CBOs
v. Others such as development partners (Donors), academics, research institutions, the private sector

### 3.7 Decommissioning or Relocation

For various reasons a project may be decommissioned. The decommissioning may have impacts on the environment that have to be understood in order to put in place adequate mitigation measures. The impact may be caused by items such as written off equipment, chemicals, physical structures, etc of the project if they are just abandoned on site without proper management. An environmental assessment of the decommissioning or relocation process will provide adequate mitigation measures.

# Part 4: Agriculture & Environment

### 4.1 Understanding Production Processes of Agro-processing Projects

a) Alcoholic Beverages Manufacturing – Breweries

An alcoholic beverage is a drink containing ethanol. Ethanol is a psychoactive drug, a depressant, and many societies regulate or restrict its sale and consumption. Alcoholic beverages include:

- Mead - fermented honey and water, sugar in honey is too concentrated for yeasts to grow so it must be diluted. Mead is made now by boiling diluted honey and adding nitrogen containing compounds, then yeast culture. Fermentation process takes 6-8 weeks.
- Wine - Yeasts are present on fruit skins so fermentation can occur naturally.
- Beers - High quality beer has three basic ingredients: barley malt, hops, and water. Adjuncts are used extensively in cheap beers.
- Sake - "rice wine" - Conversion of rice starch to sugar is done by Aspergillus (bread mold). Yeast are then added for fermentation, final alcohol concentration is 19% and is fortified to 20-22%.
- Chicha - corn beer made from chewed corn.
- Distillation - Whiskeys (distilled from "beers" and aged - Scotch, Bourbon, Rye); Cognacs and brandies (distilled from wines); Grain alcohol is 95% = 190 proof; Gin and vodka (ethanol + water, gin is flavoured) and Rum (fermented molasses or sugarcane juice)

Brewing is the production of alcoholic beverages and alcohol fuel through fermentation. This is the method used in beer production. The grain used as the raw material is usually barley, but rye, maize, rice and oatmeal are also employed. In the first stage the grain is malted, either by causing it to germinate or by artificial means. This converts the carbohydrates to dextrin and maltose, and these sugars are then extracted from the grain by soaking in a mash tun (vat or cask) and then agitating in a lauter tun. The resulting liquor, known as sweet wort, is then boiled in a copper vessel with hops, which give a bitter flavour and helps to preserve the beer. The hops are then separated from the wort and it is passed through chillers into fermenting vessels where the yeast is added-a process known as pitching-and the main process of converting sugar into alcohol is carried out. The beer is then chilled to centrifuged and filtered to clarify it; it is then ready for dispatch by keg, bottle, aluminium can or bulk transport.

Beer Production Processes include: Mashing, Lautering, Boiling and Hopping, Hop Separation and Cooling, Fermentation, Filtration, and Packaging.

b) Sugar Cane and Sugar Beet Processing

The sugar industry processes sugar cane and sugar beet to manufacture edible sugar. More than 60% of the world's sugar production is from sugar cane; the balance is from sugar beet. Sugar manufacturing is a highly seasonal industry, with season lengths of about 6 to 18 weeks for beets and 20 to 32 weeks for cane. Approximately 10% of the sugar cane can be processed to commercial sugar, using approximately 20 cubic meters of water per metric ton (m3/t) of cane processed. Sugar cane contains 70% water; 14% fiber; 13.3% saccharose (about 10 to 15%

sucrose), and 2.7% soluble impurities. Sugar canes are generally washed, after which juice is extracted from them. The juice is clarified to remove mud, evaporated to prepare syrup, crystallized to separate out the liquor, and centrifuged to separate molasses from the crystals. Sugar crystals are then dried and may be further refined before bagging for shipment.

For processing sugar beet (water, 75%; sugar, 17%), only the washing, preparation, and extraction processes are different. After washing, the beet is sliced, and the slices are drawn into a slowly rotating diffuser where a counter current flow of water is used to remove sugar from the beet slices. Approximately 15 cubic meters ($m^3$) of water and 28 kilowatt-hours (kWh) of energy are consumed per metric ton of beet processed.

Sugar refining involves removal of impurities and decolorization. The steps generally followed include affination (mingling and centrifugation), melting, clarification, decolorization, evaporation, crystallization, and finishing. Decolorization methods use granular activated carbon, powdered activated carbon, ion exchange resins, and other materials.

c) Processing of cereals

The hammer mill has revolutionised cereal processing into flour in both rural and urban areas. The technology can be easily combined with a dehuller to produce pearl flour preferred by most urban dwellers or to enhance palatability of small grains widely produced in the semi-arid areas of the country. The introduction of dehullers has been largely perceived as one intervention that can alleviate the drudgery women undergo when processing small grains using the traditional pestle and mortar to remove the bran followed by grinding on a stone mill to produce the flour.

d) Oil seed processing

Oil expression has mainly been from sunflower seed using manual ram presses at the lowest level or motorised systems at the medium-scale level. Sunflower is a drought-tolerant, low management crop, which can be grown by many rural households to supply rural entrepreneurs. Another oilseed whose production is expanding rapidly despite the droughts is soyabean. The crop is high in protein and can be processed into numerous products which can significantly improve the livelihoods of rural people. Some examples include manufacture of soya mince meat, oil, soya milk, soya yoghurt, baby feeds, stock feeds etc. However for the oil extraction process, chemical methods are usually more efficient

e) Processing of root and tuber crops

Appropriate processing systems at small-scale level have not yet been fully developed. There are various options of washing, peeling, slicing, drying and grinding the dried sweet potato chips. There are, however still a number of questions regarding these processing techniques. Previous researchers have noted a lack of information on sweet potato flour quality. The quality of flour is a function of the variety of the raw material used and processing system employed. Sweet potatoes can be processed into jam. Other by-products that can be derived from sweet potatoes include juice, ketchup and fresh chips. Commercial processing of sweet potatoes into baking flour can stimulate production of the crop, increase incomes, improve food and nutritional security, and create employment opportunities, thereby helping to alleviate poverty in rural areas. In the long term, this might also be a strategic intervention at national level in that the much-needed foreign currency required to import supplementary wheat could be reduced. It can also increase rural incomes through marketing of the raw material when the processing enterprise creates a local demand for the sweet potatoes. The introduction of sweet potato flour

may enhance accessibility of the rural poor to bread, many of whom can no longer afford the wheat-based bread.

f) Peanut butter processing

Processing of groundnuts into peanut butter is a very important household activity in the rural areas of Rwanda. Peanut butter is used as a spread on bread, as an ingredient in soups or eaten as a snack and is an essential source of protein and fats in the diet of most Rwandan families. There is no need to add preservatives because heat produced during processing, destroys enzymes and microbial contaminants, and because of its relatively low moisture content, recontamination is inhibited. The traditional processing method of first pounding roasted nuts with a pestle and mortar then fine grinding on a stone mill is characterised by high labour input, low throughput and is often viewed as unhygienic. The problems associated with food quality, safety and hygiene limit the appeal of traditionally processed peanut butter particularly to the formal markets; hence reducing the income realised by processors. As the product is often not re-heated before consumption and since it is a low-acid product, strict hygiene rules for safe food handling should be observed. The new systems have tremendously increased the levels of production and quality of peanut butter by small and medium-scale entrepreneurs, even in urban areas. The groundnuts should be completely and uniformly roasted before grinding to produce a good quality peanut butter. Under-roasting produces a poor flavour, whereas over-roasting results in a darkened product and burnt flavour. The degree of grinding and size of the particles of the product depends on consumer preferences and a smooth paste has a higher market value.

g) Fruit and vegetable drying

Fruits and vegetables play an important role in providing the body with essential vitamins and minerals which when deficient, can cause malnutrition. A wide variety of vegetables and fruits are processed into dried products and the majority of vegetables processed are indigenous varieties. Preservation relies on the removal of moisture by drying. An acid dip sulphur dioxide may also be used to reduce the number of contaminating micro-organisms. Dried products are obtained from apple, mango, guava, banana, paw-paw, tomatoes, onions, cabbages, rape, *covo*, cowpea leaves, pumpkin leaves, mustard leaves and okra. It is more common to find dried vegetables rather than fruits on the vendors market. For a significant number of processors, processing is a traditional activity adopted to enhance household food security during the agricultural off-season when access to fresh produce is limited. Most of the existing fruit and vegetable processors are informal in nature and range in size from small to medium. There is however, potential to create viable business ventures in fruit and vegetable processing as long as appropriate processing equipment, processing skills, packaging material, and marketing information are made available.

h) Juice extraction

There is little processing of fruits at small or medium-scale level and farmers are losing out as they often sell their fresh fruits within a few weeks of harvesting at give-away prices. Small-scale fruit and vegetable processing has potential to provide improved returns to horticultural producers as long as appropriate processing equipment, processing skills, packaging materials and marketing information are made available. Pulps/juices can be made from almost any fully ripened fruit, but common types include apple, pineapple, orange, grapefruit, passion-fruit, guava and mango. The pulping, filtering and pasteurising stages of the process should be monitored and controlled to produce a consistent product quality. As the product is acidic there

is little risk of food poisoning, but normal hygiene practices should be enforced. Currently juice extraction is being done by large companies such as Inyange Industries.

i) Feed processing

Equipment for livestock feed manufacturing at medium-scale level is widely available. The addition of a mixer and a bag stitcher/sewing machine to an ordinary grinding mill is all that is required. However, there is lack of information on feed ingredients and limited flexibility in substitutes of raw material. Dried sweet potato chips can be used as a partial substitute for maize in manufacturing of broiler chicken feed.

j) Processing of animal products

Meat, fish and dairy products are highly perishable and have a high risk of food poisoning as they are low acid foods that can support the growth of a wide range of bacteria. Processing of these products should be done quickly and properly and should not be carried out by inexperienced people, and training to deal with the risks associated with these products should be given.

*Dairy Products*
Milk is always in high demand because of its nutritional value and pleasant flavour. It is used for domestic consumption, for use with other products like tea and porridge and can be processed into butter, cheese and yoghurt. Inyange Industries is the major company that is involved in milk processing. The company invested heavily in capital equipment like chillers, storage tanks, pasteuriser, line separators, homogenisers, sterilizers, and packaging equipment. Milk products include ice-cream, yoghurt, sour milk (lacto) and pasteurised and sterilised milk. The few small and medium-scale processors who are based on farms mainly produce pasteurised milk and sour milk because these products require relatively less sophisticated capital equipment.

*Meat Products*
The meat is stored in cold storage rooms or refrigerators and the meat is sliced using electric blades just before sale. Where electricity is accessible storage of the meat is done in refrigerators/freezers. Those without access to electricity preserve the meat by sun-drying.

*Fish Products*
Fish is an important source of protein and minerals. The main source of fisheries of Rwanda is Lake Kivu. Fish is preserved by treating it with salt and laying it on raised platforms under the sun for 2 – 10 days. The dried fish is then packed in polythene bags. The key challenge in fish processing is to reduce the drying time by developing appropriate hybrid driers. Prolonged drying periods often promote the rotting of fish hence wastage and can cause food poisoning.

## 4.2 Environmental Impacts and Mitigation Measures

### 4.2.1 The Agro-processing Industry Generally

It is important to take note that the agro-industry will probably increase the demand for certain commodities, or alternatively push towards different forms of land use and farming, the following environmental impacts in the area of agricultural production should be noted in the EIA process for agro processing, but the extent of their consideration should be defined at the project brief and guidance from REMA:

Problems relating to the direct expansion and intensification of resource usage include impairment of soil fertility, problems of soil losses and sedimentation, problems of desertification and irrigation problems (soil and water salination, fluctuating water table and water pollution), which in turn reduce resource productivity. The problems of fertility losses, desertification, and salination are generally greatest in countries where the population pressure on land is greatest. Here, agriculture expands most markedly in peripheral areas and marginal resources are utilised intensively.

The most successful efforts lie in the promotion of soil-conservation measures: reducing the intensification of soil usage, and introducing programmes for minimum or soil-conservation farming (contour line farming, terrace farming, strip farming, extension of dry and green fallow land), programmes to control flooding and wind erosion and programmes for the improvement of crop rotation. What needs to be examined is the extent to which these measures should be implemented as an alternative or in addition to the establishment of agro-industrial production operations.

The economic and social parameters in place and those sought are decisive factors in the agro-ndustrial sector generally. The maintenance and promotion of subsistence production and agro-industrial activities without restricting subsistence are major axioms in this respect. Commodity processing gives rise to environmental impacts on the atmosphere (odours and dust emissions), water (quantity and wastewater), primary energy sources (mainly timber) and the soil. The following comments are confined to certain branches which have been in the greatest demand in recent years.

### 4.2.2 Impacts of Selected Agro-processing Industries

*a) Sugar beet and sugar cane processing*

The essential environmentally relevant aspect of beet and cane processing is the energy required for the concentration of the sugar solution. While this requirement can be met in cane processing by burning bagasse, energy consumption in sugar beet processing must be optimised and, if necessary, alternative energy sources must be identified. Mention should also be made of organically polluted wastewater from purification and condensate.

The main air emissions from sugar processing and refining result primarily from the combustion of bagasse (the fiber residue of sugar cane) and fuel oil, or coal. Other air emission sources include juice fermentation units, evaporators, and sulfitation units. Approximately 5.5 kilograms of fly ash per metric ton (kg/t) of cane processed (or 4,500 mg/$m^3$ of fly ash) are present in the flue gases from the combustion of bagasse. Sugar manufacturing effluents typically have biochemical oxygen demand (BOD) of 1,700–6,600 milligrams per liter (mg/l) in untreated effluent from cane processing and 4,000–7,000 mg/l from beet processing; chemical oxygen demand (COD) of 2,300–8,000 mg/l from cane processing and up to 10,000 mg/l from beet processing; total suspended solids of up to 5,000 mg/l; and high ammonium content. The wastewater may contain pathogens from contaminated materials or production processes. A sugar mill often generates odor and dust, which need to be controlled. Most of the solid wastes can be processed into other products and by-products. In some cases, pesticides may be present in the sugar cane rinse liquids.

*b) Pollution Sources from Brewery Operations*

The primary sources of pollution from the Beer operation are residue, chemicals and water use. Wastewater discharges are of most concern from an environmental perspective. Factory waste streams and pollutant discharges are briefly characterized in the following sections.

i. Solid Waste

- Residue is a type of waste called 'draft' which is a residual substance from the beer production process. Approximately 500 tonnes/month of draft is currently generated. If this residue is not treated or disposed of, it can become a source of odors. Consequently, the draft is collected daily and removed from the factory site. Since draft can be used as animal feed, Beer has no problem disposing of this production by-product which provides a substantial secondary income.
- Glass (broken bottles) creates a solid waste problem because about 0.9-1% of bottles used in the factory are broken during the bottling process.
- Sludge from the wastewater treatment process constitutes a large volume of the solid waste generated by the factory. After de-watering, the sludge can be collected and transported to bio-fertilizer plants.

ii. Air Pollution

Air pollution from plant originates mainly from chemical evaporation, primarily NaOH used in the bottle washing process. Other source of air pollution is emissions from the factory's oil burning boilers. Although both the chemical and boiler emissions are released untreated to the atmosphere, the impact on air is considered negligible and is considered unlikely to affect either the health of factory workers or local area residents.

iii. Wastewater

Wastewater is generated during all stages of beer production at the factory. The highest wastewater volumes are generated during:

- Bottle washing
- Spills during bottling
- Floor washing
- Process discharges and tank washing including the cooker, mash tub, and kettle
- Sanitary wastewater

The primary contaminants in the factory's combined wastewater are yeast and worth. Other common contaminants are:

- NaOH used for bottle washing
- $H_3PO_4$ used for washing beer tanks
- OXONIA, or acetic acid, used for killing germs at all stages of production
- Hypochlorit 60% $CL_2$ used for killing germs in raw water
- Chemicals used for washing floors, such as VIXON
- Oil and grease used for machinery maintenance

The Beer factory produces s substantial volume of wastewater – approximately 700 - 1,000 $m^3$/day. If the factory had no treatment facility, wastewater discharge would constitute a serious

environmental problem given the factory's close proximity to local communities and the agricultural activities adjacent to the factory site. To address concerns raised by both factory workers and area residents regarding potential environmental and social impacts, the factory owners and management committed to investing in the construction of modern wastewater treatment systems in accordance with RBS Standards for Rwanda. Treated wastewater is currently discharged to Lake Kivu without treatment (from the Bralirwa factory for example).

*c) Mills handling cereal crops*

Only dry milling is carried out in such plants, thus account must be taken of noise and dust emissions which affect not only the specific operational area but also the area surrounding the mill. Suitable countermeasures are technical installations (extraction, soundproofing) and individual measures (breathing apparatus, hearing protection), priority being given to the first group, since the use of individual safety equipment requires explanatory and supervisory measures. Surface water quality is impaired in cases where streams and rivers are used for waste disposal, for example. Further usage or controlled dumping is suitable countermeasures.

*d) Processing of starch sources and root crops*

If the biologically polluted wastewater from washing and processing is discharged into surface water untreated, the result can be over fertilization, reduction in the oxygen content and therefore a general impairment of water quality, changes in the micro flora and fauna and, in the medium term, disruption of water biotopes. Appropriate minimum measures are mechanical separators and aeration ponds in which the biological oxygen demand is reduced to an acceptable level. Since a reduction in the biological pollution of wastewater is associated with improved yield, optimised process technology can also be an economically beneficial environmental measure. Finally, highly polluted wastewater which can normally be avoided where a process is appropriately optimised, can be used as a substrate for biogas production.

*e) Processing of oil-bearing seeds and fruits*

In small and medium-sized works, only pressing processes are used for oil extraction, with solvent extraction reserved for large plants. Oil-bearing fruits are heated directly or with steam or hot water to improve yields. This produces steam emissions and oil laden wastewater. Wood is often used for energy production, and this can lead to over-use of tree stocks. Because steam emissions affect mainly operating personnel extraction should take place at the point of production. Once again, process optimisation, the use of better separators and treatment in aeration ponds should be used to reduce wastewater pollution. Consumption of wood or other commercial fuels can be reduced by incinerating the waste produced in the processing operations and also by optimizing energy circuits and consumption in the processing plant.

f) *Fruit and vegetable processing*

Biologically polluted washing water and the energy requirement for thermal preservation processes are of environmental relevance in this area, and the same comments as in the previous sections apply. Solar driers can also be used, thereby reducing the energy required for the production of top quality dried products quite considerably.

*g) Dairies*

As milk and dairy products are ideal breeding grounds for microorganisms, hygiene requirements are relatively stringent, a factor which prompts the use of aggressive cleaning agents. If they are discharged at certain concentrations, the quality of surface water is impaired and micro flora and fauna are affected. Countermeasures are the sparing use of biodegradable cleaning agents and dilution in tanks. Mention should also be made of percolating milk in rinsing and washing water as a source of organic pollution.

*h) Processing of semi-luxury goods and spices*

The operations having the greatest environmental relevance in the production of semi-luxury goods and spices are fermentation and waste disposal. Fermentation is generally carried out in fixed locations, and the pollutants thereby produced can accumulate in the soil over long periods, damaging micro flora and fauna. The washing operations sometimes carried out after fermentation (e.g. coffee) give rise to biologically polluted wastewater which, if discharged untreated, can impair surface water quality. The impacts of this are restricted to harvest time, and are then found over longer intervals. Fermentation should be carried out in the immediate vicinity of an abundant supply of running water at appropriately prepared places (cement bases). The heavily polluted wastewater produced must either be suitably diluted before discharge or used for biogas production. As washing water is not generally so heavily polluted, special measures (aeration ponds) are only required in exceptional cases. Spices are often irradiated as a method of preservation, although the consequences of irradiation on human health are as yet unknown.

*i) Plant fibre extraction*

In many countries, microbiological retting is practically the only method of plant fibre production in use. It involves the degradation of non-fibrous components by a microbiological process and is carried out by immersing the raw material either in a slow flow of water or in specially prepared tanks, whereupon the retting is spontaneously initiated. Since this process and the subsequent fibre washing require large quantities of water, these installations are always built close to abundant supplies of running water. In these circumstances, the water exchange required once the retting process is complete is no problem (except perhaps for any dissolving pesticides used during farming). The retting process is associated with a certain odour nuisance which cannot be avoided at reasonable cost. The only remedy is not to site these plants close to residential areas and to take account of prevailing wind directions. Because fibre production is a low-input technology in every respect, negative environmental effects can only be avoided by selecting a suitable site and making use of what nature has provided.

## 4.3 Socio-economic Impacts

The overwhelming majority of jobs in the agro-industry call for little in the way of qualifications and most workers are women. However, as mechanisation and machine-based jobs increase, the proportion of male workers rises - as do monotony and isolation of the individual working processes, and the risk of accidents. The extent to which the employment of women leads to changes in their own food production needs to be examined. The jobs are of poor quality in ergonomic terms, and nuisances in the form of dust, damp, smells and noise may attain levels which can affect the health of employees, constituting a considerable risk to women in particular. Because different types of jobs are done by the two sexes, qualification and training programmes must be established at an early stage, with the emphasis on female employment.

These programmes should take account of the overall form of production and lifestyle of female employees and their families.

### 4.4 Other Potential Impacts

The agro-processing industries generally produce wastes (some more than others) that are disposed of in the form of effluent discharges, air emissions or solid wastes. Effluents flow into surface watercourses and seep into groundwater; emission gases are released into the atmosphere; and solid wastes are disposed of in municipal and unorganized dumps. These wastes could include a wide range of gaseous, solid and liquid compounds ranging from water vapour to highly toxic materials and they pose a threat to groundwater supplies, air quality, aquatic ecosystems, and ultimately to human health.

When considering EIAs under agro processing projects, it is important to note that the Impacts might be beyond the direct impacts of the processing itself i.e impacts related to other activities that might be triggered by the processing industries, for example expansion of existing agro processing or the establishment of new ones, there could be losses of biodiversity and impacts on biophysical resources including forest cover losses and soil erosion as a result of increased agriculture to meet the new increased production capacity. In such a situation, these issues come under different regulations and it will be important that these regulations are applied/be observed if impacts of the overall process are to be minimized or avoided. Specifically, these guidelines are to be used hand in hand with the sector EIA Guidelines for Abbatoirs and Agro-processing. Table 4 summarizes the potential impacts from key agro-processing activities.

**Table 4: Potential Impacts of Agro-processing Activities**

| Processing Type | Impacts During Operation |
|---|---|
| Abattoir | Carcass Waste; Meal For Feed (Bce); Odours; Manure; Water Consumption For Cleaning; Disinfectants; Worker Safety; |
| Meat Packing | Soldering Cans (Lead); Metal Waste; Emissions; Contamination; Worker Safety; Noise; Water Consumption And Disinfectants |
| Vegetable Processing And Canning | Effluent Into Surface Water Systems; Soldering Cans; Metal Waste; Emissions; Noise; Worker Safety; Contamination; Water For Washing And Disinfectants |
| Tanning | Effluent (Chemicals From Tanning ) Into Surface Water Systems; Waste; Odour; Health And Safety |
| Dairy Processing | Effluents (Acid); Emissions, Freon |
| Frozen Food Production | Freon, Importing Of Raw Material (Pest Introduction); Worker Safety |
| Cotton Ginning | Noise; Dust Inside And Outside; Energy Consumption For Creating Hot Air And Steam For Adding Humidity To The Cotton; Safety And Health |
| Oil Processing (Including Maize) | Heat; Water |
| Flour Milling | Dust; Noise; Safety And Health |

### 4.5 Potential Cumulative Impacts

Assuming that all the proposed mitigation is carried out on a proposed project, there will still be residual effects, that when considered in total, could have an overall significant effect on the environment. The major environmental concerns are water pollution and land degradation.

Cumulative effect of agro-processing are mainly related to the obvious nature of industrial activity where many of the agro-processing activities clearly result in impacts, particularly with effluent discharges and air emissions. However, the effect is subtler in the latter. At an individual agro industry level, the impact might be minimal or insignificant, but if it happen that a large number of agro-processing industries are in the same area, or are impacting one receiving environment e.g. particularly within the same watershed, the cumulative effect of all of the small (negligible) effects could be significant.

Cumulative effect is important in temporal terms as well. For instance, a small loan for pesticide purchase in itself has little negative impact, and in fact, has much the opposite with an increased production and return to the farmer. However, the same loan for the same purpose provided for a number of years could result in a detrimental build-up of pesticide in the soil. Over time the cumulative effect could be very significant.

With industries, the environmental concerns usually focus on air emissions and effluent discharge. Although each activity may create emissions well within the established national standards, cumulatively, all of the industries in one region (e.g. in a small closed valley with poor air circulation) could significantly contribute to the deterioration of overall air quality, resulting in an impact on human health. Similarly, the impact on water quality of a common river used by several processing plants could be significant.

In a comprehensive examination of cumulative effects, analysis should be made of all of the other various activities occurring that have an impact on the environment i.e. in assessing cumulative impacts under EIA for agro-processing industries, other activities that could contribute to the same impacts should be considered as well.

**Mitigation**

**Specific design criteria will be met prior to clearance of the agro-processing industries by REMA/RDB. Operational criteria should be met and operations monitored to ensure that impacts do not occur beyond acceptable levels (e.g. within national standards for effluent discharges and air emissions). Water and air should be monitored by REMA (with assistance from RBS) against national water and air quality standards. However, monitoring should be conducted on a regular basis by the developer to ensure that these environmental components (water and air) are protected.**

### 4.6 Potential Residual Impacts

Residual impacts are those impacts that will remain following mitigation (e.g. effluent discharges from a processing industry, but which meet national standards). Assuming that mitigation is carried out, residual effects could still be significant, particularly when considering the cumulative effect. A summary of residual effects is provided in Tables 5. Assuming that all mitigation is adhered to, the residual effects will be minimal.

**Table 5: Summary of Probable Residual Effects**

| Agro-Processing Type | Probable Residual Effects | Significance |
|---|---|---|
| Abattoir | Effluent Discharge; Solid Wastes; Air Emissions (Refrigerants) | Low – Medium |
| Meat Packing | None | None |
| Vegetable Processing And Canning | Effluent Discharge; Solid Waste | Low |
| Tanning | Effluent Discharge; Solid Waste | Low - Medium |
| Dairy Processing | Effluent Discharge; Air Emissions (Refrigerants) | Low - Medium |
| Frozen Food Production | Effluent Discharge; Air Emissions (Refrigerants) | Low – Medium |
| Cotton Ginnery | Air Emissions | None-Low |
| Oil Processing (Including Maize) | Effluent Discharge; Solid Waste | Low |
| Flour Mills | Solid Waste; Dust | None-Low |
| Warehousing | None | None |
| Marketing | None | None |

## 4.7 Environmental Risk

Overall, the environmental risk is high because effective enforcement of the law is questionable. Risks for those activities that would lead to impacts which can be governed by specific pieces of legal instrumentation would vary depending upon the effectiveness of environmental inspections and the willingness of entrepreneurs (agro-processing) to invest in equipment and processes that will mitigate environmental problems. Risks for which there is no effective legal instrument would vary, depending upon the nature and level of impact, and the cost of mitigation. Generally, however, where mitigation is costly or technically challenging, environmental risk will be high. That is, the actual impacts will be much closer to the identified potential impacts than to the residual impacts determined if all mitigation were to be carried out. Of particular concern would be for those activities resulting in water and air pollution.

## 4.8 Analysis and Evaluation of Environmental Impacts

The environmental impacts in the agro-industry can be assessed in terms of space, time and in relation to various resources and employees. In the agro-processing sector assessments should be based directly or indirectly on the following test criteria:

- Impacts on employees in the factory
- Impacts on people living near the factory
- Environmental changes due to the emissions from the factory
- Environmental changes caused indirectly by the factory (e.g. change in the quantity of water or extra energy required).

Short, medium and long-term impacts and likewise direct and indirect impacts must be considered in the light of these test criteria. The evaluation involves comparing the project with other possible projects, and also considers the economic, ecological and social costs involved. The evaluation of effects on health faces the problem of the frequent lack of national limits or recommended values for individual substances, and this is further complicated where a number of substances are emitted at the same time, thereby increasing their impact due to synergistic effects. One initial approach to this problem area may be provided by publications of international organisations such as the World Health Organisation (WHO) (see in this regard Volume III, Compendium of Environmental Standards.

### 4.9 Interaction with other Sectors

There are close links with the plant and animal production sector which supplies the raw materials, and with the marketing sector, not forgetting the metal and mechanical engineering industries which manufacture the processing equipment, and the packaging materials industry. Other factors in the equation are veterinary services, livestock farming, irrigation and health and nutrition. Projects in the field of the economy and also infrastructural measures, particularly in the rural hydraulic engineering sector, are significant issues in the assessment of agro-industrial projects, while cross-sectoral concepts of general resource management, location planning and regional planning must not be forgotten.

### 4.10 Summary of Assessment of Environmental Relevance

Agro-processing industries often serve as pilot projects for more general industrialization, and must therefore be examined very closely in terms of their direct and indirect impacts on the food supply and economic prospects of the country concerned, its general environmental conditions and the lives of its female population in particular. Agro-processing industries are extremely important to a country's independent development and this is closely allied to general subsistence production. Direct environmental pollution from small and medium sized Agro-processing industries on an individual level is relatively slight in the short-term, but the more general effects can be quite considerable. One exception to this is Agro-processing because of the chemicals used -which are problematic in environmental terms - and the odour nuisance. All factories which use water as the extraction, cleaning and transport medium produce wastewater which is biologically polluted to varying degrees, and this generally requires treatment in aeration ponds or treatment plants. Noise and dust emissions are normally restricted in terms of the area affected, and therefore affect primarily the employees themselves.

Table 6 below presents a summary of Potential Impacts, Causes, Consequences, Mitigation requirements & some remarks.

**Table 6: Summary of Potential Impacts, Causes, Consequences & Mitigation**

| **Planning and Construction of new industries, Rehabilitation of industries and De-commissioning** | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| **Planning Phase:** | | | | |
| Loss of biodiversity | Poor location analysis not taking into account important biophysical values. | Loss of flora and fauna. | Location in areas that are not high priority for biodiversity protection. | |
| Loss of cultural features | Poor location analysis not providing consideration to cultural values. | Loss of important cultural sites and structures. | Location in areas of little or no cultural significance. | Public participation is a requirement for all EIAs and if properly conducted during EIA will ensure input required to select appropriate alternative sites. |
| Socially unacceptable | Poor location analysis not taking into consideration local communities' lifestyle, movement patterns and values. | Nuisance factor to local communities; loss of peace and quietness; loss of access to other areas or sites (e.g. school children may have to walk greater distances due to loss of direct route to school. | Location in areas where noise, odour or aesthetics will not be a problem; location to be selected which doesn't interfere with important access (e.g. to schools). | Public participation is a requirement for all EIAs and if properly conducted during EIA will ensure input required to select appropriate alternative sites (and *modus operandi*) for industries. |
| **Construction Phase :** | | | | |
| Soil erosion | Vegetation and topsoil is removed for initial construction and access, exposing bare soil that is vulnerable to erosion, particularly in rainy periods. | Further soil erosion off-site and downstream; increased sediment loads in receiving streams resulting in aquatic habitat changes. | Ensure awareness by workers; adopt appropriate soil protection techniques; ensure exposed soil surfaces are kept to a minimum and for short periods of time; conserve topsoil, recover and replant when construction is completed. | If possible construction should occur in dry periods or seasons, particularly in situations where soil erosion could be a problem. |
| Soil contamination | Spilled and dumped fuels, and other chemicals.<br>Ineffective on-site sewage treatment during construction phase. | Loss of soil productivity.<br>Contaminated groundwater. | Environmental awareness; training in handling and storage of fuels, lubricants and chemicals; provision of proper on-site storage facilities. | |
| Water pollution | Spilled and dumped fuels and other chemicals. | Contaminated groundwater and surface water resulting in contaminated drinking water and in | Same as above.<br>Provision of waste containing toilets which waste can be transferred to a | |

| | | | | |
|---|---|---|---|---|
| | | the case of surface water damaged aquatic ecosystem. | municipal treatment facility. | |
| Noise and dust | Vehicles and construction machinery; dirt access roads. | Nuisance factor to neighbouring communities. | Operations during normal working hours only; access roads to be watered during dry periods. | |
| Solid waste | Littering of unused construction materials and workers personal garbage. | Unsightly and remnant construction materials could pose a safety hazard. | Effective disposal of materials and garbage in designated waste disposal sites. | |
| Loss of access | Construction site may have formerly been used as an access for local population (and vehicles) for various sections of the community. | Nuisance and possibly economic hardship. | During planning phase ensure that local people are aware of restrictions during construction and alternative arrangements for access are provided. | Public participation during planning phase should identify this and similar conflicts. |
| Injuries | Inadequate safety procedures for workers; inadequate signage and construction activities exposed where public can interface with such. | Injury / death resulting in lost work days (for construction workers and general public; lost income. | Ensure construction workers are given safety instruction; ensure safety officers on site; ensure effective signage for the public and ensure that all exposed construction areas are barricaded from public access. | |
| **Decommissioning Phase:** (it is unlikely that any of the industries will undergo decommissioning in a 25-50 period from initial start up or refurbishment but if such should occur then the listed impacts should be considered). | | | | |
| Same as above for construction plus: | See above | See above | See above | |

| | | | | |
|---|---|---|---|---|
| Waste | Concrete, blocks, steel, glass will result from demolition; old equipment will be dismantled. | Public safety hazard.<br>Waste of resources. | Removal and recycling or effective disposal of all toxic materials; complete demolition after recycling useful materials; removal to a designated and environmentally safe disposal site and burial of clean and inert materials. | |
| Aesthetics | | Unsightly site (as are many industrial sites from former Soviet times). | Following removal of all materials (see above), site to be formed (top soiled where relevant and feasible) and landscaped, where appropriate, to suit surrounding areas. | |
| Soil erosion | As for construction phase above. | | | |
| Safety | As for construction phase above. | | | |

**Abattoir**

| Potential Impacts | Cause | Consequences | Mitigation Required | Remarks |
|---|---|---|---|---|
| Contaminated meat | Poor sanitary conditions including lack of protective clothing and ineffective maintenance; processing of sick and diseased animals. | Consumers become ill; lost work days; lost productivity and income; abattoir's reputation leads to lost business. | Provision of protective clothing; effective use of disinfectants; effective sanitary inspections leading to required standards being met; effective regulatory animal and meat inspection. | |
| Contaminated groundwater and surface water | Improper disposal of animal manure and offal as well as bones and other non-useable animal parts including blood. | Contaminated drinking (E. coli) water resulting in illness (possibly death), lost productivity and income. | Ground waste bone, meat and offal into flour for animal feed (see remarks); blood can be used for blood sausage; other water and blood waste must be collected and treated before proper disposal into municipal waste treatment systems; manure should be recycled or allowed to mature in an impervious containment – mature manure can be applied as fertilizer for crop production or on pastures. | Current ban on using such flour as animal feed in other countries due to threat of spongiform encephalitis (BCE-mad cow disease) which can result in deadly Jacob Kreifeldt disease in humans for those consuming meat of infected animals. |
| Odour | Manure; refrigerants (NH3); animals and carcasses. | Nuisance to nearby residents. | Avoid escaping NH3; maintain good sanitary conditions; dispose of manure in a timely fashion. | |
| Ozone depletion | Refrigeration and freezing units utilizing Freon or ammonia. | Increase in UV rays resulting in skin cancer if proper protection is not taken; can also affect plant health. | Convert refrigerants from ozone depleting substances (NH3 and chlorofluorocarbons) to a hydrofluorocarbon. | Rwanda is signatory to the Vienna Convention and the Montreal Protocol re: ozone-depleting substances. |
| Groundwater depletion | Large volumes of water used in washing. | Lowering of water table and depletion of water resources required by others. | Water apportioning; efficient use of water including recycling. | Of particular concern when planning a new abattoir that water resources are sufficient to meet needs of present and future users. |
| Injuries | Knives and saws used in the processing; large and heavy animal carcasses can fall and cause injury. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats). | |

| Meat Packing (This activity is often combined with the abattoir) | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Contaminated meat | Poor sanitary conditions including lack of protective clothing and ineffective maintenance; processing of contaminated meat from abattoir. | Consumers become ill; lost work days; lost productivity and income;<br>Meat packing enterprise loses reputation resulting in lost sales, lost revenue and loss of job. | Provision of protective clothing; effective use of disinfectants; effective sanitary inspections leading to required standards being met; effective regulatory animal and meat inspection; assurance that carcasses and meat joints delivered are free of contamination and have been refrigerated adequately. | |
| Contaminated groundwater and surface water | Improper disposal of bones and fat. | Illness | Ground waste bone and fat into flour for animal feed (see remarks). | Current ban on using such flour as animal feed in other countries and other places due to threat of spongiform encephalitis (BCE-mad cow disease) which can result in deadly Jacob Kreifeldt disease in humans for those consuming meat of infected animals. |
| Disease | Improper disposal of wastes into municipal disposal sites providing ideal habitat for vermin. | Lost workdays and income. | Appropriate disposal of waste. | |
| Illness | Canning uses lead solder for can seams. | Lead (Pb), a carcinogen, is cumulative in humans. | Use tin (Sn) for soldering or adopt other appropriate sealing methods. | |
| Solid waste | Canning material scrap. | Wasted resource. | Recycle back to processor. | |

| Vegetable Processing and Canning | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Damage to aquatic ecosystems. | Residue from vegetable and fruits allowed to be dumped into surface waters. | High organic content leading to oxygen depletion and habitat destruction. | Compost vegetative waste. | |
| Illness | Canning uses lead solder for can seams. | Lead (Pb), a carcinogen, is cumulative in humans. | Use tin (Sn) for soldering or adopt other appropriate sealing methods. | |
| Solid waste | Canning material scrap. | Wasted resource. | Recycle metal back to metal processor. | |
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |

| Dairy Processing | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Surface water contamination | Effluent discharge containing whey (waste from cheese making); discharge of acid from milk processing as a result of cleaning of equipment. | Waterways become opaque and display high protein levels resulting in damaged or destroyed aquatic ecosystem. | Effective collection and treatment of whey before discharge; make available all whey to farmers for feedstock. | |
| Ozone depletion | Refrigeration and freezing units utilizing Freon or ammonia. | Increase in UV rays resulting in skin cancer if proper protection is not taken; can also affect plant health. | Convert refrigerants from ozone depleting substances (NH3 and chlorofluorocarbons) to a hydrofluorocarbon. | |
| Food contamination | Pasteurization process not effective; workers in contact with milk and milk products. | Consumers become ill (could be very serious as milk could come from cows with brucilosis or tuberculosis); workers could infect milk products during handling. | Origin of milk should be known; pasteurization process must be effective; workers must be protected with effective clothing and workers should not come in direct contact with milk products; veterinary diligence to ensure healthy animals. | |

| | | | | |
|---|---|---|---|---|
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |

| **Frozen Food Production** | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Ozone depletion | Refrigeration and freezing units utilizing Freon / or ammonia. | Increase in UV rays resulting in skin cancer if proper protection is not taken; can also affect plant health. | Convert refrigerants from ozone depleting substances ($NH_3$ and chlorofluorocarbons) to a hydrofluorocarbon. | |
| Food contamination | Poor sanitary conditions including lack of protective clothing and ineffective maintenance; contaminated raw materials. | Consumers become ill; lost work days; lost productivity and income; enterprise's reputation leads to lost business. | Provision of protective clothing; proper washing up with disinfectants; effective sanitary inspections leading to required standards being met; effective inspection of raw materials. | |
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |

| **Cotton Ginning** | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |
| Illness | Cotton fibre dust. | Respiratory problems resulting in lost productivity, work days and income. | Provide workers with respirators. | |
| Solid waste | Short fibres (motes) that is not useful for spinning. | Waste disposal required. | Use as cattle feed. | |

| Oil Processing (including maize) | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Polluted surface water | Biomass waste allowed to migrate to surface waters. | Degraded aquatic ecosystem. | Effective disposal of biomass waste (composting or use as animal feed). | |
| Solid waste | Biomass waste. | | Compost or use as animal feed. | |
| Illness | Cold pressed oil contains high amounts of fatty acids and pesticide residues. | Serious illness resulting in lost productivity, work days and income. | Use alternative pressing process. | |
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |

| Flour Milling | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Solid waste | Wheat husks left from milling dumped at municipal disposal site. | Wasted resources. | Recover bran; use for animal feed. | |
| Injuries | Open machinery. | Lost productivity, work days and income. | Safety instructions; safety clothing where appropriate (e.g. hard hats); protective guards on all machinery. | |
| Illness | Flour dust. | Respiratory irritation. | Provide masks to workers. | |

| Storage (warehousing) | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Only those during siting, construction and decommissioning phases. | | | | |

| Markets | | | | |
|---|---|---|---|---|
| **Potential Impacts** | **Causes** | **Consequences** | **Mitigation Required** | **Remarks** |
| Illness | Vermin (rats).<br>Unrefrigerated meat and dairy products. | Spreading of disease resulting in lost workdays, sales and income.<br>Lost workdays and income. | Regular inspection of markets and extermination of vermin; maintenance of high sanitary standards.<br>Refrigeration of meat and dairy products. | |
| Ozone depletion | Refrigeration and freezing units utilizing Freon / or ammonia. | Increase in UV rays resulting in skin cancer if proper protection is not taken; can also affect plant health. | Convert refrigerants from ozone depleting substances ($NH_3$ and chlorofluorocarbons) to a hydrofluorocarbon. | |

# Part 5: Guidelines Use by REMA/RDB

## 5.1 Introduction

The REMA is the authority for the Agro-processing sector in Rwanda. It is mandated to promote the development, strategically manage and safeguard the national and sustainable exploitation and utilization of Agro-processing resources for social-economic development in the country. REMA is also charged with the role of inspecting, regulating, monitoring and evaluating activities of private companies engaged in the Agro-processing sector so that the resources are developed, exploited and used in a rational and sustainable manner. Further, REMA provides policy guidance on all issues relating to the development, exploitation and management of Agro-processing resources. Annex K presents an Environmental Criteria for Locating the Project.

## 5.2 The Role of REMA in the EIA Process

This chapter describes the role of REMA in case a private developer has to carry out an EIA for an Agro-processing project. On the other hand, if REMA is the developer, the Guidelines for Developers in Part 7 apply for REMA, and REMA cannot consult the ministry for review purposes.

## 5.3 Environmental Screening of Projects

The developer prepares the project brief and provides ten (10) copies to the RDB EIA Unit. If RDB deems the project brief to be complete, one copy is forwarded to REMA. The content of a well-written project brief is given in Annex C.

Screening of Agro-processing projects is conducted following the steps described in Part 3. The detailed checklist used for screening can be found in Annex G. Project developers are, however, advised that in addition to the screening procedures given above, all projects can be assessed according to their specific design and environmental components that are likely to be affected. For example, a project located in or near a fragile or sensitive ecological system can have potential for significant environmental impacts due to location rather than scale.

**Timeframe for screening**

**RDB in consultation with REMA shall decide on the project within two weeks after submission of the project brief by the developer irrespective of whether:**

- **A conditional or unconditional approval for the project shall be granted.**
- **A further assessment of environmental impact shall be required.**

**The developer and other interested/concerned parties shall be notified of the decision taken, and such a decision shall be contained in a Certificate of Approval of the EIA issued by RDB. If further assessment is required, ToR can be developed for the purpose of conducting the EIStudy.**

## 5.4 Environmental Impact Review

If an Environmental Impact Review (EIR) is required, the Developer prepares an EIR report which is submitted to RDB. REMA and RDB can rely on their expertise and the checklists provided in Annex F to assess the nature and level of likely environmental impacts.

Depending on their assessment, the project can be approved or it may be decided that a detailed EIA is necessary. If the screening exercise determines that the project has significant environmental impacts and identifies appropriate mitigation measures, REMA shall recommend that the developer make necessary changes to eliminate the potential significant impacts. If the developer makes a commitment to fulfill the RDB conditions to eliminate or reduce the effects of potential significant impacts, the project shall be approved and RDB issues a Certificate of Approval of EIA. On the other hand, if potential significant impacts cannot be eliminated easily the project shall not be approved; the screening decision can require that the project be subjected to a detailed EIStudy.

### 5.5 Scoping Report & ToR for the EIStudy

The developer in consultation with REMA, RDB and other key stakeholders shall undertake to prepare the ToR for EIStudy. For this purpose, all relevant documents should be made available to the stakeholders. Details of the content of the ToR are presented in Appendix 4 of the General EIA Guidelines for Rwanda, 2006. The scoping report including the ToR shall be reviewed by RDB with the aid of the scoping checklist given in Annex H.

### 5.6 Review of Environmental Impact Statements

The developer submits ten (10) copies of the EIS to RDB. RDB in consultation with REMA reviews the EIS to determine if it is complete and whether it addresses the potential significant environmental impacts as identified during scoping and as stipulated in the ToR for the study. RDB shall circulate the EIS to other stakeholders and interested parties for review and comments. RDB in close consultation with REMA shall hold a public hearing to review the EIS.

#### 5.6.1 Review Parameters

The main objective of the review exercise is to critically examine whether the EIS adequately addresses the significant environmental issues identified during scoping and in the ToR for the EIStudy; whether the results and findings presented are scientifically and technically sound and coherent enough to be understood by decision makers and the public in general, and whether reasonable alternatives have been suggested to the proposed action.

#### 5.6.2 Procedure for Review

- Does the work done comply with the ToR?
- Is the presentation consistent? Are there no contradictions of facts and issues in the document?
- Does the project location conform to the existing laws and policies?
- Did the study team adequately involve the local communities and the general public during the study period?
- Did the study team follow the Agro-processing sector EIA guidelines, and other EIA guidelines and regulations?

#### 5.6.3 Impacts Assessment and Evaluation

- The EIS addresses the potential significant impacts identified during scoping.
- Categorizing the different impacts into direct or indirect impacts.
- Determining the impacts that are more sensitive.
- Identifying impacts that need a compensation plan.
- Identify long and short-term impacts.
- Comparing the proposed project impacts with best alternative option projects.
- Risk analysis adequately done.

### 5.6.4 Mitigation Measures

- Existence of a list of mitigation measures.
- Validity and adequacy of the proposed mitigation measures.
- Impacts that cannot be avoided have been identified and accordingly addressed.
- A compensation plan has been drawn for unavoidable impacts that cannot be mitigated.
- Mitigation and support measures are technically and scientifically sound.
- Mitigation measures were drawn in close consultation with the public and local communities.

### 5.6.5 Implementation and Monitoring of Projects

- A good analysis of the institutional, financial and personnel resources to operationalise the mitigation plan.
- The schedule of the mitigation plan is achievable.
- Are the standards set in the mitigation plan achievable and meaningful?
- A study specified the institution(s) responsible for the monitoring and evaluation of this phase.

For a detailed review checklist, refer to Annex L.

REMA shall finally conduct an independent assessment of the EIS to determine its adequacy in informing a correct decision to be taken on the environmental aspects of the project. REMA shall in turn forward the comments on the EIS to RDB so as to guide the latter in taking a final decision on the project.

## 5.7 REMA's Role in Monitoring

REMA shall monitor compliance and implementation of activities to ensure that the design criteria, mitigation measures and monitoring requirements are implemented.

# Part 6: Guidelines for Use by Project Developers

## 6.1 Introduction

Developers of Agro-processing projects can be private investors, NGOs or REMA. Developers ought to understand their EIA obligations right from the planning and design stages, and the associated screening activities by the time they submit a project brief or the EIS to REMA. The EIA should be part and parcel of the project owner's planning cycle. Figure 4 presents the ideal linkage between the project cycle and the EIA process.

## 6.2 Application of the EIA as part of the Project Cycle

The EIA shall be conducted as an integral part of the overall project cycle from project identification to pre-feasibility study, feasibility study, project design and other phases, and shall therefore form the basis for environmentally sound project implementation and monitoring. The EIA conducted at the early planning stage can serve as a tool that assists and guides developers through providing environmental information and raising environmental concerns at key stages in the project cycle leading to projects designed with in-built mitigation measures. Design proposals with potentially adverse environmental impacts can therefore be mitigated while those found to be incapable of mitigation could be changed appropriately. The EIA applied at this critical stage permits early indication of practical design changes aimed at either avoiding or minimizing identified negative environmental impacts or enhanced environmental benefits.

Figure 4 below presents an EIA process vis-a-vis a typical Agro-processing project cycle

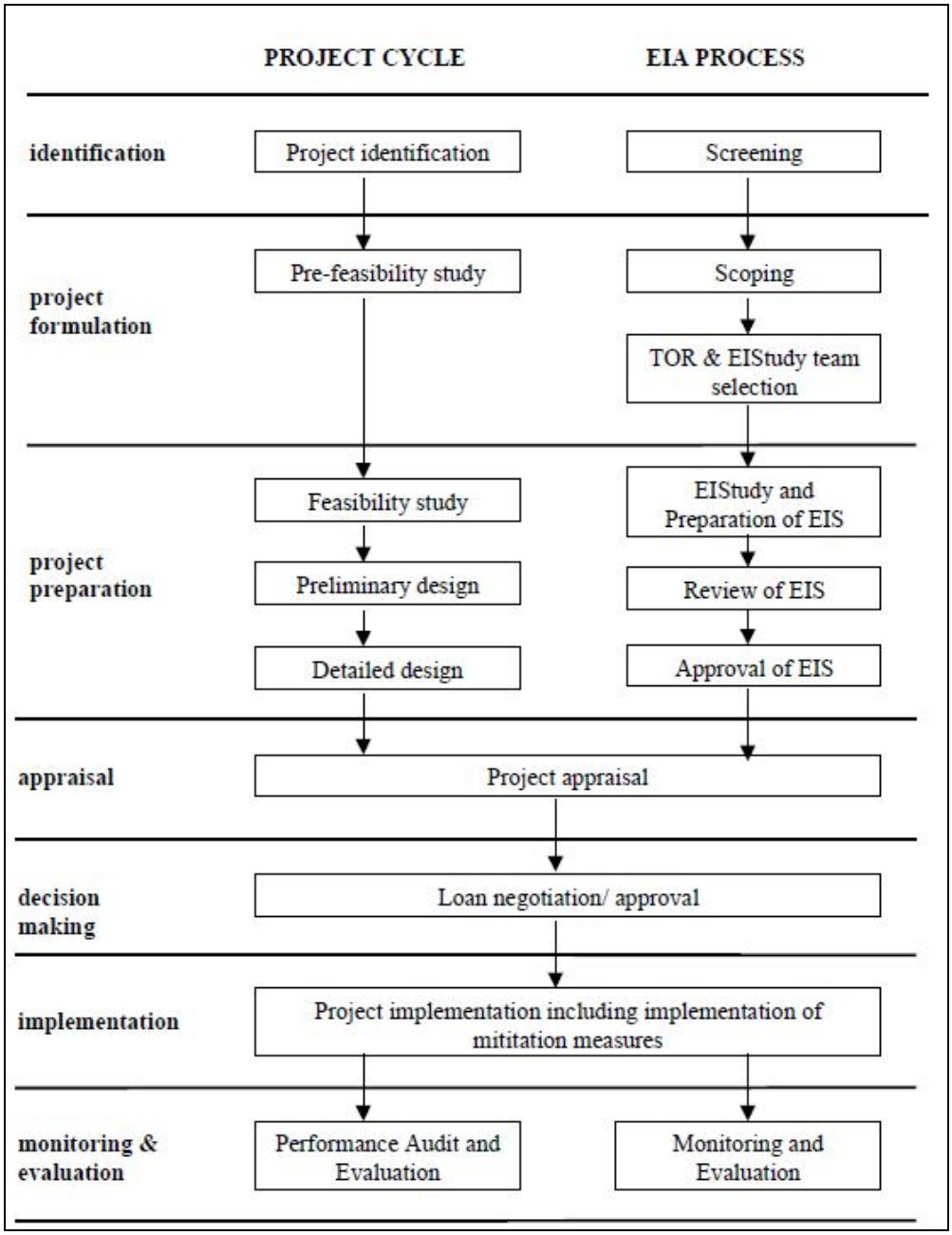



**Figure 3: EIA and typical Agro-processing project cycle**

Source: Adapted from *Seminar on Environmental Assessment Procedures between the Republic of Uganda and the World Bank*, Final Report, 1998.

## 6.3 The Role of the Developer in the EIA Process

The Developer is responsible for undertaking an EIA, and shall meet all the costs associated with it. Such costs shall include, among others, cost for conducting the EIStudy, preparation, production and distribution of EIS for comment and review by agencies, interested parties and other stakeholders. The developer must ensure that the EIA is carried out before projects can be licensed or approved by the responsible Agencies. All financing institutions such as World Bank and other donors also demand this requirement.

## 6.4 Steps a Developer takes to conduct EIA

The developer is expected to go through the following steps from the design stage to the time their project is issued a Certificate of Approval:

*Step 1: Initial Screening*

Developers need to undertake their own screening to identify environmental issues of major concern at an early stage of the project. For screening Agro-processing projects, the following questions can offer guidance to the developer:

*Nature of project:*

- Can the project cause significant environmental impact?
- Can the project lead to increased or decreased discharge of fossil carbon dioxide, methane or other greenhouse gases?

*Siting of the project:*

- Is the project located within or near environmentally sensitive areas such as sources of public water supply, areas of unique historic, cultural, archaeological, scientific or geological interest and ecologically fragile ecosystems such as wetlands?

*Natural resources affected:*

- Can the proposed project result in direct or indirect negative or positive impacts to the natural resources in the surroundings?
- Can the project develop systems, which permit sludge nutritive salts, building waste, excavated materials or other waste products to be taken care of or brought back into ecocycles?
- Can the project improve or impair the living conditions of the settled population or nomadic groups?

The detailed screening checklist given under Annex G could also be useful for initial screening of projects by developers.

*Step 2: Assessment of project alternatives*

At this early project stage, a thorough assessment of all the possible project alternatives should be conducted with a view to determining the most optimal in terms of environmental and social considerations. This assessment should begin early in the planning process before the siting, type and scale of an Agro-processing project is decided upon.

For an Agro-processing project, the following alternatives should be considered:

- Site / location alternatives
- Project scale or size alternatives
- Source of Agro-processing alternatives
- Construction, operation, decommissioning design alternatives
- 'No-project' alternative

*Step 3: Project planning and designing*

Once the developer has identified the potentially environmental impacts; he can identify appropriate mitigation measures which can be incorporated into the project design. This can

minimize time and costs associated with conducting EIAs, and in any case EIA must be considered as part and parcel of the planning and design for all Agro-processing projects. Good practice demands that costs for mitigation are incorporated in the total project budget.

*Step 4: Preparation and submission of the project brief*

The developer prepares a project brief which he submits to REMA. The purpose of the brief is to provide sufficient and relevant information on the proposed project that can allow REMA and REMA to establish whether or not the project is likely to have significant impact on the environment and determine the level of EIA required. If adequate mitigation measures are identified in the project brief, this may eliminate the need for further assessment and the project may be approved, subject to any other conditions that may be set to ensure implementation of the proposed mitigation plan. The detailed content of the project brief is given in Annex S. The developer is required to submit ten copies of the project brief to RDB, which in turn sends a copy to REMA.

*Step 5: Screening of projects*

After submitting a project brief to RDB, it is screened by RDB in consultation with REMA. The screening process is aimed at the following:

- Identification of major environmental issues at a very early stage.
- Better utilization of financial and human resources by focusing on major environmental issues of the project.

After screening, RDB is in position to determine whether a detailed EIStudy is required, or an EIR is necessary or the project is exempted.

*Step 6: Environmental Impact Review*

The objective of an EIR is to determine the environmental impacts an Agro-processing project may have, and to define adequate mitigation measures for the significant impacts. The findings of the EIR are presented in the EIR report. This report should be brief and precise i.e. between 5-30 pages.

**The EIR report should contain the following but not limited to:**

- **Background and objectives of the project proposal**
- **Description of the project and the project components**
- **Description of the affected environment**
- **A list of the potential significant environment impacts of the project**
- **Identification of adequate mitigation measures to address the environmental impacts**
- **A list of agencies, organizations and individuals consulted.**
- **A list of the technical team that conducted the EIR**

Depending on the decision taken on the EIR by RDB, the project can be subjected to an EIStudy or a Certificate of Approval can be issued.

*Step 7: Scoping*

Scoping is then conducted to determine the most critical issues that need to be addressed during the EIStudy. The developer in consultation with REMA, RDB and other interested parties undertakes scoping. Good practice demands that there should be full participation of

the public during scoping. A checklist and basic information needed for scoping are given in Annex E and H respectively.

*Step 8: Preparation of the TOR and Conducting an EIStudy.*

The ToR for the EIStudy are developed basing on the scoping results. The developer in close consultation with REMA, REMA and other key stakeholders shall prepare the ToR for the study. The scoping results including the ToR shall be submitted to RDB in order for it to determine their completeness and adequacy. A general outline for the ToR is given in Annex R. At this point, the developer needs to source and hire experienced experts to undertake the different tasks specified in the ToR. Most likely this support is already acquired during earlier stages of the EIA process.

*Step 9: Hold meeting with Practitioner*

*Step 10: Submission of the EIS to REMA*

The outcome of the EIStudy is an EIS. Upon completion of the study, the developer shall submit ten (10) copies of the EIS to RDB. RDB can in turn send copies to REMA and other key stakeholders for review and comments. The EIS shall be a public document, which can be made available to any person requesting for it. The details of the content of an EIS are presented in Annex S. Any comments made shall be forwarded to RDB so that these shall be taken into consideration in approving or disapproving the contents of the EIS. A Certificate of Approval of the EIS shall be issued by RDB to the developer and shall indicate whether or not the environmental aspects of the EIS have been approved. The developer shall then present this certificate to REMA or any other licensing authorities that shall take appropriate decision on the project.

### 6.5 Developer's Role in Monitoring

The developer of a Agro-processing project, that has obtained its Certificate of Approval on the basis of proposed mitigation measures, shall ensure that the mitigation measures and actions proposed to protect the environment are adopted and implemented. The developer shall conduct self-monitoring, self record-keeping and self reporting. The information gathered through monitoring shall be stored and made available during inspection. The developer shall also undertake all reasonable measures to mitigate undesirable environmental impacts not contemplated in the EIS and shall accordingly report on these measures to REMA and RDB. Annex L gives a list of monitoring requirements.

# Part 7: EIA Guidelines for Practitioners

## 7.1 Introduction

In these guidelines, an EIA practitioner refers either to a team of individual consultants assembled for the purpose of conducting an EIA or a firm of consulting specialists contracted to carry out the feasibility study and detailed engineering designs for a proposed project, and to also plan and conduct the EIA for the project. EIA practitioners play a key role in the EIA process.

**Roles and responsibilities of Practitioners include:**

- Conducting an EIR
- Conducting and managing an EIA for a proposed project
- Conducting the EIStudy
- Communicating and reporting on the findings of the EIStudy, also known as preparation of the EIS

This section is aimed at guiding practitioners on procedures and steps for conducting EIA, the EIStudy and preparing EIS for Agro-processing projects. After screening an Agro-processing project, RDB in consultation with REMA might decide that the project can lead to significant impacts on the environment. The developer can then be required to conduct an EIStudy.

**An EIStudy comprises of the following steps:**

- Scoping
- Preparation of ToR for EIStudy
- EIStudy
- Preparation of EIS

## 7.2 Scoping of Projects

### 7.2.1 Collection of Baseline Data for Scoping

The project brief contains a good deal of baseline data about a given Agro-processing project. However, more often than not, it does not provide all the required information. The information gaps should be identified and more information collected to facilitate the identification of impacts. A checklist of information required for scoping is given in Annex H.

### 7.2.2 Scoping of Projects

Roles and responsibilities of Practitioners include:

- Conducting an EIR
- Conducting and managing an EIA for a proposed project
- Conducting the EIStudy
- Communicating and reporting on the findings of the EIStudy, also known as preparation of the EIS

### 7.2.3 An EIStudy comprises of the following steps

- Scoping
- Preparation of ToR for EIStudy
- EIStudy
- Preparation of EIS

The scoping exercise is aimed at identifying all the key and significant impacts and issues pertaining to a development project. It is vital for defining the focus and scope of the EIStudy.

**Scoping is undertaken in order to:**

- Specify which issues and impacts the EIStudy shall focus on and the methodologies to be used.
- Formulate project alternatives to be assessed during the study.
- Identify stakeholders and the methodology for their participation in the EIA process.
- Determine the type and quality of information and data required for the study.
- Determine the type of specialists to constitute the study team.

Scoping of Agro-processing projects must involve the local community, independent experts, NGOs, Government Departments and International partners in development. Extensive consultations have to be made especially for big hydro projects so that they are accepted both locally and internationally. The scoping team should visit the project site to acquaint themselves with, and obtain first hand information on the local environment at the location of the project. Reference should also be made to the chapters on Potential Impacts and Mitigation Measures for Agro-processing Projects, Guidelines for Mitigation of Social Impacts, Public Consultation and Resettlement and Compensation as these sections tackle various aspects of scoping. The main output of the scoping exercise is to define the ToR of the EIStudy.

## 7.3 Preparation of the ToR for the EIStudy

The ToR for the EIStudy is developed basing on the scoping results. This should be done in consultation with REMA, RDB and other key stakeholders. The scoping results including the ToR shall be submitted to RDB which can review the scoping report and ToR with a view to ensuring their completeness and adequacy. The technical team to undertake the EIStudy is identified and their names and qualifications forwarded to REMA for approval.

## 7.4 Environmental Impact Study

The detailed content of the EIS and the procedures in conducting the EIStudy and preparing the EIS can vary from project to project. The major tasks of the EIStudy are self-reviewing of the EIS, the review checklist in Annex F is recommended.

### 7.4.1 Environmental Baseline Study

This involves the collection of relevant data and information on physical, ecological, economic, socio-cultural and demographic conditions in the project area. These data form the basis for determining the existing environment and the expected changes on the environment by implementing the project. The project brief and the baseline data for scoping might contain useful baseline data about a given Agro-processing project. However, most Agro-processing projects are relatively complex and the information available from the project brief and the scoping exercise might not be adequate. The practitioner should be

able to identify any information gaps, and plan to collect more relevant data. Some of the required data might already be available in the research, academic and government departments respectively. Wealth of information does exist in District Environment profile reports, the census and other reports, and in several government departments such as Meteorology, Forestry, Water Development and others. The collected data should be comprehensive enough to address the specific issues identified in the EIStudy.

### 7.4.2 Description and Quantification of Impacts

The identification of most of the significant impacts, both positive and negative is usually accomplished during the scoping exercise. More in-depth studies may be required to identify other impacts. After the identification of all the possible significant impacts, an attempt should be made to describe the precise nature of the impact on its receiving environment.

The significance of impacts has to be judged upon its magnitude, extent, severity, duration and likelihood. Quantitative assessment methods may be useful in comparing different impacts. Impacts can be described as follows:

- Direct or indirect impacts
- Temporary or permanent impacts
- Reversible or irreversible impacts
- Short term or long term impacts
- Simple or complex impacts
- Primary or secondary impacts
- Local or regional or global impacts
- Cumulative or non-cumulative impacts
- Continuous or intermittent impacts

The quantification of significant impacts can be based on the use of various indicators and weighing the impacts against threshold values, where these exist. Such threshold values may be in form of standards for various environmental parameters to be assessed during the study. Where environmental standards do exist, the environmental parameters under investigation should be compared with the national standards to determine their acceptability and conformity with the regulations.

It is worth noting that environmental standards developed by RBS for Rwanda are still voluntary standards. It is, therefore, desirable that the importance or significance of such impacts is based on sound and scientific principles i.e. RBS standards, WHO and FAO Guidelines.

### 7.4.3 Environmental Economic Analysis

Whenever possible, environmental economic analyses should be made as part of EIAs. This is important for several reasons. An economic analysis and a valuation in monetary terms of the environmental impacts and of the proposals for necessary measures make it possible to integrate the conclusions of the EIA into the economic and financial analysis of the project assessment. It is then possible to weigh up the project's costs and benefits and the advantages and disadvantages of different possible alternatives and scenarios. Environmental economic analysis can also be used to find the most effective instruments to solve environmental problems that may arise as a result of the project. An environmental economic analysis should be included in the EIA if the cost of making this analysis is reasonable, and if it is not too difficult or time-consuming. If a socio-economic analysis is made of the project proposal, the environmental impact should always be included in it.

### 7.4.4 Project Alternatives

The EIStudy must include a thorough assessment of all the possible project alternatives with a view to determining the most optimal in terms of environmental and social considerations. This assessment should begin early in the planning process before the siting, type and scale of a Agro-processing project is decided upon. For an Agro-processing project, the following alternatives should be considered:

- Site / location alternatives
- Project scale or size alternatives
- Source of Agro-processing alternatives
- Construction, operation, decommissioning design alternatives
- 'No-project' alternative

### 7.4.5 Impact Mitigation

One of the main objectives of EIA is to predict and prevent unacceptable adverse environmental effects through recommending the implementation of appropriate project modifications or actions that reduce, avoid or offset the potential adverse consequences of a project. Impact mitigation can only be possible when the full extent of the anticipated environmental and social problems is understood. Impact mitigation therefore has to affect the sources of impacts. Common sources include location: construction practices; operation and implementation of projects; maintenance; and cumulative impacts.

Mitigation should not be treated as an isolated activity but rather as being inherent in all aspects of the EIA process right from the project design stage. The prescribed mitigation measures should be discussed preferably in each topic section of the EIS (e.g. soil, air quality, hydrology, cultural heritage, etc.). The successful implementation of the prescribed mitigation measures is a good indication of the success of the project as a whole. This demands that mitigation costs are integrated in the contract dossier and bills of quantities as distinctive cost items so that both the contractor and the developer cannot overlook them.

### 7.4.6 Monitoring Program

Identifying impacts and related mitigation measures without ensuring their compliance makes little sense. Therefore a detailed monitoring and evaluation program has to be part of the EIS. It shall contain a schedule for inspecting and reporting upon the implementation of the project and associated mitigation measures. The monitoring programme shall also identify the key indicators of environmental and social impact and their respective threshold level above which the impact is significant. The program shall provide a schedule for monitoring each indicator and for reporting the monitoring results to REMA and RDB. A list of monitoring requirements is given in Annex J and L.

## 7.5 Preparation of EIS

After conducting the EIStudy, the findings have to be presented in an EIS. The necessary content of an EIS is given in Annex S.

**The EIS shall provide a description of the following as required by the EIA regulations:**

- The project and of the activities it is likely to generate.
- The proposed site and reasons for rejecting alternative sites.
- A description of the potentially affected environment including specific information necessary for identifying and assessing the environmental effects of the project.

- The material inputs into the project and their potential environmental effects.
- An economic analysis of the project.
- The products and by-products of the project.
- The environmental effects of the project including the direct, indirect, cumulative, short-term and long-term effects and possible alternatives.
- The measures proposed for eliminating, minimizing or mitigating adverse impacts.
- An identification of gaps in knowledge and uncertainties, which were encountered in compiling the required information.
- An indication of whether the environment of any other state is likely to be affected and available alternatives and mitigating measures

# Part 8: Guidelines for Mitigation of Social Impacts

## 8.1 Introduction

An EIA must also address the human or social environment, which includes the social and socio-economic impacts due to the implementation of a Agro-processing project. One of the main objectives of social-EIAs is to predict and prevent or moderate unacceptable adverse social effects on the proposed actions or projects. This is done through involving the community and all other stakeholders so that changes can be recommended at the planning, design and implementation stages. In accordance with the General Guidelines and Procedure for EIA for Rwanda, a social impact analysis should be carried out at every stage of the project cycle.

## 8.2 Project Planning

At the planning and design stage of all Agro-processing projects, it must be ensured in the design that people are an integral part of the environment and are going to be active participants in the overall project environment. The following guidelines can apply:

- The developer can identify the social impacts;
- The developer can focus on preventing social impacts;
- During the design, the consulting engineer/EIStudy team must describe the main phases of the project; vis-à-vis the project cycle to ensure that the stakeholders fully understand what the project is all about.
- The consulting engineer/EIStudy team should take note of the significant social cultural
- The EIStudy team describe direct and indirect area of influence
- Key Issues in the project area are identified.
- The consulting EIStudy team should formulate a management plan to prevent undesirable social-impacts if possible at the design/planning stage.

## 8.3 The Project Brief

For the purpose of addressing socio-economic impacts in the project brief, the developer should ensure the following:

- Key social-economic activities and cultural issues within the project area are highlighted in the brief.
- The methodology for addressing gender concerns during recruitment of personnel and distribution of socio-economic benefits to the local community is clearly detailed.
- The EIA expert who prepares the project brief should utilize the services of a competent sociologist/socio-economist.

## 8.4 Assessment and Mitigation of Social Impacts during the EIStudy

Although every project is unique, in most cases there is a series of more or less standard steps through which the analysis must proceed in order to achieve good results.

Step 1: Develop an effective public involvement plan, so that all affected interests can be integrated in the project design and plan.

The level of public participation needed varies with the nature of the action under review. For a complex project, a social assessment may be useful at the outset to establish the general character of the community, define the potentially affected groups, and determine best mechanisms for their involvement. In a simpler case, merely consulting with local leaders and experts may be sufficient to obtain the critical data on which to build a public involvement program.

Step 2: Identify and characterize alternatives.

Alternatives are developed based on the purpose and need for the action, but the analyst needs to consider what they are and obtain sufficient data on each to frame the analysis. Alternatives can relate to the socio-economic sensitivities for example location of waste disposal sites with different locations; sensitivity of location of Agro-processing in cultural sites and access to social services like roads, schools and health centres amongst others.

Step 3: Define baseline conditions.

Having established a means of working with the public, and obtained basic data on each alternative, the analyst now tries to define the pertinent existing conditions in each potentially affected area i.e. the affected social environment. The analyst seeks answers to questions like:

- What populations may be affected? Are they concentrated or dispersed?
- How does each population relate to the natural or built environment?
- What is the historical background of each population?
- What are the political and social resources, power structure, and networks of relationship in each group?
- Are there low-income or minority populations or other disadvantaged groups involved? Do they have special needs?

**As basic information about each alternative, the following is needed:**

- Locations
- Land requirements
- Needs for ancillary facilities (roads, utilities, etc.)
- Construction or implementation schedule
- Size of the work force (construction and operation, by year or month)
- Facility size and shape (if a facility is involved)
- Need for a local work force
- Institutional resources
- What kind of cultural and attitudinal attributes characterize each group? How do they feel about political and social institutions? How do they relate to the environment? To change?
- What are the relevant demographic and economic characteristics? Is there significant unemployment or underemployment? Is housing available? Access to utilities? Education? Transportation? Are there seasonal or other patterns of in-migration and out-migration?

At a minimum, this kind of information should be developed based on existing literature, government documents, and consultation with experts and the community. For a more complicated project, formal studies may be needed. Indicators should be used to describe the social structure. These indicators should facilitate the identification especially of disadvantaged groups, and to describe and measure the social impacts analysed in the sequel. These indicators are presented below in Table 6.

**Table 7: Indicators for Social Impact Assessment**

| | | |
|---|---|---|
| **1.** | **Social indicators** | ▪ Registered crimes/disputes (per 1,000 pop.)<br>▪ Crimes/disputes involving women (per 1,000 pop.)<br>▪ Crimes/disputes involving vulnerable groups (per 1,000 pop.)<br>▪ Primary school attendance Male<br>▪ Primary school attendance Female<br>▪ Number of households<br>▪ Number of female-headed households<br>▪ Number of community -based organizations<br>▪ Religious affiliations |
| **2.** | **Economic indicators** | ▪ Average land holding per household (hectares)<br>▪ Percentage households owning land<br>▪ Percentage households owning domicile<br>▪ Percentage households renting land<br>▪ Percentage households renting domicile<br>▪ Agricultural Production<br>▪ Maize (tons per ha. per annum)<br>▪ Rice (tons per ha. per annum)<br>▪ Millet (tons per ha. per annum)<br>▪ Cassava (tons per ha. per annum)<br>▪ Fish catch (tons per household/per annum)<br>▪ Banana (tons per ha/ annum<br>▪ Employment<br>▪ Number of male wage earners<br>▪ Number of female wage earners<br>▪ Average household income (per annum)<br>▪ Average household expenditure (per annum) |
| **3.** | **Health indicators** | ▪ Birth rate<br>▪ Death rate<br>▪ Infant mortality rate (per 1000 live births)<br>▪ Average weight of children ages 5 - 12 (kg.)<br>▪ Incidence of disease (per 1,000 pop./per month)<br>▪ Diarrhoea<br>▪ Upper Respiratory Infection<br>▪ Tuberculosis<br>▪ Hepatitis<br>▪ Malaria or other endemic diseases<br>▪ HIV/AIDs prevalence<br>▪ Number of Health Post cases registered (average per month)<br>▪ Access to safe drinking water<br>▪ Access to adequate sanitation |

Step 4: Define the scope of the effort.

The assessment of social impacts must be scoped to make sure it is focused on the right things, and that the right methods are employed. The scope has to be included in the TOR for the EIS. Scoping must be carried out in consultation with the affected groups and through the public participation process.

Factors to consider in establishing the scope include:

- Probability that an event can occur
- Number of people potentially affected
- Duration of potential impacts
- Values of benefits and costs to affected groups
- Potential for reversibility or mitigation
- Likelihood of subsequent impacts
- Relevance to decisions
- Uncertainties over probable effects
- Controversy

Step 5: Project probable impacts.

Analysis of potential social impacts involves the study of data provided by the agencies involved, records of previous experience with similar actions or similar populations, census data and other vital statistics, documents and secondary sources, and field research involving interviews, meetings, surveys, and observation. Social impacts are generally manifested in one or more of the following changes:

- People's way of life - how they live, work, play and interact with one another on a day-to-day basis;
- Their culture - shared beliefs, customs and values;
- Their community - its cohesion, stability, character, services and facilities;
- Their environment - the quality of the air and water people use, the availability and quality of the food they eat, the level of dust and noise to which they are exposed, the adequacy of sanitation, their safety and fears about their security, and most importantly, their access to and control over resources.

The EIA expert should endeavor to analyze all these broad areas of impacts so that no major types of social impacts are overlooked. There are a number of methods of projecting impacts. These methods depend on factors like the scope of the action, the area where it occurs, and the availability of pertinent data. Projection methods include:

- Comparative: comparing with similar actions and their effects
- Straight-line trend projection: taking an existing trend and projecting it into the future
- Population multiplier: for actions involving increase or decrease in given populations; each unit of change in a given population implies change in other variables such as housing and use of natural resources
- Scenarios: generate logical or data-based models and play them out
- Expert advice: obtain the thoughts of experts about likely scenarios or changes
- Calculation of "futures foregone": for example, the future of small minority-owned businesses in a community if the proposed action does NOT take place
- Computer modelling: very suitable for quantitative impacts

Step 6: Predict responses to impacts.

The following questions are important in predicting responses to impacts:

- Can a group be highly influenced by what its leaders think, and can the leaders be positive or negative about the project?
- Are there ways for the population to adapt with the project, or is it likely to relocate?
- Can a group continue to carry out its valued ways of life, or can they be irrevocably lost?

Step 7: Consider indirect and cumulative impacts.

This is an important aspect that must be considered because most social impacts are not direct; they may occur well after the action is taken, and possibly in areas distant from the project. Many populations, especially local communities, are severely at risk of cultural extinction due to a variety of pressures, and a given project may lead to their extinction.

Step 8: Recommend new alternatives as needed and feasible.

As serious impacts are identified, consider what alternatives might alleviate the problems, and work with the project managers and affected groups to determine whether these are feasible and implementable.

Step 9: Develop a mitigation plan.

Work with project managers and affected groups to establish ways to mitigate social effects, and put this plan forward in the EIS. Establish monitoring programs to make sure that mitigation actually occurs.

# Part 9: Guidelines for Public Consultations

## 9.1 Introduction

Agro-processing developments have different impacts or effects in areas where they are located. Such impacts may directly or indirectly affect different categories of social groups, agencies, communities and individuals. These are collectively referred to as project stakeholders or the 'public'. It is, therefore, very crucial that during the EIA process, appropriate mechanisms for ensuring the fullest participation and involvement of the public are taken by RDB/REMA or/and the developer in order to minimise social and environmental impacts and enhance stakeholder acceptance. This part highlights the need for public participation and involvement during the EIA process for Agro-processing projects, and the methodology for systematic involvement of the public. The terms 'public' and project stakeholders are interchangeably used throughout this part.

## 9.2 Agro-processing Projects for which the Public must be Consulted

The consultation and involvement of the public is very desirable throughout the EIA process. However, it is very critical at the following stages:

- Project design
- Scoping
- EIS review

It should also be noted that the need and degree of public consultation and involvement can vary according to the nature and characteristics of the project. For example, very intensive and extensive consultations can be required for a large hydropower project. This can also generally apply to any other Agro-processing project characterized by the following:

- Substantial land-take
- Displacement of families or communities
- Disruption of the means of livelihood of families and communities
- Destruction of communal assets and property
- Need for resettlement and compensation
- Inundation of land and property

## 9.3 Methodology for Involvement of the Public Selection of Stakeholders

An Agro-processing project has got a wide range of stakeholders. These generally include individuals, organized groups, local and international NGOs or institutions with specific interest in a project including REMA. Sometimes, it might be useful to involve individuals such as academics and research scientists who may have special local knowledge about the project environment. It should be recognized that different stakeholders have different interests in a project, thus the need to carefully identify and appropriately categorize them. This should preferably be initiated as early as possible in the project cycle preferably at the project planning stage. Special care should be taken to ensure that the concerns and views of the directly affected, the poor, minority and other highly vulnerable groups are not overshadowed by the more influential groups. The interests of women as a special group should also be captured.

## 9.4 Consultations with Stakeholders

Once the stakeholders have been identified and properly categorized, the process of involving them in the EIA process should begin. For an Agro-processing project, consultations involve an exchange of vital information or facts and key issues between the developer, and the stakeholder community on the other. The consultation process should accord the stakeholder community every opportunity to comment on the merits, demerits and any other aspect of the proposed project. The process must be well planned and coordinated so that participation is convenient and cost-effective to all the parties involved.

An effective consultation process should generally ensure that:

- The public have got a clear understanding of the proposed project;
- Feedback mechanisms are clearly laid out and known by parties involved.

## 9.5 Consultation Methodology

There are numerous techniques and approaches that can be used for seeking the views of the public and consulting various project stakeholders. The following are recommended for Agro-processing projects:

a) Public Meetings

These may be specially convened meetings for people living in or near the project area. These may target officials and residents of villages/imigugudu adjacent to the project area. They may also apply to larger urbanized communities. The meetings are generally open and anybody is free to attend and participate in the proceedings. Public meetings are an ideal technique for a project developer to inform or educate the public about what the proposed development is about in general terms. To a good extent, they also enable the public to express their views and feelings about the project. Though the meetings are not formal, detailed notes of the important points and issues raised during the session should be minuted by the developer. These should be kept on file for reference purposes.

b) Interviews

These may be structured or semi-structured. Interviews should be undertaken with key individuals representing the range of publics likely to be interested or affected by the project. For Agro-processing projects, these may include local council officials, elders and civic leaders adjacent to the project area. They should also target individuals considered to represent the views of distinct social groups such as women and the poor. Interviews are very effective in assessing public sentiments about the project.

c) Surveys

Surveys are an effective technique for determining public attitudes, values, and perceptive on various issues regarding the proposed project. Surveys can be conducted by individual interviews, or in small group interviews. The respondents should be carefully selected for this technique to achieve its objective.

d) Operating Field Offices

The establishment and operation of special field offices serve as a liaison with the developer and the public. This is quite applicable to projects necessitating close local contact and coordination, an example being a hydropower project where compensation and resettlement

for displaced people must be undertaken. For this approach to be effective, the offices must be well publicised so that they are known to the public.

e) Open Houses

These are publicised accessible locations where the information on the proposed project and the EIA can be found. A member of the EIA team should be present to explain and discuss issues, and record the viewpoints and concerns of visitors. An open house is open and accessible to any person and the times of opening should be well publicized.

f) Advising Stakeholder Panels

Good experiences have been made with the establishment of official advising panels, which consist of representatives of the different stakeholder groups. These panels are especially useful for negotiations concerning resettlement plans.

### 9.6 Responsibility for Ensuring Public Participation

REMA and RDB take lead in ensuring that the public fully participates in the EIA process. As a matter of good practice, developers should also ensure an optimal level of public involvement at different stages of the EIA process. Where REMA is the developer, the responsibility for ensuring public participation is taken over by RDB.

### 9.7 Public Consultation within the EIA Process

In practice, public consultation is not a linear but an iterative as well as an on-going process. Figure 5 illustrates the critical points at which consultations must be conducted.

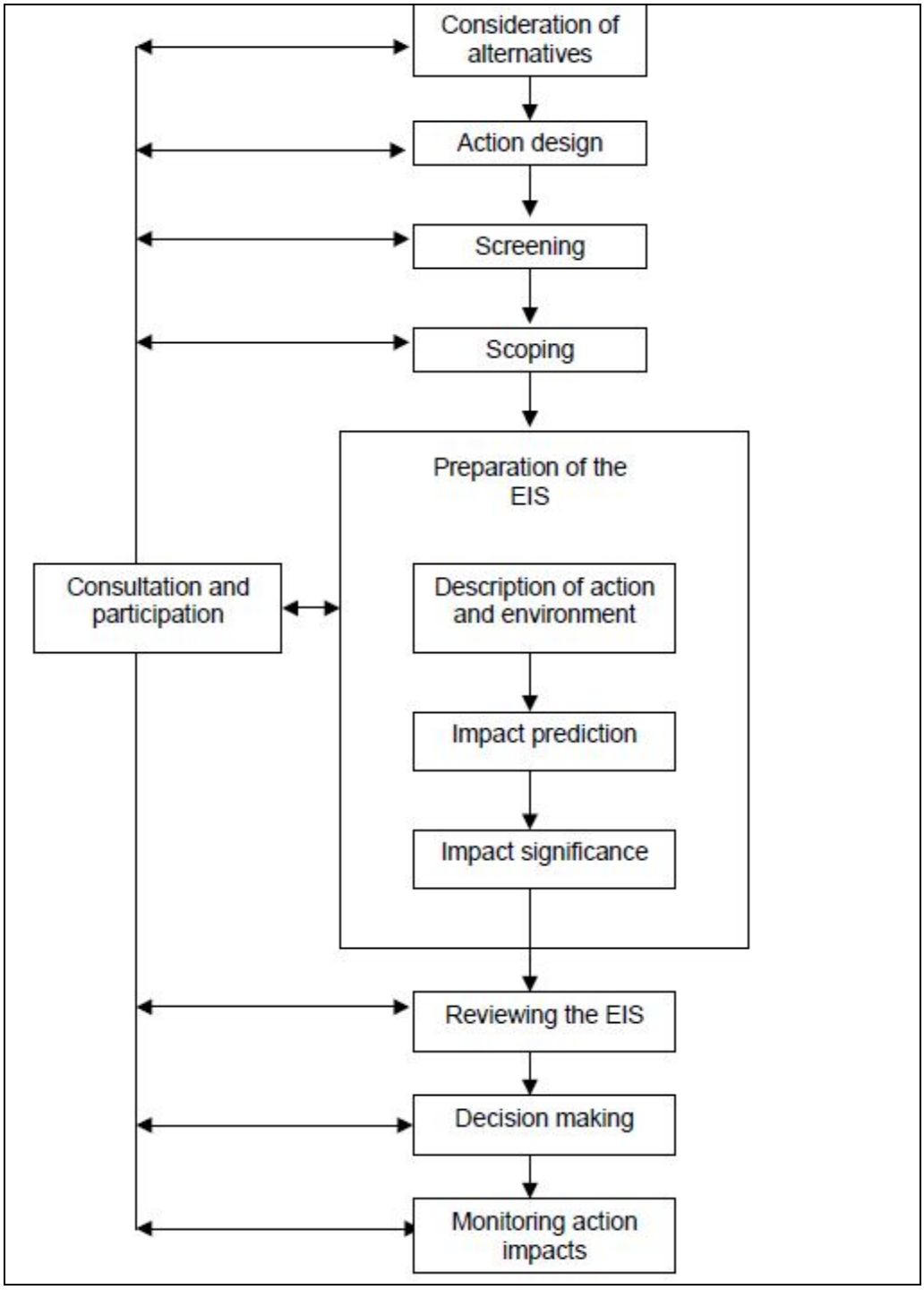



**Figure 4: Critical points at which consultations must be conducted**

Different stages of the EIA process do require different levels of public consultation and involvement. However, public involvement becomes very critical at the following stages:

- Public consultation before the commissioning of the EIStudy
- Public consultation during the EIStudy
- Public consultation during EIS review

## 9.8 Public Consultation before Commissioning of the EIStudy

On submission of the project brief to RDB and REMA, it might be decided that the views and comments of the public on the project shall be sought. RDB is obliged to publish the developer's notification and other relevant documents in a public notice within 4 weeks from the date of submission of the project brief and/or notice of intent to develop. For the purpose of publishing the developer's notification in the public notice, the project brief should be appropriately summarized out, including the following: Nature, size, location of the project and Site characteristics. The notification should also clearly specify where the developer's documents can be found. The public and other stakeholders should submit their objections, views and comments to REMA and RDB within 21 days from the date of publication of the notice.

## 9.9 Preparation of Public Consultation Plan

It is important that a plan for stakeholder involvement is prepared before the EIStudy begins. This should be done with input from a sociologist/socio-economist with knowledge of the local cultures and different approaches or techniques available for implementing stakeholder involvement. Such a plan should consider:

- The stakeholders to be involved
- Matching of stakeholders with approaches and techniques of involvement
- Traditional authority structures and political decision-making processes
- Programming of the implementation, in time and space, of the different approaches and techniques for stakeholder involvement
- Mechanisms to collect, synthesise, analyse and, most importantly, present the results to the EIStudy team and key decision-makers
- Measures to ensure timely and adequate feedback to the stakeholders
- Budgetary / time opportunities and constraints

## 9.10 Public Consultations during the EIStudy

During the EIStudy, the study team should endeavour to consult the public on environmental concerns and any other issues pertaining to the project. Though consultations are very critical at the scoping stage, ideally, it should be an on-going activity throughout the study.

## 9.11 Public Consultation during the EIS Review

During the EIS review, the public is given additional opportunity for ensuring that their views and concerns have been adequately addressed in the EIS. Any earlier omissions on or oversight about the project effects can be raised at this stage. To achieve this objective, the EIS and related documents become public documents after submitting them to RDB. Upon receipt of EIS for a Agro-processing project, RDB/REMA shall publicize its contents and go further to identify the relevant stakeholders and the concerned area or region; and also the location of places for inspection of the EIS. Further, REMA shall make copies or appropriate summaries of the statement available for public inspection. This should be accomplished within two weeks from the receipt of the EIS. REMA in close consultation with REMA can decide on the most suitable locations or places where the EIS content can be accessed conveniently by the public. The public notice should include a concise summary of assessment data indicating the following: Size and nature of the project, Location, Site characteristics and Key results of the EIStudy. The notice should also specify the locations or places where the EIS may be consulted or viewed in addition to a notification to send or copy any comments to RDB/REMA. An official review appointment can be announced, where the reviewing authority has to answer questions and remarks from the public. These questions have to be handed in written form before-hand.

# Part 10: Guidelines for Resettlement and Compensation

## 10.1 Introduction

The Agro-processing projects for which these guidelines apply are likely to fall into two categories: the old projects that may need rehabilitation or expansion, and thus require additional pieces of land and the new projects that may require new land altogether. In both cases, the relocation of populations and disruption of the peoples' livelihoods might occur. When relocation of people or communities is inevitable, there is a need to resettle them and ensure that their new places offer similar or better facilities compared to the old environmental and socio-economic set-up.

However, in all types of Agro-processing projects, every effort must be made to avoid relocation of communities. Involuntary displacement is generally known as an agent for disrupting and impoverishing communities. It should, therefore, be avoided, or at least minimized. Where it is unavoidable, the displaced persons should not only be adequately compensated for their losses at replacement cost, but also be given opportunity to share in Agro-processing development project benefits. Further, they should be assisted in all ways possible in order to improve their livelihood. Compensation is considered as an appropriate mitigation measure for unavoidable impacts when actions to minimize such impacts on people are not possible or insufficient. Provisions for compensation are supposed to avail enough resources for the affected communities to purchase replacement properties. The compensation scheme should also ensure that displaced people are not worse off, economically and socially, than they were before their displacement.

For Agro-processing projects, compensation would have to be paid for land, property and crops, where land is acquired for the purpose of enabling the development project to take place. However, no compensation need to be paid for any buildings, property or crops that were erected or grown after the cut-off period or in areas designated for Agro-processing projects such as the right of way for transmission lines in a road reserve.

## 10.2 Policy Framework

The objectives of the policy framework include the following key elements:

- Involuntary resettlement should be avoided or minimised through design efforts.
- Where involuntary resettlement is inevitable, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to give the persons displaced by the project the opportunity to share in project benefits.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standard of living or at least to restore them, in real terms, to pre-displacement levels.

According to the Rwandan Government Policy as well as the policies of the development partners, the term - affected people/communities refers to people who are directly affected socially and economically by the Agro-processing development projects. This can usually be caused by the involuntary land-take or use of other assets that may result in:

- Relocation or loss of shelter.
- Loss of assets or access to assets.

- Loss of income sources or means of livelihood, whether or not the affected persons must move to another location.
- The involuntary restriction of access to legally designated parks and protected areas that could result into adverse impacts on the livelihood of the displaced persons.

The resettlement policy applies to all development projects and activities in the Agro-processing sector irrespective of the developer or financier of the project. This policy also covers resettlement and compensation resulting from complementary activities that are not directly part of the immediate Agro-processing investment project, but are necessary to achieve its objectives as set forth in the Agro-processing investment project documents. The policy applies to all displaced persons regardless of the total number affected or the severity of impact. Particular attention should be paid to the needs of vulnerable groups among those displaced: especially those below the poverty line, the elderly, women and children, the disabled local communities and ethnic minorities.

### 10.3 Legal Framework

The EIStudy team should determine the legal requirements for compensation including the existence of local bye-laws, if any. In addition, it should work out a framework for co-ordination between the different players in compensation. The position of the government of Rwanda in relation to resettlement and compensation to be paid if damage is caused to land is clear under the constitution and other Rwandan laws as well as for most of the development partner policies and guidelines.

### 10.4 Development Partners Safeguard Policies and Guidelines

Each development partner has its own guidelines. The World Bank, for example has the Draft OP 4.12 “Involuntary Resettlement” which requires that displaced persons be compensated at full replacement cost, assisted with relocation/ resettlement and during the transition period. The developer should be encouraged to offer replacement land rather than cash compensation when the residual land holdings are not economically viable.

### 10.5 Stakeholder Analysis and Census of the Affected Persons

Prior to any compensation or relocation of person/communities, it is imperative to identify the stakeholders and carry out a census of the affected persons and communities. The census can take into account of all the people affected together with their means of livelihood. The census can in particular identify the vulnerable groups, which should be protected. These include women, the disabled, the orphans, widows and other minorities. During the census exercise of the affected persons, the local leaders, Community Development Officer (CDO) from the project area should work together with the developer to ensure a smooth exercise. Both immovable and movable properties can be counted and eventually valued. The major stakeholders in the Agro-processing projects can include the following:

- Local Governments ( District Administration, and Sector Heads)
- Local Council Chairmen in all the affected settlements
- Representatives of the RDB and REMA
- Development partners if relevant

### 10.6 Compensation in Agro-processing Projects

Compensation is considered when steps to minimise impacts on people are not possible or insufficient. Compensation provisions are supposed to avail enough resources for the affected communities to purchase replacement assets. They should also ensure that displaced people are not worse off, economically and socially, than before the displacement.

## 10.7 Constraints to Monetary Compensation

Monetary compensation as a means of compensating those directly affected by a development project has not been very effective in Rwanda. There have been a significant number of cases where compensation provisions and property acquisition practices did not provide sufficient resources to enable the affected communities to purchase replacement assets. There are several reasons for this and these include the following:

- Under-valuation of assets by government valuers
- Changes in price of the alternative properties
- Delayed payments leading to loss of value (e.g. because of inflation)
- Unsuitable manner of payment whereby it is not clear whether people should be paid a lump sum or installments
- Misappropriation of funds earmarked for compensation

In view of the foregoing, monetary compensation may not be the best mode of compensating local communities. Thus there is a need to put in place a community driven development plan to implement compensation. Furthermore, compensation or resettlement for large Agro-processing development projects is complicated by the fact that these responsibilities are handled by different institutions altogether.

## 10.8 Inventory of Affected Assets

The EIStudy team must undertake a detailed survey of all losses that can result for each household, enterprise, or community affected by the project. The survey should account for land acquisition and loss of physical assets as well as loss of income either temporary or permanent resulting from displacement of household members from employment or income-generating resources (for instance, potters from clay deposits, fishers from fishing grounds, small-scale suppliers or vendors from customers). Assets held collectively, such as water sources, livestock grazing areas, irrigation systems, and community structures should be recorded separately.

It is essential for resettlement planners to consult with the affected people during this stage to develop a reasonable consensus on the methods and formulae for assigning value to lost assets and income forgone during resettlement. In some jurisdictions, it may be necessary for local authorities to validate claims to assets. However inventories of assets are compiled, heads of households should be required to countersign them to minimize the possibility of subsequent claims or disputes regarding claims. The following are important inventory categories:

a) Land use/land capability

All land acquired or otherwise affected by the project, whether on a permanent or a temporary basis, must be surveyed, classified by type, and recorded. Civil authorities typically classify and assess the value of land by use (for instance, irrigated agriculture, non irrigated agriculture, pasture, forest, housing, and commercial). However, such classification may overlook the difference between present and potential land use requirements of affected people. For example, shifting cultivators practice crop rotation over wide areas and long periods of time. In such a case, land that appears unused may in fact be in a fallow cycle awaiting cultivation some years hence. Such a differentiation typically requires detailed soils maps and an assessment of land capability and carrying capacity. In addition, even in cases where cadastral survey maps demarcating land ownership and classification are available from the local land revenue office, these maps may be dated and no longer accurate. For this reason, the EIStudy team should be prepared to undertake independent surveys of land use and assessments of capacity to ensure the accuracy and equitable

payment of compensation claims. Additional follow-up studies are usually required to support estimates of the annual revenue derived from different land uses or land types such as irrigated land, rain-fed land, fish-farming ponds, and woodlots. Resettlement planners must establish the difference between present and potential land use to ensure that replacement land provided to affected people is of value equivalent to the land acquired from them.

b) Houses and associated structures

Dwellings, separate kitchens, toilets, storerooms, barns, stables, livestock pens, granaries, and workshops for cottage industry should be classified by construction materials (timber, wattle, bamboo, reed, brick and mortar, concrete, earth). All structures should be included in the inventory regardless of whether they are permanently inhabited or occupied intermittently by transient populations.

c) Other private physical assets

Such assets include non-moveable assets such as standing crops, fruit and fodder trees, firewood and timber woodlots, plantations (rubber, oil palm), fencing, wells, irrigation structures, and graves or tombs.

d) Private enterprises

Shops, workshops, stalls, factories, and other business establishments should be surveyed and recorded. These should be classified according to ownership (private business, public enterprise, joint venture, etc.). Individuals losing their enterprises, employees losing jobs, or vendors losing customers should be enumerated, and the value of these losses incurred during the resettlement period should be estimated.

At the community level, the assets survey should provide an inventory and an assessment of the losses of public resources including:

i. Common property resources

Such resources include forest and woodlands (sources of building and craft materials, biomass for domestic Agro-processing) and pasture.

ii. Public structures

These include schools, clinics, meeting halls, places of worship, wells/communal water points, livestock watering points, bathing and washing platforms, bus shelters, and monuments.

iii. Cultural property

Cultural property includes archaeological sites, burial grounds, monuments, shrines, places of worship, artefacts, and sites of religious or historical significance.

iv. Infrastructure

All infrastructure that can be destroyed or disrupted by the construction of the project should be enumerated, including roads and bridges; irrigation and drainage channels; water and sewage lines; power lines; and communication lines. The inventory of assets should be cross-referenced with the census and linked with the census in a single database. It is advisable for resettlement planners to photograph, document, and register all assets described above by household, enterprise, or community organization. Digitised

photographs can be used to record assets for storage in computerized census and socio-economic databases.

### 10.9 Valuation for Lost Assets

The EIStudy team should establish transparent methods for the valuation of all assets affected by the project. These methods should include consultation with representatives of the affected communities to assess the adequacy and acceptability of the proposed compensation. Such consultation is especially important where market values for assets are not well established or are intangible (social or cultural values that are not readily monetized). The study should also take note of changes in price and values of assets between evaluation and compensation. After acceptable compensation rates are established, they are applied to the inventory of losses for all households and enterprises affected by the project. A simple software application can be used to create a database that combines census data, inventory of losses data, and compensation formulae. This database can then be used to budget compensation payments and to track progress in settling compensation claims.

### 10.10 Payments

The EIStudy team should draw up a payment plan, which can streamline procedures so as to avoid delayed payments. The team should establish the best criteria for effective payments. The latter may include installments, pre-season or lump sum, depending on the socio-economic characteristics of the society in question. Payments should be made at the peoples place of residence or other places that are easily accessible. Peasant communities are often unable to properly manage large sums of money following compensation. Special attention should be paid to this point in order to guarantee that compensated people are economically not worse off than before the displacement.

### 10.11 Resettlement in Agro-processing Projects

a) Objectives in Resettlement

The main objective in resettlement is to ensure that the displaced population receives benefits from the displacing project. Involuntary resettlement, therefore, should be an integral part of the Agro-processing development project and should be handled at the onset of the project, i.e. at the planning and feasibility stages. When communities or individuals are forcibly moved, it is likely that production systems are dismantled, kinship groups may be scattered, jobs may be lost and social networks may collapse leading to a host of other socio-economic ills. This is why involuntary resettlement should take into account all the socio-economic characteristics of the affected people.

b) Basic Requirements for Resettlement Plans

There are at least four basic requirements for Agro-processing development projects where resettlement can occur. These are as follows:

i. Resettlement Timetables

It is essential that a resettlement timetable, which is well co-ordinate with proposed Agro-processing development activities, is put in place so that the resettlement exercise is not left to be implemented towards the end of the Agro-processing project. Resettlement timetables should provide for phased resettlement to allow construction/improvement works and resettlement to take place at minimal cost.

ii. Restoration of Lost Incomes

Resettlement plans should target restoration of lost incomes due to Agro-processing development projects. The desirable plan to restore lost incomes should include compensation costs, resettlement costs, administrative costs, rehabilitation costs and costs of lost local government or Central Government public assets. To minimize loses to the community, it is essential that compensation is paid upfront and a compensation timetable/programme is put in place.

iii. Resettlement Budget

Inadequate financial resources for a resettlement programme may lead to its failure. Therefore it is necessary to prepare an adequate budget to meet the costs of resettlement. There are two aspects to preparing the resettlement budget. These are as follows:

- if the budget is too low, then the funds can be inadequate and this can lead to delays in implementing the Agro-processing project; and
- If the budget is excessive, it may discourage the Developer/Development partners from investing in that particular project.

c) Contents of a Compensation and Resettlement Plan

Where the Agro-processing project can displace people involuntarily, severe socio-economic problems are likely to arise. It is necessary therefore that the Developer ensures that the displaced population receives benefits from the project. This can only be possible if a people-oriented resettlement plan is evolved and implemented. Resettlement plans should include the following key components:

i. Objective - The objective of the plan should be well considered to the effect that the displaced people should benefit from the proposed Agro-processing project through compensation assistance in moving, and assistance to improve their former living standards and any other considerations relevant to the development area.
ii. Policy - The current government policy on resettlement should be stated, as well as other regulations particularly with respect to land tenure, local governance and environment. The project development partners' policy on resettlement should also be included.
iii. Community Participation - All the identified key stakeholders should be actively involved in community participation
iv. Baseline Survey - This can cover the community and their socio – economic situational analysis.
v. Legal Framework
vi. Alternative Sites - With regard to alternatives for resettlement sites, the EIStudy team needs to:
    - Identify possible alternative sites together with the host and resettlees.
    - Identify the productive potential of alternative sites as well as availability of other sources of income.
    - Identify the comparable employment opportunities, infrastructure, services and production opportunities.
    - Identify and prepare relocation sites and drawing up timetables and budgets for resettlement.
vii. Valuation of and Compensation for loss of assets - Resettlement plans must target restoration of lost incomes as a result of implementing the project. To ensure this, the plan should: Pay special attention to the legal arrangement for land title registration and site occupation; sensitize the affected communities on the laws and regulations on valuation and compensation; Establish eligibility criteria for affected households; Establish access to communal facilities.

viii. Land Tenure, Acquisition and Transfer - The Developer should review the land tenure system both in the host community and the affected community. REMA, RDB and RNRA should together work out the compensation eligibility for land dependent populations. Evaluation and grievance procedures should be explained to the community making sure that both customary and titled resettles are equally treated. The plan should take into consideration the time required to process land titles.

v. Access to Training and Credit - If the baseline survey indicates that the resettles cannot get the same employment opportunities as before then the plan must include alternative employment strategies for the displaced people. It may be necessary to institute vocational training, employment counselling, extension of credit and any other as may be identified.

vi. Shelter, Infrastructure and Social Services - The plan should provide for infrastructure at the new sites. It is preferable that the GoR (through the Ministry) provides suitable building materials while settlers construct their own dwellings according to their culture and tastes. The developer should facilitate this.

vii. Implementation Schedule - It is essential that a sound schedule for executing the resettlement operation evenly over the duration of Agro-processing development projects requiring resettlement is put in place so as to avoid "end-bunching". The resettlement plan should include an implementation schedule for each activity covering the initial baseline and preparation, actual relocation and post relocation economic and social activities.

d) Potential Scope of Resettlement/ Compensation in Agro-processing Projects

Examples of different activities relating to Agro-processing development projects may lead to resettlement / compensation are summarized in Table 7.

**Table 8: Potential resettlement / compensation impacts**

| NO | Potential Resettlement / Compensation Impacts |
|---|---|
| **1.** | Extensive permanent land-take leading to relocation and need for compensation to communities and individuals |
| **2.** | ▪ Temporary land take near construction sites leading to temporary relocation and compensation<br>▪ Downstream impacts like loss of land and infrastructure could require relocation and compensation |
| **3.** | ▪ Permanent land-take for project and access roads leading to relocation and need for compensation to communities and individuals<br>▪ Temporary land-take near construction sites leading temporary relocation and compensation |
| | ▪ Permanent Right of Way Corridor land-take leading to relocation and need for compensation to communities and individuals<br>▪ Temporary land-take near construction sites leading temporary relocation and compensation. Possible temporary impacts during construction |

e) Consultations with, and Participation of Displaced Persons in Planning and Implementation

It is important that the affected persons/community, Developer and the EIA study team start interacting right from the time it is first realized that compensation / resettlement may be necessary, i.e. during project planning or at the latest, during the feasibility stage. Various members of the community should also be involved in negotiations, including: Leaders and representatives, Local NGOs and CBOs and District Environment Officers, CDOs.

f) Grievance Redress Mechanism

The affected community should be given an opportunity to review the survey results. In case any complaints arise from the affected communities, a grievance committee must be put in place to quicken the process of conflict resolution. This is to avoid the tedious process of courts of law, which are often not appreciated and out of reach by local communities. The grievance committee should be formed at the lowest level of activity (e.g. Village level) and should include some of the following: Village Elder, Woman leader and Representative of REMA and developer. The procedure should be such that if the complainant still does not agree with the decision of the grievance committee, she or he should be encouraged to appeal to the Probation Officer of the Local Government based at every district. If he still does not agree to the decision, he may be encouraged to go to the court as a last option. It is important that the grievance committee is acceptable to all the stakeholders. This can be achieved by circulating its membership to community for acceptance.

g) Resettlement Monitoring and Evaluation Arrangement

It is important that a resettlement implementation plan is formulated so that it can serve as a basis for the resettlement monitoring and evaluation. The plan can ensure that the contractor is aware of his responsibilities. The plan needs to define criteria and indicators against which to measure the success of the resettlement. To implement this plan it is imperative that a social monitoring team is instituted. This can be responsible for monitoring the resettlement/compensation activities and implementing the social mitigation measures proposed in the resettlement/compensation plan. The monitoring team should closely liaise with local implementation committee which would have been put in place for that purpose. The monitor should report to the REMA / Developer and his/her reports should be availed to the district authorities who may wish to make comments or adjustments in accordance with emerging local bye-laws or concerns. Depending on the project specific situation, the monitoring team should include: Sociologists, Urban physical planners, Medical Doctor, Public health specialists, Economists and Agricultural experts.

The Resettlement monitoring team's main activities should include the following:

i. Overview and review compensation and/or lease agreements for land-take (both temporary for the use of the Contractor and permanent for the Agro-processing development works),
ii. Check that no land has been taken unnecessarily, no crops destroyed unnecessarily and no buildings nor trees destroyed unnecessarily,
iii. Review reinstatement and/or future management plans of construction facilities such as camps.

# ANNEXTURES

## ANNEX A: LIST OF PROJECTS FOR WHICH THESE GUIDELINES APPLY

All Agro-processing projects including expansion and modernization require prior environmental clearance. Based on pollution potential, these projects are basically classified into Category IL3 and Category IL2 and IL1:

- Category IL3: New Agro-processing projects outside the industrial area or expansion of existing units outside the industrial area.
- Category IL2 and IL1: All new or expansion of projects located within a notified industrial area/estate.

Besides, there are general as well as specific conditions, when it applies, a Category IL2 and IL1 project will be treated as Category IL3 project.

In case of expansion or modernization of the developmental Activity:

- Any developmental activity, which has an EIA clearance (existing projects), when undergoes expansion or modernization (change in process or technology) with increase in production capacity or any change in product mix beyond the list of products cleared in the issued clearance is required to submit new application for EIA clearance.
- Any developmental activity due to expansion and its total capacity, if falls under the purview of either Category IL3 and Category IL2 and IL1, then such developmental activity requires clearance from respective authorities (Such as REMA/RDB).

The sequence of steps in the process of prior environmental clearance for Category IL3 and Category IL2 and IL1 projects are shown in Appendix 1 of the EIA Guidelines for Rwanda, 2006.

Projects to be considered for EIA include:

a) Beverage processing plants (such as Brewing and Malting plants, Juice, Soda)
b) Bulk grain processing plants
c) Fish processing plants
d) Pulp and paper plants
e) Food processing plants
f) Abattoirs and meat processing plants
g) Tanning and dressing of hides and skins
h) Coffee processing plants and Coffee Washing Stations
i) Tea processing plants
j) Livestock processing industries (such as Diary products)
k) Aerial Spraying (e.g. Manufacture of insecticides)
l) Flour mill and bakery products manufacturing plants
m) Sugar & Sugar confectionery
n) Edible oil mills

## ANNEX B: COMPOSITION OF THE EIA TEAM

The success of a multi-functional activity like an EIA primarily depends on constitution of a right team at the right time (preferable at the initial stages of an EIA) in order to assess the significant impacts (direct, indirect as well as cumulative impacts). The professional Team identified for a specific EIA study should consist of qualified and experienced professionals from various disciplines, in order to address the critical aspects identified for the specific project.

The Team Leader should be an Environmental Certified Practitioner with REMA/RDB as provided for under EIA Guidelines for Rwanda, 2006. Based on the nature and the environmental setting, following professionals may be identified for EIA studies:

- Environmental Management Specialist
- Environmental/Process Engineer
- Agronomist
- Occupational Health & Safety Specialist
- Soil Scientist
- Chemist (experience in waste management)
- Plant Ecologist
- Aquatic Ecologist
- Sociologist / Socio-economist
- Environmental Lawyer
- Water Quality Specialist
- Air and Noise quality Specialist

## ANNEX C: CONTENT OF A PROJECT BRIEF

Project briefs are concise documents (20 pages) that should contain the following information:

### 1. Contact details of the Developer

- Name of the developer
- Main postal address, telephone, fax and e-mail details for the developer
- Name of the main contact person and direct postal address, telephone, fax and e-mail details

### 2. Characteristics of the project

- Brief description of the proposed project including type of project, the form of energy source, size of the project in terms of capacity installed, transmitted or distributed, length of transmission, distribution lines, number of people to benefit from the project, raw materials needed as well as product by product or emissions
- Reasons for proposing the project (justification of the project, project objectives)
- Background of the project: How was the project conceived; Findings from previous studies such as energy supply and demand analysis that contributed to the conception of the project; Relationship with other existing/planned projects
- Project site: Maps and photographs showing the location of the project relative to surrounding physical, natural and man-made features; Existing land-uses on and adjacent to the site and any future planned land uses; Protected and sensitive areas like national parks, forests, wetlands, sites of cultural interest; Alternative project sites; Reasons for choosing the particular site
- Baseline data: The baseline data should include information relevant to the proposed project that will depend on the source of energy of a particular project. It will include data on some of the following: Geology and soils, Climate and rainfall conditions, Settlement areas, Drainage patterns, Total river basin, Long term average flow of a river, Water level of reservoir, Design flood level, Reservoir area during normal storage, Minimum and Maximum Water level in downstream, Submerged land, Land requirement for construction, Land use and tenure, Sites of cultural or historic value, Human population and demographic trends, Local government set up, Major economic activities, Public health status Key social-economic activities and cultural issues
- Physical form of the development: Layout, buildings, other structures, construction materials, etc. including details such as: Energy source (hydro, petroleum, solar, biomass, wood, etc.); Raw material consumption rate; Access roads; Project land within project boundary; Site preparation activities such as clearing of land, forests, drilling, blasting, excavation of land, etc.; Time needed for project development
- Construction practices: Specific construction techniques to be used with emphasis on any potential impacts of construction e.g. noise, dust. Needed housing, transportation, etc. for the workers
- Operations: Operations with particular emphasis on number of workers to be employed, working hours, housing and transportation needs, occupational health and safety hazards. Any expected air, water or waste discharge from proposed action
- Preliminary analysis of alternatives: The brief should indicate reasonable alternatives to meet project objectives. This may lead to alternatives that are more sound from an environmental, social cultural and economic point of view from the originally proposed project. Alternatives can be other energy sources, construction of smaller energy facilities, alternative sites, and different technologies.

- Other large development projects ongoing or planned for within the area of influence of the energy project

### 3. Characteristics of the potential impacts

A brief description of the likely impacts of the project considering the following factors:

- Impacts on people, human health, gender distribution of socio-economic benefits, fauna and flora, soils, land use, material assets, water quality and hydrology, air quality, climate, noise and vibration, the landscape and visual environment, historic and cultural heritage resources, and the interactions between them
- Nature of the impacts (i.e. direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative)
- Extent of the impacts (geographical area, size of the affected population/habitat/species)
- Magnitude and complexity of the impacts
- Probability of the impacts
- Duration, frequency and reversibility of the impacts
- Mitigation incorporated into the project design to reduce, avoid or offset significant adverse impacts
- Transboundary nature of the impact

It is important to remember that only such information can be requested, that the developer reasonably can be expected to have at the stage in the development the project has reached. If screening is being carried out early in the project's life only some information will be available.

## ANNEX D: ISSUES TO BE CONSIDERED IN EIA STUDY

### 1. Ecological Considerations

(a) Biological diversity including impacts on:
   i. The number, diversity, breeding habitats, etc of wild animals and vegetation
   ii. Gene pool of plants and animals.

(b) Sustainable use including effect of proposal on:
   i. Soil quality
   ii. Breeding of fish and game or wild animals.
   iii. Natural regeneration of woodland and sustainable yields
   iv. Water resources and uses; Wetland resources and wise use of wetlands

(c) Ecosystem maintenance including effects on:
   i. Food chains
   ii. Nutrient cycles
   iii. Aquifer recharge, water run-off, rates, etc
   iv. Area extent of habitats
   v. Fragile ecosystems (water, wetlands, soils)

### 2. Social considerations including effects on

   i. Employment
   ii. Social cohesion or disruption
   iii. Human health
   iv. Immigration or emigration
   v. Communication – roads opened, closed, re-routed, etc
   vi. Local economy
   vii. Culture and cultural values
   viii. Aesthetics

### 3. Landscape

   i. Views opened or closed
   ii. Visual impacts (features, removal of vegetation, waste piles, etc)
   iii. Compatibility with surrounding area
   iv. Amenity opened or closed

### 4. Land uses

   i. Impacts on current land uses
   ii. Possibility of multiple use
   iii. Effects on surrounding land uses and land use potentials

## ANNEX E: FORMAT OF QUESTIONNAIRE FOR PUBLIC HEARING

The public has a right to express their opinion in the EIA processes. There is no standard format of questionnaire for public consultation however the following may be used to guide the process.

1. **Presentation of an overview of the proposed project which should include but not limited to:**

    a. Name and title, address of developer
    b. Name, purpose, objectives and nature of the project

After the overview presentation the public may be guided to assess the following sections (2 to 6) and express their opinion.

2. **Project impacts:**

    a. Are there identified impacts on any environmentally sensitive areas (e.g. wetlands, lakes, rivers, steep slopes, conservation areas, etc)?
    b. Have all impacts been considered (social, economic, cultural, biophysical, etc)?
    c. Are there explicit indications of positive impacts of the project?
    d. Have offsite (e.g. downstream and upstream) effects of the project been considered?
    e. Have transboundary impacts been considered (if applicable)?
    f. Have cumulative impacts been considered and the nature of impacts clearly stated?
    g. Are there additional impacts to be considered?

3. **Mitigation measures:**

    a. What mitigation measures are proposed? Are they relevant?
    b. Are experiences from previous similar project adequately used in this EIA?
    c. Have concerned population and other groups been involved and have their concerns been adequately addressed by the project preparation?
    d. If settlement is involved, is it clearly and adequately provided for?
    e. If compensation is involved, are adequate compensatory measures provided for?
    f. Are there additional mitigations to be considered?

4. **EIA Procedure:**

    a. Has the Waste Management EIA Guidelines been adequately used?
    b. Have the national policies and other statutory requirements been adequately addressed by the project and EIA?
    c. In which phases of the decision-making process has environmental assessment been included? Where they the appropriate stages?
    d. Is there an economic analysis of the project that also assesses the environmental impacts?
    e. Have there been adequate consultations (e.g. community, lead agencies, other stakeholders)?
    f. Are there any identifiable gaps in the EIA process?

**5. Project alternatives:**

a. Have all the possible project alternatives been addressed?
b. Are the impacts of the alternative adequately analyzed?
c. Are the selected alternatives the best?
d. What additional alternatives should be included?

**6. Project Implementation:**

a. Are there adequate capacities for implementing the EIA recommendations?
b. Have the responsibilities for project implementation including impact mitigation and monitoring been clearly stated?
c. Is there a clear Environmental Management Plan for the proposed project?
d. Is the developer committed to the suggested environmental management suggestions?
e. Are there any suggestions to improve on environmental management within the project?

**ANNEX F: ASSESSMENT FORMS FOR DIFFERENT CATEGORIES OF PROJECTS**

**a) CATEGORY IL3**

**1. General Information**

1.1 Project title:----------
*(Give the complete title of the project that will be used in issuing the permit/license)*
1.2 Name of the owner *(Identify the owner(s) of the project with complete address)* -
---
---
1.3 Name of the person in charge (the responsible person): ----------
---
Address: ----------
---
Telephone No: ----------Fax No----------
1.4 The Competent Administrative Authority: ----------
---

**2. Nature of Project**

2.1 Location of the project *(Please attach a readable map that clearly shows the location and boundaries of the project in relation to residential areas, neighboring activities, etc.... The map should have a suitable and clear scale)* ----------
---
---
Project Address:----------
---
Total area for project (m2):…….
2.2. Type of project:
New / Extension/Type of extension: ----------
 *If the type of project is an extension, has an EIA study been submitted for the original project?*
Yes ٱ No ٱ
 Date of obtaining a previous approval from the REMA/RDB: ----------
2.3 Project Objectives, Phases and Timing:
Establishment:--------- ----------Actual operation:----------
2.4 A Brief Description of the Project (diagrams and layout should be attached if possible).
2.4.1 Main components of the project: ----------
---
2.4.2 Storage Capacity (mention the units used):----------
---
2.4.3 Electrical supply used: ----------Source: ----------
Rate of Consumption: ----------
2.4.4 Source of water (public, groundwater, surface water, others): ----------
Water use: ----------Rate of consumption: ----------

**3. Waste Resulting From the Project**

3.1. Solid wastes: ----------Type ----------
Amount: ----------Method of disposal:----------
3.2. Wastewater : ----------Type ----------Amount: ----------
Method of disposal:----------
3.3. Gas emissions: ----------Type: ----------
Rate of emission: ----------Method of control:----------
3.4. Method of protection and control of noise pollution:----------
3.5 Precautions taken to ensure workers' safety:----------
3.6. Precautions taken against fire----------

**Declaration**
I hereby, declare that the information submitted above is accurate and true and that in case there is any modification of the information stated above, REMA/RDB shall be notified through the competent administrative authority giving the license.

Name: ----------
Identity Card number and address: ----------
---
Position (in the capacity of): ----------
Date: ----------
Signature: ----------

**To be filled by the Competent Administrative Authority**
Authorization of the Competent Administrative Authority:----------
---
Name: ----------
Professional title: ----------
Signature: ----------
Stamp

**b) CATEGORY IL2 AND IL3:**

**1. General Information**
1.1. Project title: ----------
*(Give the complete title of the project that will be used in issuing the permit/license)*
1.2. Type of project ----------
1.3. Name of the owner *(Identify the owner(s) of the project with complete address)* ----------
---
1.4. Name of the person in charge (the responsible person): ----------
---
Address: ----------
Telephone No: ----------Fax No----------
1.5. The Applicant *(If the Applicant is different from the owner of the project, identify the Applicant and his relationship to the owner (contractor, representative, etc. Give complete address of the Applicant)* ----------

**2. Project location and Surrounding Environment**
2.1 Location of the *project (Describe the exact location of the project, the area to be occupied. Please attach a readable map that clearly shows the location and boundaries of the project in relation to residential areas, neighboring activities. The map should have a suitable and clear scale)* ----------
2.2. Type of project: New □ Extension □ Type of extension: ----------
□ *If the type of project is an extension, has an EIA study been submitted for the original project?* Yes □ No □ □ Date of obtaining a previous approval from REMA/RDB: ----------
2.3. Surrounding Environment (*A general description of the area surrounding the project including a description of the different activities, historical areas, protected areas, tourist and recreational areas, etc…)* ----------
2.4. Baseline data (*A description of the existing environmental conditions or a quantitative analysis of the surrounding water, ambient air, …etc*): ----------
**3. Project Objectives, Phases and Timing: ----------**

**4. A Brief Description of the Project (*diagrams and layout should be attached if possible*).**

4.1. Main components of the project: ----------
4.2 Electrical supply used: ---------- Source: ----------
Rate of Consumption: ----------
4.3 Source of water (public, groundwater, surface water, others): ----------
Water use: ----------Rate of consumption: ----------
4.4 Type of fuel (natural gas, solar, fuel oil): ---------- Source of fuel: ----------
Rate of consumption: ----------
4.5 Chemicals (types and quantities): ----------
4.6 Reasons for choosing the technology used (If possible) ----------
4.7 Expected number of workers: ----------

**5. Wastes Resulting From the Project**

5.1. Solid wastes: ----------Type ----------Amount: ----------
5.2. Wastewater: ----------Type ----------Amount: ----------
5.2. Gas emissions: ----------Type: ----------Rate of emission: ----------
5.4 Hazardous Waste: ---------- Type : ---------- Amount : ----------

**6. Wastes, Treatment Methods, Disposal and Disposition**

6.1. Waste water:
• Municipal waste water: ----------
----------
Discharge rate: cubic meter/day
Methods of discharge ----------
• Industrial waste water: ----------
----------
Discharge rate: cubic meter/day
Expected analyses of industrial wastewater: ----------
In case of treatment - Description of the treatment unit and analysis of waste water after treatment :----------
----------
Methods of discharge: ----------
6.2. Gas emissions:
(The type of gas emissions and the concentrations of SOx, HC, NOx, COx, particulates etc.)
----------
6.3 Solid wastes: ----------Type: ----------Amount: ----------
Methods of transport, handling and storage: ----------Methods of disposal: ----------
6.4 Hazardous wastes: ----------
Type: ----------Amount: ----------Methods of treatment: ----------
Methods of disposal: ----------

**7. Significant Environmental Impact(s) and Mitigation Measures:**

7.1 Impact of the project on the air quality and mitigation measures: ----------

7.2. Impact of the project on water quality and availability and mitigation measures: --
7.3. Impact of the project on soil quality and fertility and mitigation measures: ---------
7.4. Impact of the project on marine life and mitigation measures: ----------
7.5. Socioeconomic impacts and mitigation measures: ----------
7.6. Noise: ----------Control Measures: ----------
7.7. Other predicted and significant impacts of the project and mitigation measures:----------

**8. Relevant Measures Undertaken to Protect the Health and Safety of Workers and the Surrounding Community:** ----------
**9. Project Alternatives**: ----------

**10. Monitoring Programme:** ----------
---
**11. Environmental Management Plan**: ----------
**12. Decommissioning Method:** ----------

**Declaration**
I hereby, declare that the information submitted above is accurate and true and that in case there is any modification of the information stated above, REMA/RDB shall be notified through the competent administrative authority giving the license.

Name: ----------
Identity Card number and address: ----------
---
Position (in the capacity of): ----------
Date: ----------
Signature: ----------

**To be filled by the Competent Administrative Authority**
Authorization of the Competent Administrative Authority: ----------
---
Name: ----------
Professional title: ----------
Signature: ----------
Stamp

## ANNEX G: SCREENING PROCESS IN EIA

These screening guidelines should be used in reference to the project screening criteria presented in Appendix 2 of the General Guidelines for EIA for Rwanda of 2006.

### Methods to be used in the Screening Process

Screening is that part of the EIA process which determines whether an EIA is required for a particular project. A number of steps are involved in deciding whether EIA is required for a proposed project. A diagrammatic flow of decision making steps in screening is presented below and explanation of each step is given below. The process is followed through until a decision is made on whether or not EIA is required.

Step 1—Is the Project an Article 2 of the Ministerial Order establishing the list of works, activities and projects that have to undertake Environmental Impact Assessment?

The first step in the screening exercise is to determine whether the project (components) is either listed under Article 2 of the Ministerial Order establishing the list of works, activities and projects that have to undertake Environmental Impact Assessment. In summary, if a project is not of a type listed in the Ministerial Order, is not required, unless a special reason exists for further environmental examination of the project.

Step 2 - Is the Project on a Mandatory List Requiring EIA?

The second task is to determine whether there is a mandatory requirement for EIA for the project under Rwandan Law (Ministerial Order establishing the list of works, activities and projects that have to undertake Environmental Impact Assessment). An EIA will be required if the project is listed under Article 2 of the Ministerial Order. Also considered in the screening analysis are the project size, type and location relative to sensitive environment. In summary, if a project is on a mandatory list then EIA will be required.

Step 3- Is the Project on an Exclusion List exempting it from EIA?

This step is used to check whether there is any legal exemption for the project. Some projects may be classified by the state as emergency activities that require quick response and delay may cause disaster. These are set out in exclusion or negative lists of projects. If a project is on an exclusion list then EIA will not be required. National legislation may provide for exceptions to exclusion lists if the project is in a specified sensitive location. Such an exception would apply if the project were likely to have significant effects on a fragile environment e.g. wetlands, surface water, lake shores, river banks, unstable slopes). National legislation must also be checked to determine any other locations defined as sensitive in which an exclusion list would not apply.

Step 4 - Case-by-Case Consideration: Is the Project Likely to have Significant Effects on the Environment?

Mandatory and exclusion lists are designed to simplify the process by identifying thresholds and criteria defining projects, which are always or are never considered likely to have significant effects on the environment. If a project is not on a mandatory or exclusion list a screening decision must be made on a case-by-case basis. In undertaking case-by-case screening, the following information is required for decision-making:

- Information about the proposal/project and its potential impacts
- Level of confidence in impacts.
- Characteristics of the environment and its resilience to change.

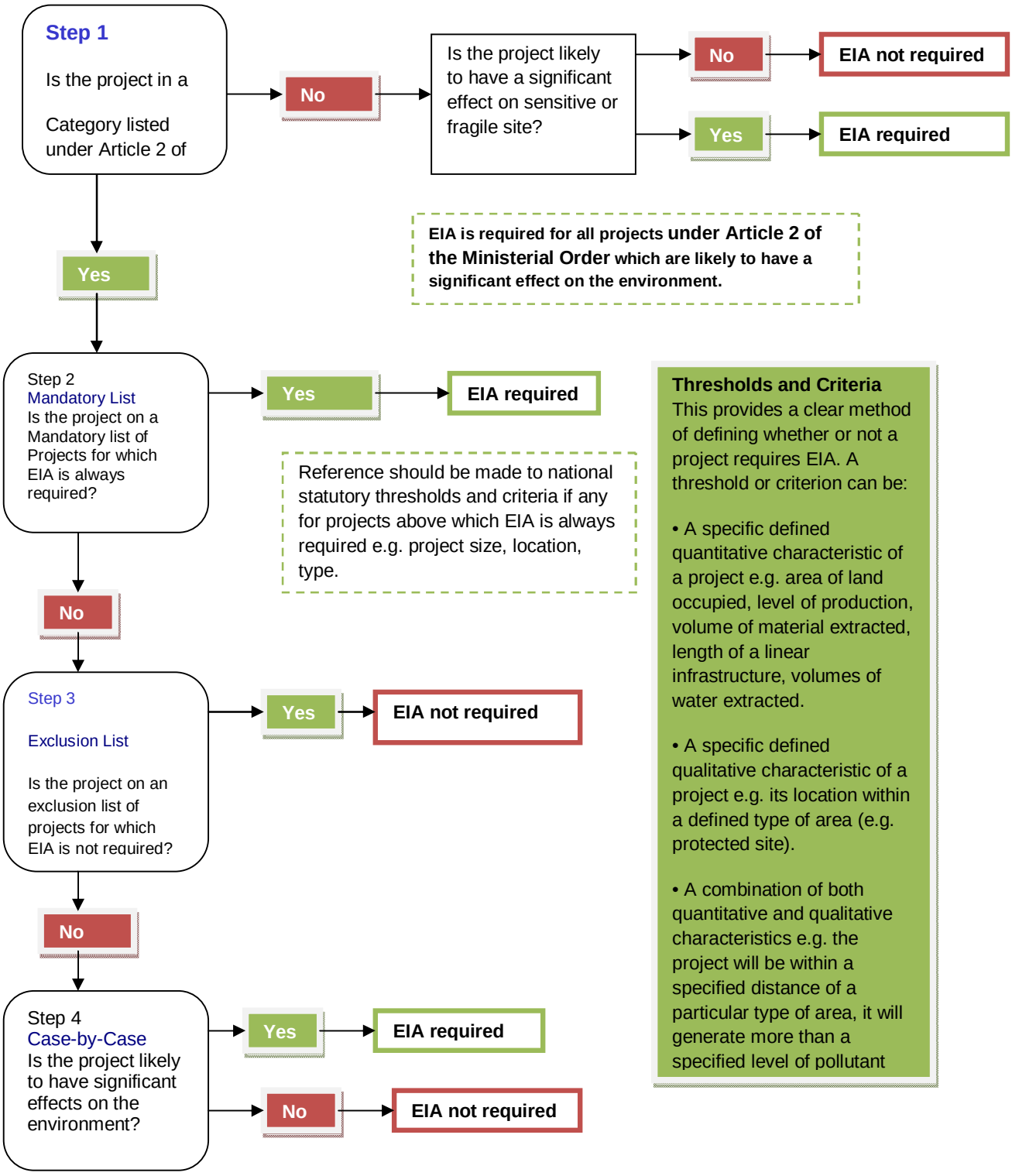
- Planning, environmental management and decision-making framework.
- Degree of public interest.

In addition such guidance may refer to indicative thresholds and criteria. This is used to check project activities/components that do not appear on the mandatory and exclusion lists. In summary, where it is decided that a project is likely to have significant effects on the environment through a case-by-case examination, then EIA will be required.

Step 5 - The Screening Decision

When a formal screening decision has been made, it will be submitted to the Authority (REMA/RDB) for review and final decision. The Authority keeps the final decision. Additional information for decision-making might also be required hence there is need for the screening team should consult the Authority and Lead Agencies to discuss the project and use it as a base for decision-making. The screening team should also consult literature of screening exercises for similar projects. The methods used in previous screening exercises may be adopted by the screening team as found suitable.

**Diagrammatic flow of decision making steps in screening**




**Professional judgment**

Based on the professional experience of the screening team, judgement can be made to predict the magnitudes of the impact of the project on the environment and decide the levels of EIA required.

**The following should be considered during screening:**

i) Identification of assessment issues and the selection of Valued Environmental Components (VECs);
ii) Establishment of study boundaries and criteria for the assessment of the significance of environmental effects for each of the VECs;
iii) Identification of past, present and likely future projects that could result in cumulative environmental effects in combination with the project;
iv) Identification of project-environment interactions and likely environmental effects;
v) Assessment of the significance of residual environmental effects; and
vi) Determination of the need for further environmental study (EIA) or no EIA.

The analysis should consider the project-related environmental effects, cumulative environmental effects, and the incremental environmental effects of the continued operation of the project. The analysis should also provide an integrated evaluation of project-related and cumulative environmental effects. Valued environmental components considered in the screening exercise are:

vii) Atmospheric Environment.
viii) Aquatic (water) Environment.
ix) Sensitive environment (e.g. wetlands, hills, slopes, lakeshores, river banks, forest, schools, nature conservation areas, etc).
x) Terrestrial Environment.
xi) Public and Worker Health and Safety.
xii) Socio-economic conditions

**Screening results**

The result of the screening should clearly describe the path followed in Diagrammatic flow chart presented above to arrive at the screening decisions.

Below is a presentation of a Screening Checklist that can be used to explain the screening results.

**Screening checklist**

| No | Questions | Yes / No / Briefly describe | Is this likely to result in a Significant effect? Yes/No/? - Why? |
|---|---|---|---|
| 1. | Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (Topography, land use, changes in water bodies, etc)? | | |
| 2. | Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply? | | |
| 3. | Will the Project involve use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health? | | |
| 4. | Will the Project produce solid wastes during construction or operation or decommissioning? | | |
| 5. | Will the Project release pollutants or any hazardous, toxic or noxious substances to air? | | |
| 6. | Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation? | | |
| 7. | Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater? | | |
| 8. | Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment? | | |
| 9. | Will the Project result in social changes, for example, in demography, traditional lifestyles and employment? | | |
| 10. | Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality? | | |
| 11. | Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project? | | |
| 12. | Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other water bodies, forests or woodlands, which could be affected by the project? | | |
| 13. | Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, migration, which could be affected by the project? | | |
| 14. | Are there any inland or underground waters on or around the location, which could be affected by the project? | | |
| 15. | Are there any areas or features of high landscape or scenic value on or around the location, which could be affected by the project? | | |

| | | | |
|---|---|---|---|
| 16. | Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project? | | |
| 17. | Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the project? | | |
| 18. | Is the project in a location where it is likely to be highly visible to many people? | | |
| 19. | Are there any areas or features of historic or cultural importance on or around the location, which could be affected by the project? | | |
| 20. | Is the project located in a previously undeveloped area where there will be loss of virgin green land? | | |
| 21. | Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project? | | |
| 22. | Are there any plans for future land uses on or around the location, which could be affected by the project? | | |
| 23. | Are there any areas on or around the location, which are densely populated or built-up, which could be affected by the project? | | |
| 24. | Are there extractions of resources by the project that can impact ecosystems? | | |
| 25. | Are there any areas on or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project? | | |

## ANNEX H: SCOPING CHECKLIST

| No. | Questions to be considered in Scoping | Yes/No/? | Which characteristics of the project environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| **Will construction, operation or decommissioning of the project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)?** | | | | |
| 1. | Permanent or temporary change in land use, land cover or topography including increases in intensity of land use? | | | |
| 2. | Clearance of existing land, vegetation and buildings? | | | |
| 3. | Creation of new land uses? | | | |
| 4. | Pre-construction investigations e.g. boreholes, soil testing? | | | |
| 5. | Construction works? | | | |
| 6. | Demolition works? | | | |
| 7. | Temporary sites used for construction works or housing of construction workers? | | | |
| 8. | Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations? | | | |
| 9. | Underground works including mining? | | | |
| 10. | Reclamation works? | | | |
| 11. | Dredging? | | | |
| 12. | Production and manufacturing processes? | | | |
| 13. | Facilities for storage of goods or materials? | | | |
| 14. | Facilities for treatment or disposal of solid wastes or liquid effluents? | | | |
| 15. | Facilities for long term housing of operational workers? | | | |
| 16. | New traffic during construction or operation? | | | |
| 17. | New transport infrastructure? | | | |
| 18. | Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements? | | | |
| 19. | New or diverted transmission lines or pipelines? | | | |
| 20. | Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers? | | | |
| 21. | Stream crossings? | | | |
| 22. | Abstraction or transfers of water from ground or surface waters? | | | |
| 23. | Changes in water bodies or the land surface affecting drainage or run-off? | | | |
| 24. | Transport of personnel or materials for construction, operation or decommissioning? | | | |

| | | | | |
|---|---|---|---|---|
| 25. | Long term dismantling or decommissioning or restoration works? | | | |
| 26. | Ongoing activity during decommissioning which could have an impact on the environment? | | | |
| 27. | Influx of people to an area in either temporarily or permanently? | | | |
| 28. | Introduction of alien species? | | | |
| 29. | Loss of native species or genetic diversity? | | | |
| 30. | Any other actions? | | | |
| **Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?** | | | | |
| 1. | Land especially undeveloped or agricultural land? | | | |
| 2. | Water? | | | |
| 3. | Minerals? | | | |
| 4. | Aggregates? | | | |
| 5. | Forests and timber? | | | |
| 6. | Energy resources? | | | |
| 7. | Any other resources? | | | |
| **Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?** | | | | |
| 1. | Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)? | | | |
| 2. | Will the project result in changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)? | | | |
| 3. | Will the project affect the welfare of people e.g. by changing living conditions? | | | |
| 4. | Are there especially vulnerable groups of people who could be affected by the project e.g. hospital patients, the elderly? | | | |
| 5. | Any other causes? | | | |
| **Will the Project produce solid wastes during construction or operation or decommissioning?** | | | | |
| 1. | Spoil, overburden or mine wastes? | | | |
| 2. | Municipal waste (household and or commercial wastes)? | | | |
| 3. | Hazardous or toxic wastes (including radioactive wastes)? | | | |
| 4. | Other industrial process wastes? | | | |
| 5. | Surplus product? | | | |
| 6. | Sewage sludge or other sludges from effluent treatment? | | | |
| 7. | Construction or demolition wastes? | | | |
| 8. | Redundant machinery or equipment? | | | |
| 9. | Contaminated soils or other material? | | | |
| 10. | Agricultural wastes? | | | |

| | | | | |
|---|---|---|---|---|
| 11. | Any other solid wastes? | | | |
| **Will the Project release pollutants or any hazardous, toxic or noxious substances to air?** | | | | |
| 1. | Emissions from combustion of fossil fuels from stationary or mobile sources? | | | |
| 2. | Emissions from production processes? | | | |
| 3. | Emissions from materials handling including storage or transport? | | | |
| 4. | Emissions from construction activities including plant and equipment? | | | |
| 5. | Dust or odours from handling of materials including construction materials, sewage and waste? | | | |
| 6. | Emissions from incineration of waste? | | | |
| 7. | Emissions from burning of waste in open air (*e.g.* slash material, construction debris)? | | | |
| 8. | Emissions from any other sources? | | | |
| **Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?** | | | | |
| 1. | From operation of equipment e.g. engines, ventilation plant, crushers? | | | |
| 2. | From industrial or similar processes? | | | |
| 3. | From construction or demolition? | | | |
| 4. | From blasting or piling? | | | |
| 5. | From construction or operational traffic? | | | |
| 6. | From lighting or cooling systems? | | | |
| 7. | From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)? | | | |
| 8. | From any other sources? | | | |
| **Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters or groundwater?** | | | | |
| 1. | From handling, storage, use or spillage of hazardous or toxic materials? | | | |
| 2. | From discharge of sewage or other effluents (whether treated or untreated) to water or the land? | | | |
| 3. | By deposition of pollutants emitted to air, onto the land or into water? | | | |
| 4. | From any other sources? | | | |
| 5. | Is there a risk of long term build up of pollutants in the environment from these sources? | | | |
| **Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?** | | | | |
| 1. | From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances? | | | |
| 2. | From events beyond the limits of normal environmental protection e.g. failure of pollution controls systems? | | | |
| 3. | From any other causes? | | | |

| | | | | |
|---|---|---|---|---|
| 4. | Could the project be affected by natural disasters causing environmental damage (*e.g.* floods, earthquakes, landslip, *etc*)? | | | |
| **Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?** | | | | |
| 1. | Changes in population size, age, structure, social groups *etc*? | | | |
| 2. | By resettlement of people or demolition of homes or communities or community facilities e.g. schools, hospitals, social facilities? | | | |
| 3. | Through in-migration of new residents or creation of new communities? | | | |
| 4. | By placing increased demands on local facilities or services e.g. housing, education, health? | | | |
| 5. | By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy? | | | |
| 6. | Any other causes? | | | |
| **Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?** | | | | |
| 1. | Will the project lead to pressure for consequential development which could have significant impact on the environment e.g. more housing, new roads, new supporting industries or utilities, etc? | | | |
| 2. | Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g. supporting infrastructure (roads, power supply, waste or waste water treatment, etc) | | | |
| 3. | Will the project lead to after-use of the site which could have an impact on the environment? | | | |
| 4. | Will the project set a precedent for later developments? | | | |
| 5. | Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects? | | | |

**Annex I: RWANDA STANDARDS**

| SN | NUMBER | TITLE | SCOPE |
|---|---|---|---|
| **A. FOOD STANDARDS** | | | |
| 1 | RS CAC/RCP1-1969,Rev.4:2003 | Code of practice — General Principle for Food Hygiene | This document follows the food chain from primary production to the final consumer, setting out the necessary hygiene conditions for producing food which is safe and suitable for consumption. |
| 2 | RS CAC/RCP 48:2003 | Code of hygienic practice for bottled/packaged drinking waters (other than natural mineral waters | Recommends general techniques for collecting, processing, packaging, storing, transporting, distributing, and offering for sale a variety of drinking waters (other than natural mineral water) for direct consumption. |
| 3 | RS CAC/GL 1 - 1979,Rev.1:2003 | General Guidelines on Claims | These guidelines relate to claims made for a food irrespective of whether or not the food is covered by an individual Codex Standard. |
| 4 | RS CAC/GL 2 - 1985,Rev.1:2003 | Guidelines on Nutrition Labelling | These guidelines recommend procedures for the nutrition labelling of foods |
| 5 | RS CAC/GL 23- 1997, Rev.1:2004 | Guidelines for Use of Nutrition and Health Claims | These guidelines relate to the use of nutrition and health claims in food labelling and, where required by the authorities having jurisdiction, in advertising. |
| 6 | RS 176:2006 | Soft Drinks — Specification | Covers the manufacture of soft drinks. |
| 7 | RS CODEX STAN 85:2005 | Concentrated Pineapple Juice Preserved Exclusively by Physical means—<br>Specification | Applies to Unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process, which may include centrifuging but not filtering, from the flesh or parts thereof, with or without core material, of sound, ripe pineapples preserved exclusively by physical means. |
| 8 | RS CODEX STAN 48:2005 | Concentrated Apple Juice Preserved Exclusively by Physical means — Specification | Applies to unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process from sound, ripe apples (Pyrus malus L.) Preserved exclusively by physical means. |
| 9 | RS CODEX STAN 45: 2005 | Concentrated Orange Juice Preserved Exclusively by Physical means— Specification | Applies to unfermented but fermentable orange juice, intended for direct consumption, obtained by a mechanical process from the endocarp of sound, ripe oranges ( citrus sinensis L. Osbeck) preserved exclusively by physical means. |

| | | | |
|---|---|---|---|
| 10 | RS 1:2004 | Natural Mineral Water — Specification | Specifies the description and the hygienic practices for collecting, transport, treatment, bottling, packing, storage, and labelling of natural mineral waters offered for sale as food. |
| 11 | RS 2:2004 | Packaged/Bottled Drinking Water — Specification | Prescribes the requirements and methods of test for drinking water other than natural mineral water defined in the Rwanda Standard RS 1:2003, offered for sale in a packaged form |
| 12 | RS3: 2004 | Code of Practice for Processing, Handling and Distribution of Alcoholic Beverages | Prescribes the requirements for processing, handling and distribution of alcoholic beverages. |
| 13 | RS4:2004 | Neutral Spirits for manufacture of alcoholic beverages — Specification | Prescribes the requirements and methods of test for neutral spirit intended for use in the manufacture or blending of alcoholic beverages. |
| 14 | RS 5:2004 | Gin — Specification | Prescribes the requirements and methods of sampling for Gins. |
| 15 | RS6:2004 | Brandy— Specification | Prescribes the requirements for brandies |
| 16 | RS7:2004 | Whisky —Specification | Prescribes the requirements and methods of test for whisky (whiskey). It does not apply to whisky concentrate, which is subject to further processing before consumption. |
| 17 | RS8:2004 | Rum — Specification | Prescribes the requirements and methods of sampling and testing for rum. |

| | | | |
|---|---|---|---|
| 18 | RS9:2004 | Vodka —Specification | Prescribes the requirements and methods of test for vodka. |
| 19 | RS10:2004 | Still table wines — Specification | Prescribes the requirements and methods of test for still table wines. |
| 20 | RS11:2004 | Sparkling Wines — Specification | Specifies the requirements and methods of test for sparkling wines. |
| 21 | RS12:2004 | Fortified Wines — Specification | Prescribes the requirements and methods of test for fortified wines |
| 22 | RS16:2004 | Beer — Specification | Prescribes the requirements and methods of test for beer. |
| 23 | RS 17:2004 | Carbonated and Non – carbonated beverages — Specification | Prescribes the requirements and methods of test for carbonated and non-carbonated beverages. |
| 24 | RS 18:2004 | Glucose based energy drink — Specification | Prescribes the requirements and methods of test for glucose based energy drinks |
| 25 | RS 19-1:2004 | Fruit-based soft drinks-specification — Part 1:Soft drinks with Fruit Juice | Prescribes the requirements and methods of test for soft drinks with fruit juice. |

| | | | |
|---|---|---|---|
| 26 | RS 19 - 2:2004 | Fruit-based soft drinks-specification — Part 2:Comminuted fruit based soft drinks | Prescribes the requirements and methods of test for comminuted fruit-based soft drinks with crushed peels of the fruit. |
| 27 | RS 20:2004 | Cereal based Alcoholic Beverages — Specification | Specifies the requirements and methods of test for cereal based alcoholic beverages. |
| 28 | RS 21:2004 | Concentrated Passion fruit juice preserved exclusively by physical mean — Specification | Applies to unfermented but fermentable passion fruit juice intended for direct consumption obtained by mechanical process from sound and ripe passion fruit (Passiflora edulis Sims) preserved exclusively by physical means |
| 29 | RS 22:2004 | Mango Juice Preserved Exclusively by Physical Means-Specification | Applies to unfermented but fermentable orange juice, intended for direct consumption, obtained by a mechanical process from the endocarp of sound, ripe oranges ( citrus sinensis L. Osbeck) preserved exclusively by physical means. |
| 30 | RS CODEX STAN 85:2005 | Concentrated Pineapple Juice Preserved Exclusively by Physical means— Specification | Applies to Unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process, which may include centrifuging but not filtering, from the flesh or parts thereof, with or without core material, of sound, ripe pineapples preserved exclusively by physical means. |
| 31 | RS 24:2004 | Sorghum Grains— Specification | Applies to sorghum grains obtained from species of sorghum bicolour (L) Moench, intended for direct human consumption, |
| 32 | RS 25:2004 | Maize Grains— Specification | Covers specification and methods of sampling and test for maize. The standard applies to maize (corn) for direct human consumption, |
| 33 | RS 26:2004 | Wheat and Durum Wheat Grains— Specification | Applies to wheat grains of the species common wheat (Triticum aestivum L.) and durum wheat (Triticum durum Desf.) intended for processing for human consumption. |
| 34 | RS 27:2007 | Milled Rice —Specification | Specifies requirements, classification, grading and methods of test for milled rice. |
| 35 | RS 28:2004 | Whole maize meal — Specification | Applies to whole maize (corn) meal, for human consumption prepared from kernels of common maize, Zea mays |
| 36 | RS 29:2004 | Edible Maize starch —Specification | Prescribes the requirements for edible maize starch, commonly referred to as edible corn starch or corn flour. |

| | | | |
|---|---|---|---|
| 37 | RS 30:2004 | Sorghum Flour— Specification | Specifies requirements for sorghum flour for human consumption. |
| 38 | RS 31:2004 | Whole Wheat Flour— Specification | Applies to whole – wheat flour for human consumption prepared from common wheat, Triticum aestivum L., or club wheat, Triticum compactum Host. Or mixtures thereof, which is prepackaged ready for sale to the consumer or destined for use in other food products. |
| 39 | RS 121:2006 | Dry Milled Maize Products — Specification | Prescribes the requirements for dry milled maize products destined for human consumption. |
| 40 | RS 165:2007<br>EAS173:2000 | Pasta Products — Specification | Prescribes the requirements and methods of test for pasta products. |
| 41 | RS 68:2005 | Soya Bean — Specification | Gives minimum requirements and methods of test for soya beans for general use. |
| 42 | RS 69:2005 | Processed Cereals based Foods for Infants and Children — Specification | Specifies requirements and methods of test for processed cereal-based foods intended for supplementation of the diet of infants and children. |
| 43 | RS70:2005 | Breakfast Cereals-Specification — Part2:Flaked b breakfast Cereals | Prescribes the requirements and methods of test for Flaked b breakfast Cereals which are ready to eat. |
| 44 | RS71:2005 | Bread — Specification | Prescribes the requirements and the methods of test for white Bread, brown bread, whole meal bread and enriched bread. |
| 45 | RS 236:2007<br>CAC/RCP 22:1979 | Recommended Code of Hygiene Practice for Groundnuts (Peanuts) | Applies to groundnuts, also known as peanuts, monkey nuts or earth nuts (Arachis hypogaea L).<br>It contains the minimum requirements of hygiene for farm handling, transportation, storage,<br>In-shell operations and commercial shelling. It covers all types and forms of raw, dried groundnuts (peanuts) in-shell and shelled. |
| 46 | RS 237:2007<br>CAC/RCP 55:2004 | Recommended Code of Hygiene Practice for the Prevention and reduction of Aflatoxin Contamination in Peanuts | This document is intended to provide guidance for all interested parties producing and handling<br>Peanuts for entry into international trade for human consumption.<br>These codes of practice indicates the measures that should be implemented by all persons that have the responsibility for assuring that food is safe and suitable for consumption. |
| 47 | RS 36:2005 | Glossary of terms used in tea trade | Lists the terms in the tea industry and provides their definitions in relation to the technicalities of processing of tea for the market. |
| 48 | RS 37: 2004 | Black tea — Specification | Specifies requirements and the methods of sampling and analysis of black tea. |
| 49 | RS 38:2005 | Glossary of terms used in coffee trade | Defines the most commonly used terms relating to coffee and its |

| | | | |
|---|---|---|---|
| | | | products |
| 50 | RS 39:2005 | Roasted Coffee Beans and Roasted Ground Coffee — Specification | Specifies the requirements and methods of test of roasted coffee beans and roasted ground coffee |
| 51 | RS 40:2005 | Instant (soluble) Coffee —Specification | Prescribes requirements and methods of test for soluble coffee powder derived by dehydration of aqueous extract of freshly roasted ground coffee. |
| 52 | RS CODEX STAN 1-1985:Rev.4:2005 | General Standard for the Labelling of Pre-packaged Foods | Applies to the labelling of all pre-packaged foods to be offered as such to the consumer or for catering purposes and to certain aspects relating to the presentation thereof. |
| 53 | RS ISO 9116:2005 | Green Coffee — Guidelines on Methods of specification | Gives guidance on methods to be used to describe green coffee for sale and purchase, and is based on the terms of contract used in the International coffee trade |
| 54 | RS 41:2004 | Unprocessed Whole Milk —Specification | Specifies the quality requirements of unprocessed, normal cow milk |
| 55 | RS 42:2004 | Pasteurized Liquid Milk —Specification | Specifies requirements and methods of test for pasteurized liquid milk offered for sale and intended for human consumption. |
| 56 | RS 43:2004 | Fermented (Cultured) Milks — Specification | Specifies the requirements for fermented (cultured) milks for human consumption. |
| 57 | RS 44:2004 | UHT Milk —Specification | Prescribes the requirements and methods of tests for UHT milk. |
| 58 | RS 45:2004 | Milk powders and Cream powders — Specification | Covers the quality requirements of unprocessed, normal cow milk. |
| 59 | RS 60 :2005 | Yoghurt —Specification | Specifies quality requirements for yoghurt. |
| 60 | RS 61 -1:2007 | Cheese —Part1: General Requirements | Specifies the requirements for cheese. |
| 61 | RS 61 - 2:2007 | Specification for cheese — Part2: Gouda Cheese | Prescribes the requirements for Gouda cheese processed for human consumption. |
| 62 | RS 62:2005 | Butter— Specification | Specifies requirements for butter intended for direct consumption or for further processing. |
| 63 | RS 63:2005 | Methods of Sampling Milk and Milk Products | Describes the methods and apparatus to be employed in the sampling of dairy products for chemical, microbiological, or sensory examination. |
| 64 | RS 54:2004 | Sausage — Part1: Fresh, Cooked and Smoked Pork and Sausages, pork and Beef Sausage meat-Specification | Prescribes quality requirements and methods of test for fresh, cooked or smoked pork, beef sausages, pork and beef sausage meat. |

| | | | |
|---|---|---|---|
| 65 | RS 55:2004 | Canned Corned Beef — Specification | Covers requirements for canned beef products designated “corned beef” packed in hermetically sealed containers, which have been treated after sealing, to such an extent that the product is shelf-stable. |
| 66 | RS 56:2005 | Code of Practice for Handling, processing and Distribution of fish | Prescribes the hygienic and quality requirements for the handling, processing and distribution of fin fish intended for human consumption and the application of HACCP in the fish industries. |
| 67 | RS 57:2005 | Dressed poultry (Chicken)—Specification | Prescribes the quality requirements and methods of test for dressed poultry. |
| 68 | RS 59 - 1:2005 | Fresh Fin Fish — Part1: Fresh whole fish — Specification | Prescribes the requirements and methods of Test for fresh Fish |
| 69 | RS 59 - 2:2005 | Fresh Fin Fish — Part2:Fresh fish fillet — Specification | Prescribes the requirements and methods of Test for fresh Fish |
| 70 | RS 67:2005 | Canned Fish in Tomato Sauce — Part1: Specification | Prescribes the requirements and the methods of test for fish canned in tomato sauce. |
| 71 | RS CAC/RCP 58:2005 | Code of Hygienic Practice for Meat | Covers hygiene provisions for raw meat, meat preparations and manufactured meat from the time of live animal production up to the point of retail sale. |
| 72 | RS 46:2005 | Margarine— Specification | It does not apply to any product, which contains less than 80% fat and is not labelled in any manner, which implies, either directly or indirectly, that the product is margarine. |
| 73 | RS 47:2007 | Named Vegetable Oils — Specification | Applies to the vegetable oils described in section 2.1 presented in a state for human consumption |
| 74 | RS CODEX STAN 19:2005 | Edible fats and Oils — Specification | Applies to oils, fats and mixtures thereof in a state for human consumption. It does not apply to any fat or oil, which is a subject of specific Rwanda standard designated by specific name. |
| 75 | RS CODEX 211:2005 | Named Animal Fats — Specification | Applies to the animal fats described in Section 2 presented in a state for human consumption. |
| 76 | RS 49:2007 | Dextrose Monohydrate (Glucose Powder) — Specification | Prescribes the requirements and methods of test for dextrose monohydrate (glucose powder). |
| 77 | RS 94-1:2007 | Sugar Confectionary — Part1: High Boiled Sweets | Covers the requirements and methods of test for high boiled sweets. |
| 78 | RS 94-2:2007 | Sugar Confectionary— Part 2:Caramel,toffees and Fudge | Covers the requirements for caramels, toffees and fudge. |
| 79 | RS 94-3:2007 | Sugar Confectionary— Part3: Chewing Gum and Bubble Gum | Covers the requirements and methods of Test for chewing gum and Bubble gum. |

| | | | |
|---|---|---|---|
| 80 | RS 95:2007 | Brown Sugar— Specification | Prescribes the requirements and methods of test for brown sugar, derived from sugarcane or sugar beet, intended for direct human consumption. |
| 81 | RS 96:2007 | Refined white sugar— Specification | Specifies the requirements and methods of test for refined white sugar in the form of crystals, powder and cubes. |
| 82 | RS 97:2007 | Raw Sugar— Specification | Prescribes the requirements and methods of test for raw sugar. |
| 83 | RS 98:2007 | Plantation (mill) White Sugar— Specification | Applies to plantation (mill) white sugar intended for human consumption |
| 84 | RS 99:2007 | Glucose Syrup — Specification | Specifies requirements and methods of test for glucose syrup |
| 85 | RS 140:2007<br>CODEX STAN 212:2005 | Rwanda Codex Standard for Sugars | Applies to the following sugars intended for human consumption without further processing (synonyms are in round brackets). It includes sugars sold directly to the final consumer and sugars used as ingredients in foodstuffs. |
| 86 | RS 110:2006 | Infant food formula — Specification | Prescribes the quality requirements and methods of test for infant food formula. |
| 87 | RS 112:2006 | Code of marketing of breast-milk substitutes | Applies to the marketing of breast milk substitutes. |
| 88 | RS EAS 78:2006 | Milk-based foods— Specification | Prescribes the requirements for infant milk foods. These foods are intended for use as part of the weaning or follow up diet of the infant from the age of 4 months to 6 months, and of the child. |
| 89 | RS 122:2009 | Cakes— Specification | Prescribes the requirements and methods of test for the following types of cakes:<br>Plain cakes; Fruit cakes; Sponge cakes; Speciality cakes |
| 90 | RS 222:2009 | Cookies— Specification | Prescribes the requirements and methods of tests for cookies baked from batter |
| 91 | RS 269:2009 | Millet flour— Specification | Specifies requirements for flour for human consumption, which is obtained from pearl millet pennisetum americanum (variety souna and sanoo), proso millet (Penicum Maliaceum), and finger millet (Eleusin Coracona). |
| 92 | RS248:2009 | Fruit Wines— Specification | Specifies the requirements and methods of test for fruit wines. |
| 93 | RS 125:2009 | Fruit Flavoured Drinks— Specification | Prescribes the requirements and methods of test for fruit flavoured drinks. |
| 94 | RS 136:2009 | Fruit Jams, Jellies and Marmalades— Specification | Prescribes the requirements and methods of tests for jams, jellies and marmalades |
| 95 | RS 163:2009 | Code of hygienic practice for processed meat products | Applies to processed meat products and contains the minimum requirements of hygiene in the production handling packing, storing and transportation of processed meat products to ensure a healthful and |

| | | | |
|---|---|---|---|
| | | | wholesome supply of meat products |
| 96 | RS 119 -1:2009<br>EAS 66-1:2000 | Tomato products — Specification<br>Part 1:Canned tomatoes | Prescribes the requirements for canned tomatoes, tomato juice, Tomato concentrates (puree and paste) and Highly seasoned tomato products (sauce and ketchup) and their test methods |
| 97 | RS 119 - 2:2009<br>EAS 66-2:2000 | Tomato products — Specification<br>Part 2:Tomato juice | |
| 98 | RS 119 -3:2009<br>EAS 66-3:2000 | Tomato products — Specification<br>Part 3:Tomato concentrates | |
| 99 | RS 119 - 4:2009<br>EAS 66-4:2000 | Tomato products — Specification<br>Part 4:Highly seasoned tomato products | |
| 100 | RS CAC/RCP 21:2006 | Recommended International Code of hygienic practice for foods for infants and children | Applies to all prepackaged foods produced, represented or purported to be for the special use of infants and/or children.<br>It contains the minimum hygienic requirements for the handling (including production, preparation, processing, packaging, storage, transport, distribution and sale) of such food to ensure a safe, sound and wholesome product. |
| 101 | RS 115: 2006 | Passion fruits — Specification | Specifies the requirements for passion fruits(Passiflora edulis) to be supplied fresh in the export and local markets |
| **B. AGRICULTURAL PRODUCT STANDARDS** | | | |
| 102 | RS 199:2006 | Green coffee — Specification | Specifies the requirements for coffee beans |
| 103 | RS ISO 8455:2005 | Green coffee in bags — Guide to storage and transport. | Guide to storage and transport. |
| 104 | RS 38:2005 | Glossary of terms used in coffee trade | Defines the most commonly used terms relating to coffee and its products |
| 105 | RS 158:2006<br>CODEX STAN 182-1993 | Pineapples — Specification | Applies to the commercial varieties grown from Ananus comosus(L) Merr, of the Bromeliaceae family, to be supplied fresh to the consumer, after preparation and packaging. |
| 106 | RS 156:2006<br>CODEX STAN 197-1995 | Avocado — Specification | Applies to the commercial varieties (cultivars) of avocados grown from Persea americana Mill of the Lauraceae family, in green state, to be supplied fresh to the consumer, after preparation and packaging |
| 107 | RS 115: 2006 | Passion fruits — Specification | Specifies the requirements for passion fruits(Passiflora edulis) to be supplied fresh in the export and local markets |
| 108 | RS 155:2006<br>CODEX STAN 184-1993 | Fresh Mangoes — Specification | Applies to the commercial varieties of mangoes grown from Mangifera indica L,; of the Anacardiaceae family, to be supplied fresh to the consumer, after preparation and packaging |

| | | | |
|---|---|---|---|
| 109 | RS 202: 2006 | Code of practice for animal feed production, processing, storage and distribution | Applies to processing, storage and distribution of animal feeds |
| 110 | RS 203:2006 | Specification for compounded poultry feeds | Specifies requirements for the following types of poultry diets: chick, broiler and duckling diet, turkey starter diet; growers' diet forchickens and ducklings; turkey rearers' diet; turkey growers' diet; layers' diet for fowl, and layers' diet for ducks and turkeys. |
| 111 | RS 204:2006 | Specification for cattle feeds | Specifies requirements for cattle feeds |
| 112 | RS 157:2009 CODEX STAN 205-1997 | Bananas — Specification | Applies to commercial varieties of bananas grown from *Musa* spp.(AAA), of the *Musaceae* family, in the green state, to be supplied fresh to the consumer, after preparation and packaging. Banana intended for cooking only (plantains) of for industrial processing are excluded. |
| 113 | RS 238 :2009 CAC/RCP 44-1995, AMD. 1:2004 | Code of practice for Packaging and Transport of fresh fruits and vegetables | Recommends proper packaging and transport of fresh fruits and vegetables in order to maintain produce quality during transportation and marketing |
| 114 | RS 239 :2009 CODEX STAN 245:2004, AMD. 1:2005 | Oranges— Specification | Applies to commercial varieties of oranges grown from *Citrus sinensis* (L), Osbeck, of the *Rutaceae* family, to be supplied fresh to the consumer, after preparation and packaging. Oranges for industrial processing are excluded |
| 115 | RS 240 :2009 (CODEX STAN 183:1993, REV. 1:2001, AMD. 1:2005 | Papayas— Specification | Applies to commercial varieties of papayas grown from *Carica papaya* L., Osbeck, of the *caracaceae* family, to be supplied fresh to the consumer, after preparation and packaging. Papaya for industrial processing are excluded |
| 116 | RS 8:2009 CAC/RCP 54-2004 | Code of Practice on Good Animal Feeding | It applies to the production and use of all materials destined for animal feed and feed ingredients at all levels whether produced industrially or on farm. It also includes grazing or free-range feeding, forage crop production and aquaculture |
| 117 | RS 243:2009 ISO 7563:1998 | Fresh fruits and vegetables — Vocabulary | This Standard defines the terms most frequently used in the context of fresh fruits and vegetables |
| 118 | RS 241:2009 | Fresh tomatoes— Specification | It prescribes requirements for fresh tomatoes *(Lycopersicon esculentum Mill.*) of *Solanaceae* familyfor to be supplied fresh to the consumer, after preparation and packaging. Tomatoes for industrial processing are excluded |
| 119 | RS 242:2009 | Carrot— Specification | It applies to carrots of varieties (cultivars) grown from (*Daucus carota*. L.) to be supplied fresh to the consumer, carrots for industrial processing being excluded. |

| | | | |
|---|---|---|---|
| 120 | RS 272:2009 | Code of Hygienic Practice for Fresh Fruits and Vegetables | It covers general hygienic practices for the primary production and packing of fresh fruits and vegetables cultivated for human consumption in order to produce a safe and wholesome product: particularly for those intended to be consumed raw |
| 121 | RS 271:2009<br>ISO 6673:2003 | Green Coffee — Determination of loss in mass at 105º C | This Standard specifies a method for the determination of the loss in mass at 105 °C of green coffee |
| 122 | RS 104: 2005 | Calcium ammonium nitrate — Specification | Specifies the requirements, and methods of test for Calcium ammonium nitrate(CAN) fertilizer |
| 123 | RS 105: 2005 | Urea fertilizer grade — Specification | Specifies the requirements, methods of Sampling and tests for Urea fertilizer grade |
| 124 | RS 106: 2005 | Solid compound fertilizer — Specification | Specifies the requirements, methods of Sampling and tests for compound fertilizers |
| 125 | RS 107:2005 | Granulated Superphosphate fertilizers — Specification | Specifies the requirements, methods of Sampling and tests for Granulated Superphosphate fertilizers |
| 126 | RS419:2009<br>EAS 456:2007 | Organic products — Production, processing and labelling | Provides requirements for organic production. It covers plant production, animal husbandry, bee-keeping, the collection of wild products, and the processing and labelling of the products there from. It does not cover procedures for verification such as inspection or certification of products |
| 127 | RS420:2009<br>EAS 330:2002 | Specification for Citrus fruits | Prescribes requirements for citrus fruits to be supplied in the export market and specified local markets. It also stipulates requirements for handling, grading and packaging of the produce |
| 128 | RS421:2009<br>EAS 56:2000 | Fresh mushrooms — Specification | Prescribes requirements for edible mushrooms of *Agaricus bisporus* species in fresh condition to be supplied for export and local markets. |
| 129 | RS422:2009<br>EAS 286:2002 | Cutflowers and Cutfoliage<br>Part1:Fresh Cutflowers — Specification | Specifies common quality requirements for fresh cutflowers for export and local markets. |
| 130 | RS423:2009<br>EAS 97:1999 | Fish meal as poultry and pig feed ingredient— Specification | Prescribes the requirements for fishmeal for use in compounding livestock feeds |
| 131 | RS424:2009<br>EAS 353: 2004 | Specification for Wheat bran | Prescribes requirements for wheat bran for use as animal feedstuff and or ingredient for compounding animal feeds |
| 132 | RS425:2009<br>EAS 230:2001 | Specification for Maize bran as livestock feed | Prescribes the requirements for maize bran as a livestock feed. |
| 133 | RS426:2009<br>EAS 231:2001 | Bone meal for compounding animal feed —Specification | Prescribes the requirements for bone meal used as a mineral supplement in animal feeds. |
| 134 | RS427:2009<br>EAS 75:2000 | Dairy cattle feed supplements — Specification | Covers the specifications for compounded feeds used for supplementing rations for dairy cattle. |

| | | | |
|---|---|---|---|
| 135 | RS428:2009<br>EAS 58:2000 | Dog Feed | Prescribes the requirements for dog feeds manufactured and/or marketed in East Africa |
| **C. CHEMICAL AND ENVIRONMENTAL STANDARDS** | | | |
| 136 | RS 72:2005 | Labeling of Cosmetic products | Covers requirements for the labelling of cosmetic products |
| 137 | RS 78:2005 | Glossary of terms used in the Cosmetic industry | Defines the terms relating to the cosmetic industry |
| 138 | RS 64:2005 | Toothpaste — Specification | Prescribes the requirements and the methods of sampling and test for Fluoridated toothpaste |
| 139 | RS 66:2005 | Cosmetic creams, lotions and gels for skin care-Specification | Prescribes the requirements and the methods of test for cosmetic creams ,lotions and gels for skin care |
| 140 | RS 76: 2005 | Toilet soap — Specification | Specifies requirements for toilet soap |
| 141 | RS 101:2006 | Skin powders — Specification — Part1:Body and face powders | Prescribes the requirements and methods of test for body and face powders. |
| 142 | RS 102:2006 | Body oils— Specification | Prescribes the requirements and methods of test for body oils |
| 143 | RS 103:2006 | Chemical hair relaxers and hair waving products— Specification | Specifies requirements and methods of test for chemical hair relaxers and hair waving products |
| 144 | RS 178:2006 | Hair oils — Specification | This Rwanda Standard specifies the requirements and methods of test for hair oils |
| 145 | RS 174:2006 | Antibacterial toilet soap — Specification | This Rwanda standard prescribes the requirements and methods of test for anti bacterial toilet soap. |
| 146 | RS180:2006 | Detergent powders for general purpose — Specification | This standard prescribes the requirements and methods of sampling and test for synthetic laundry detergents in granulated or powder form for household hand laundering. |
| 147 | RS 181:2006 | Laundry soaps — Specification | This standard prescribes requirements and methods of sampling and test for laundry soaps. |

| | | | |
|---|---|---|---|
| 148 | RS 183:2006 | Washing bars — Specification | This Rwanda Standard prescribes requirements and methods of sampling and testing for washing bars. |
| 149 | RS 73 -1:2005 | Cosmetic raw materials and adjuncts — Classification — Part1:Illustrative list by category of cosmetic products | Lists products that are classified as cosmetics |
| 150 | RS 73-2:2005 | Cosmetic raw materials and adjuncts — Classification — Part2: List of substances which shall not form part of the composition of cosmetic products | List of substances which shall not form part of the composition of cosmetic products |
| 151 | RS 73 - 3:2005 | Cosmetic raw materials and adjuncts— Classification — Part 3:List of substances which cosmetic products shall not contain except subject to the stipulated restrictions and conditions | List of substances which cosmetic products shall not contain, except subject to the stipulated restrictions and conditions |
| 152 | RS 73 -4:2005 | Cosmetic raw materials and adjuncts— Classification — Part4:List of colouring agents allowed for use in cosmetic products | Lists colouring agents which are allowed for use in cosmetic products |
| 153 | RS 73 - 5:2005 | Cosmetic raw materials and adjuncts— Classification — Part 5: List of preservatives which cosmetic products may contain | Lists preservatives which cosmetic products may contain |
| 154 | RS 73 -6:2005 | Cosmetic raw materials and adjuncts— Classification — Part 6: List of UV filters which cosmetic products may contain | Lists UV filters which cosmetic products may contain. |
| 155 | RS 175:2006 | Detergent for industrial dishwashing equipment — Specification | This Standard specifies the requirements and methods of test for detergent for industrial dishwashing equipment. |
| 156 | RS 184:2006 | Baby soaps— Specification | This Rwanda Standard prescribes the requirements and methods of test for baby soaps |
| 157 | RS 182:2006 | Methods of analysis for soaps— Specification | This Standard prescribes the test methods to be used in determining the compliance with the requirements laid down in Rwanda Standards referring to soaps. |
| 158 | RS 186:2006 | Polishes — Specification — Part1: Shoe wax solvent paste type | Prescribes the requirements and the methods of test for wax-solvent type polishes suitable for application to leather footwear and leather goods. |
| 159 | RS 179:2006 | Castor oil for cosmetic industry— Specification | This Standard prescribes the requirements for castor oil for cosmetic |

| | | | |
|---|---|---|---|
| | | | industry |
| 160 | RS 188:2006 | Mineral oil for cosmetic industry— Specification | This Standard prescribes the requirements and test methods for mineral oil for cosmetic industry. |
| 161 | RS 189:2006 | Groundnut(peanut) oil for cosmetic Industry — Specification | This Standard prescribes the requirements for groundnut(peanut) oil for the cosmetic industry |
| 162 | RS 190:2006 | Sesame(simsim) oil for cosmetic industry —3Specification | This Standard prescribes the requirements for sesame oil for the cosmetic industry |
| 163 | RS 191:2006 | Coconut oil for cosmetic industry | This Standard prescribes the requirements for coconut oil for the cosmetic industry |
| 164 | RS 215:2009 EAS340:2004 | Nail Polish — Specification | This standard prescribes the requirements and methods of test for nail polishes used for cosmetic purposes |
| 165 | RS 249:2009 EAS 341:2004 | Nail polish removers— Specification | This standard prescribes the requirements and methods of test for nail polish removers, solvent based. |
| 166 | RS 250:2009 EAS 296:2002 | Liquid household hand dishwashing and light duty detergent— Specification | This Standard specifies requirements for liquid detergent for household dishwashing and cleaning of hard surfaces such as painted surfaces, floors, ceilings, ceramic and plastic tiles, and the surfaces of equipment for machine dishwashing. |
| 167 | RS 251:2009 EAS 335:2002 | Cologne — Specification | This standard prescribes the requirements and methods of test for Cologne. |
| 168 | RS 252:2009 EAS 342:2004 | Pomades and solid brilliantines — Specification | This standard prescribes the requirements and methods of test for pomades and solid brilliantine for general use. |
| 169 | RS 154:2009 EAS 110:2005 | Cigarettes— Specification | This Standard specifies the requirements and methods of sampling and test for cigarettes. The tobacco blend of cigarettes is produced from leaves of the cultivated plant Nicotiana tobaccum and N.Rustica |
| 170 | RS 461:2009 | Water quality— Tolerance limits of discharged industrial wastewater | This standard gives permissible limits of some common parameters tested in industrial wastewater effluent |
| 171 | RS 462:2009 | Water quality— Tolerance limits of discharged domestic wastewater | This standard gives permissible limits of some common parameters tested in domestic wastewater effluent |
| 172 | RS 465:2009 ISO 6878 | Water quality — Determination of phosphorus — Ammonium molybdate spectrometric method | This standard specifies methods for the determination of orthophosphate, orthophosphate after solvent extraction, hydrolysable phosphate plus orthophosphate, total3phosphorus after decomposition |
| 173 | RS 466:2009 | Water quality— Determination of ammonium— | This standard specifies a potentiometric method, using an ammonia- |

| | | | |
|---|---|---|---|
| | ISO 6778 | Potontiomotric method | sensing membrane probe, for the determination of ammonium in raw and wastewater and sewage |
| 174 | RS 467:2009<br>ISO 5663 | Water quality— Determination of Kjeldhal nitrogen —<br>Method after mineralization with Selenium | This standard specifies a method for the determination of nitrogen by Kjeldhal type method.Only trivalent negative nitrogen is determined. |
| 175 | RS ISO 14001:2004 | Environmental management systems— Specification for guidance for use | Specifies requirements for an environment management system,to enable an organization to formulate a policy and objectives taking into account legislative requirement and information about significant environmental impacts |
| 176 | RS ISO 14004: 2004 | Environmental management systems—<br>General guidelines on principles, systems and supporting techniques | Provides guidance on the development and implementation of environmental management systems and principles and their coordination with other management system |
| 177 | RS ISO 14015:2004 | Environmental management systems—<br>Environment assessment of sites and organisations (EASO) | Provides guidance on how to conduct an EASO through a systematic process of identifying environmental aspects and environmental issues and determining, if appropriate,their business consequences |
| 178 | RSISO 14050:2004 | Environmental management systems— Vocabularies | Contain definitions of fundamental concepts related to environmental management |
| 179 | RS429:2009<br>EAS 479:2008 | Dentistry-Manual toothbrushes—General requirements and test methods | It specifies requirements and test methods for the physical properties of manual toothbrushes in order to promote the safety of these products for their intended use |
| 180 | RS432:2009<br>EAS 25:2000 | School chalks-Specification | This Standard specifies requirements, methods of sampling and tests for white and coloured chalks, made from good quality calcined gypsum or calcium sulphate ($CaSO_4.½H_2O$), intended for writing on chalkboards. |
| 181 | RS433:2009<br>EAS 345:2004 | Toluene — Specification | This Standard specifies requirements for toluene for use in paints, adhesive and printing inks. |
| 182 | RS434:2009<br>EAS 354:2004 | Plastic containers for up to 5 litres capacity — Specification | This Standard covers minimum requirements for plastic containers of nominal capacities up to and including 5 litres intended for storage of commodities other than explosives, compressed gases and radioactive materials |
| 183 | RS435:2009<br>EAS 12:2000 | Drinking(Potable) water— Specification | This prescribes quality requirements for drinking water.This standard applies to physical, bacteriological, radiological and chemical quality criteria of water. It also applies to organoleptic requirements of water. The standard as well as applies to the water used in the food industry and the water for domestic and catering purposes. |
| 184 | RS 481:2009<br>EAS 343 :2008 | Ball point pens — Specification — Part 1: General use | This standard establishes minimum quality requirements for ball point pens (retractable and non-retractable) and refills for general use |
| **D. CIVIL ENGINEERING STANDARDS** | | | |

| | | | |
|---|---|---|---|
| 185 | RS EAS 18-1:2004 | Cements —<br>Part 1: Composition, specification and conformity criteria for common cements | This standard defines and gives the specifications of 27 distinct common cement products and their constituents. |
| 186 | RS EAS 18-2:2004 | Cement—<br>Part 2:Conformity evaluation | This standard specifies the scheme for the evaluation of conformity of cements to their corresponding product specification standards, including certification of conformity by a certification body. |
| 187 | RS EAS 180:2004 | Specification for aggregates from natural sources for use in concrete | This standard specifies the quality and grading requirements for aggregates obtained by processing natural materials for use in concrete |
| 188 | RS 80:2005 | Building lime — Specification | This Standard covers four grades of hydrated lime and two grades of quicklime intended for use in plastering and rendering. The limes may be either high-calcium limes or dolomitic limes. |
| 189 | RS 82:2005 | Precast reinforced box culverts— Specification | This Standard specification applies to precast reinforced concrete rectangular box culverts primarily intended for conveying water not under pressure, and for carrying highway vehicle loadings |
| 190 | RS ISO 6935-1: 2005 | Steel for reinforcement of concrete —<br>Part1:Plain bars | This part specifies technical requirements for plain bars to be used as reinforcement in concrete.<br>This standard covers nine steel grades not intended for welding which are B240A-P, B240B-P, B240C-P, B240D-P, B300A-P, B300B-P, B300C-P, B300D-P and B420D-P, and one steel grade intended for welding which is B420DWP. |
| 191 | RS ISO 6935-2:2005 | Steel for reinforcement of concrete —<br>Part 2:Ribbed bars | This specifies technical requirements for ribbed bars designed for reinforcement in ordinary concrete structures and for non prestressed reinforcement in prestressed concrete structures. |
| 192 | RS ISO 6935-3: 2005 | Steel for reinforcement of concrete —<br>Part 3:Welded fabric | This part specifies technical requirements for factory made sheets or rolls of welded fabric, manufactured from steel wires or bars with diameters from 4 mm to 16 mm and designed for the reinforcement of concrete structures and the ordinary reinforcement of prestressed concrete structures. |
| 193 | RS 230-1:2007<br>ISO 6934-1:1991 | Steel for the prestressing of concrete —<br>Part 1: General requirements | This part specifies requirements for high tensile strength steel to be used in prestressed concrete. It applies only to material in the condition as supplied by the manufacturer. It does not cover requirements for materials and anchorage devices used in conjunction with' the prestressing steel in structural components. |
| 194 | RS 230-2:2007<br>ISO 6934-2:1991 | Steel for the prestressing of concrete —<br>Part 2:Cold drawn wire | This part specifies requirements for round, cold-drawn, high-tensile steel wire, either plain, indented, ribbed or crimped. The product is supplied as mill coil wire or straightened and stress-relieved wire in coils |

| | | | |
|---|---|---|---|
| | | | or cut lengths, according to the general requirements specified in IS0 6934-l. |
| 195 | RS 230-3:2007<br>ISO 6934-3:1991 | Steel for the prestressing of concrete —<br>Part 3: Quenched and tempered wire | This part specifies requirements for round wire made of quenched and tempered high tensile steel, with a surface which is either plain, ribbed, grooved or indented. The product is delivered in coils, according to the general requirements specified in IS0 6934-l. |
| 196 | RS 230-4:2007<br>ISO 6934-4:1991 | Steel for the prestressing of concrete —<br>Part 4: Strand | This part specifies requirements for high tensile steel strand which has been given a stress relieving heat treatment according to the general requirements specified in IS0 6934-l. |
| 197 | RS 230 -5:2007<br>ISO 6934-5:1991 | Steel for the prestressing of concrete —<br>Par t5: Hot rolled steel bars with or without subsequent processing | This part specifies requirements for round high tensile steel bars. The bars may be supplied either hot-rolled or in a hot-rolled and processed condition, according to the general requirements specified in IS0 6934-l.<br>The surface may be plain or ribbed.<br>The bars are delivered in straight lengths. |
| 198 | RS ISO 10544:2004 | Cold reduced steel for reinforcement of concrete and the man of welded fabric | This standard specifies technical requirements for cold-reduced steel wire designed for the reinforcement of concrete or for use in welded fabric. |
| 199 | RS 87:2005 | Carbon steel for reinforcement of concrete — Specification | This Standard specifies requirements for carbon steel bars for the reinforcement of concrete. It covers hot worked and cold worked bars that are plain and weldable, plain and non-weldable, deformed and weldable, or deformed and non-weldable. |
| 200 | RS 91: 2005 | Galvanized plain and corrugated steel sheets— Specification | This standard specifies requirements for galvanized plain and corrugated steel sheets for roofing, cladding, fencing, fabrication and general use. |
| 201 | RS 92: 2005 | Steel for building and construction | This standard specifies the requirements for the supply of materials used for the manufacture of:<br>(i)Hot rolled steel product<br>(ii)Cold formed steel products<br>(iii)Hard drawn steel wire and steel sections. |
| 202 | RS ISO 630-1 :2006 | Structural steels —<br>Part 1: Plates, wide flats, bars, sections and profiles | This standard specifies qualities for the general purpose structural steels. This Standard applies to steel plates with thicknesses of 3 mm and over, wide strip in coils with widths greater than or equal to 600 mm, and greater than 6 mm in thickness, wide flats, bars and hot-rolled sections generally used in the as-delivered condition and normally intended for bolted, riveted or welded structures. |
| 203 | RS ISO 4995: 2006 | Hot rolled steel sheets of structural quality— Specification | This standard applies to hot-rolled steel sheet of structural intended for structural purposes where particular mechanical properties are |

| | | | |
|---|---|---|---|
| | | | required. It is generally used in the delivered condition and is intended for bolted, riveted or 50welded structures. |
| 204 | RS ISO 4998: 2006 | Continuous hot dip zinc—<br>Coated carbon steel sheets of structural quality | This standard applies to continuous hot-dip zinc- and zinc-iron-alloy-coated carbon steel sheet of structural quality. |
| 205 | RS ISO 5954: 2006 | Cold reduced carbon steel sheet according to hardness requirements— Specification | This standard applies to cold-reduced carbon steel sheet and corresponding hardness requirements. It is suitable for applications where surface is of prime importance. |
| 206 | RS ISO 4997 :2006 | Cold reduced steel sheets of structural quality | This standard applies to cold-reduced steel sheet of structural quality in grades CR220, CR250, CR320 and CH550.The product is intended for structural purposes where particular mechanical properties are required. |
| 207 | RS ISO 4422-1:2006 | Pipes and fittings made of unplasticised poly(vinyl chloride) (PVC-U) for water supply— Specification —<br>Part 1: General requirements | This part specifies the general aspects of pipes, joints, fittings (post-formed and moulded) and ancillaries, made of unplasticized poly(vinyl chloride) (PVC-U), for a piping system intended to be used for buried water mains and services and for water supplies above ground, both inside and outside buildings. |
| 208 | RS ISO 4422-2:2006 | Pipes and fittings made of unplasticised poly(vinyl chloride) (PVC-U) for water supply— Specification —<br>Part 2:Pipes with or without integral sockets | This part specifies the characteristics and properties of extruded pipes made of unplasticized poly(vinyl chloride) (PVC-U), with or without socket(s) (integral or not), and intended to be used for buried water mains and services and for water supplies above ground, both inside and outside buildings. |
| 209 | RS ISO 4422-3:2006 | Pipes and fittings made of unplasticised poly(vinyl chloride) (PVC-U) for water supply— Specification —<br>Part 3:Fittings and joints | This part specifies the characteristics and properties of fittings (injection-moulded and postformed) and joints made of unplasticized poly(vinyl chloride) (PVC-U), to be used for buried water mains and services and for water supplies above ground, both inside and outside buildings. |
| 210 | RS ISO 4422-4:2006 | Pipes and fittings made of unplasticised poly(vinyl chloride) (PVC-U) for water supply— Specification — Part 4: valves and ancillary equipments | This part specifies the characteristics and properties of valves and ancillary equipment made of unplasticized poly(vinyl chloride) (PVC-U), to be used for buried water mains and services and for water supplies above ground, both inside and outside buildings.<br>The valves and ancillary equipment covered by this part are intended for the conveyance of cold water under pressure at temperatures up to 20 °C, for general purposes and for the supply of drinking water. This part is also applicable to water up to and including 45 °C |
| 211 | RS ISO 4422-5:2006 | Pipes and fittings made of unplasticised poly(vinyl chloride) (PVC-U) for water supply— Specification — | This part specifies the requirements for the determination of the fitness for a purpose of a piping system composed of pipes, joints, fittings and |

| | | | |
|---|---|---|---|
| | | Part 5:Fitness for purposes of the system | auxiliaries made of unplasticized poly(vinyl chloride) (PVC-U), to be used for buried water mains and services and for water supplies above ground, both inside and outside buildings. |
| 212 | RS 197 -1:2006 | Methods of test for aggregates—<br>Part 1:General requirements for apparatus and calibration | This standard gives definitions and symbols and specifies common equipment and calibration procedures for the RS 197 series.<br>It also specifies general requirements for apparatus and methods of calibration to be used when testing aggregates for compliance purposes. |
| 213 | RS 261:2009<br>ISO 13006:1998 | Ceramic tiles — Definition, classification, characteristics and marking | This Standard defines terms and establishes classifications, characteristics and marking requirements for ceramic tiles of the best commercial quality |
| 214 | RDS 263-1:2009<br>ISO 13007-1:2004 | Ceramic tiles— Grouts and adhesives—<br>Part 1:Terms,definitions and specification for adhesives | This standard is applicable to ceramic tile adhesives for internal and external tile installations on walls and floors |
| 215 | RS 263-3:2009<br>ISO 13007-3:2004 | Ceramic tiles— Grouts and adhesives<br>Part 3: Terms, definitions and specifications for grouts | This standard is applicable to ceramic tile grouts for internal and external tile installations on walls and floors. |
| 216 | RS 446 :2009 | Specifications for Building sands | This Rwanda Standard relates to naturally occurring sands, crushed stone sand and crushed gravel sands used for external renderings and internal plastering using mixes of lime and sand (with or without the addition of cement ), cement and sand (with or without the addition of lime). |
| 217 | RS448-1:2010 | Mortar for masonry —<br>Part1: Specification | This Standard specifies requirements for masonry mortars (bedding, jointing and pointing) for use in masonry walls, columns and partitions (facing and rendered masonry, load bearing or non-load bearing masonry structures for building and civil engineering). |
| 218 | RS445:2010 | Loading for building— Code of practice for dead and imposed loads | This standard gives dead and minimum recommended imposed loads for use in designing buildings. It applies to: new buildings and new structures; alterations and additions to existing buildings and existing structures; existing construction on change of use |
| 219 | RS 359:2009<br>EAS 54:1999 | Burnt building bricks — Specification | This Standard specifies building bricks of burnt clay, shale or brick earth for use in buildings for decoratives, structural and non structural purposes. It also specifies sampling and testing methods. |
| 220 | RS 360:2009<br>EAS 94:1999 | Burnt clay building blocks— Specification | This Standard specifies requirements for type, quality, dimensions and other physical characteristics, of burnt clay, shale or brick earth building blocks for use in buildings for structural and non-structural purposes. It also specifies sampling and testing methods. |
| 221 | RS 361:2009<br>EAS 166:2000 | Wood poles for power and telecommunications lines —<br>Specification : Eucalyptus | This Standard specifies requirements for pre-cast concretepaving blocks intended for the construction of low speed roads, industrial and other paved surfaces subjected to all categories of static and vehicular loading |

| | | | |
|---|---|---|---|
| | | | and pedestrian traffic. |
| 222 | RS 362:2009<br>EAS 418:2005 | Concrete manholes and inspection chambers, unreinforced, steel<br>fibre and reinforced | This Standard specifies performance requirements and describes test methods for precast concrete units for inspection chambers designed to be used for inverts not exceeding 2 metres deep and manholes, of circular, rectangular (with or without chamfered or rounded corners) or elliptical internal shape, unreinforced, steel fibre and reinforced, with nominal sizes and normal length not exceeding DN 1 250 (circular) or LN 1 250 (rectangular or elliptical). |
| 223 | RS 363:2009<br>EAS 424:2005 | Hydraulic road binders —<br>Composition, specifications and conformity criteria | This Standard applies to hydraulic road binders produced in a factory and supplied ready for use in road bases, sub-bases, capping layers, and soil stabilization or soil improvement |
| 224 | RS 358:2009<br>EAS 71:2000 | Burnt clay roofing tiles —Specification | This Standard specifies requirements for Mangalore and Roman roofing tiles. |
| 225 | RS414:2009<br>EAS 73:2000 | Building lime | This Standard specification applies to quick and hydrated lime intended for use in buildings |
| 226 | RS415:2009<br>EAS 179:2003 | Precast concrete paving blocks — Specification | This Standard specifies requirements for pre-cast concrete paving blocks intended for the construction of low speed roads, industrial and other paved surfaces subjected to all categories of static and vehicular loading and pedestrian traffic. |
| **E. MECHANICAL ENGINEERING AND METALLURGY STANDARDS** | | | |
| 227 | RS 226 -2:2007<br>ISO 4000-2:2007 | Passenger car tyres and Rims — Part 2 : Rims | Specifies the designation, contour and dimensions of $5^0$ tapered (drop-centre)rims primarily intended for passenger cars |
| 228 | RS 227:2007<br>EAS 359:2004 | Pneumatic tyres for light trucks — Specification | Specifies tyre dimensions, designation, marking requirements and load ratings. It also gives laboratory tests requirements for bead unseating, strength and endurance performance for light truck tyres. It also specifies sampling methods and disposition of non conforming tyres. |
| 229 | RS 228:2007<br>EAS 357:2004 | Pneumatic tyres for light trucks and buses— Specification | Specifies tyre dimensions, designation and marking requirements and load ratings. It also gives laboratory test requirements for strength endurance for tyres primarily intended for trucks and buses. |
| 230 | RS ISO 3779:2006 | Road Vehicles: Vehicle Identification number (VIN) | Specifies content and structure of an identifier in order to establish, on a worldwide basis the identification of road vehicle manufacturing |
| 231 | RS ISO3780:2006 | Road Vehicles: World manufacturers identification code(WMI) | Specifies content and structure of a vehicle identification number (VIN) in order to establish, on a worldwide basis a uniform identification numbering system of road vehicles. |
| 232 | RS ISO 4100:2006 | Specification for Road Vehicles— World parts manufacturers identifier code (WPMI) | Specifies content and structure of an identifier in order to establish ,on a worldwide basis the identification of the manufacturers or parts for |

| | | | |
|---|---|---|---|
| | | | road vehicles |
| 233 | RS 207:2009<br>EAS 159:2000 | Engine oils — Specification | This standard covers crankcase-lubricating oils, for automotive type internal combustion engines, meeting or exceeding, API service classification.<br>"SF" for gasoline engine<br>"CD" for diesel engines |
| 234 | RS 210:2009<br>EAS 158 | Gasoline(Petrol)unleaded — Specification | This Standard specifies the requirements and methods of test for unleaded motor gasolines with a research octane number (RON) of 95 also known as petrol or motor spirit for use in<br>Spark ignition internal combustion engines. This standard does not cover aviation gasolines and leaded gasolines |
| 235 | RS 211:2009<br>EAS 177 | Automotive diesel — Specification | This standard specifies one grade of automotive diesel fuel suitable for use in compression ignition engines including high-speed engines. |
| 236 | RS 258 :2009<br>ISO 86811986 | Petroleum products and Lubricants — Method of classification — Definition of classes | This standard establishes the general classification system which applies to petroleum products, lubricants and related products; defines the classification of petroleum products, lubricants and related products together with their designation. |
| 237 | RS 259-1:2009<br>IS0 8216-3 : 1987 | Petroleum products — Fuels (Class F)— Classification —<br>Part 3: Family L(Liquefied petroleum gases) | This part establishes the detailed classification of liquefied petroleum gases within class F (Petroleum fuels). It Should be read in conjunction with IS0 8216/O. Liquefied petroleum gases may be derived from crude oil processing or recovered from natural gas and/or crude oil production |
| 238 | RS 260:2009<br>ISO 6743-99:2002 | Lubricants, Industrial oils and related products (class L) — classification —<br>Part 99: General | This part establishes a general system of classification, which applies to lubricants, industrial oils and related products, designated by the prefix "L". Within class L, 18 families of products are defined, according to the application areas of research, so as to cover, as much as possible, all the applications where lubricants, industrial oils and related products are used. |
| 239 | RS 400 :2009<br>IS0 7-1:1994 | Pipe threads where pressure-tight joints are made on the threads —<br>Part 1: Dimensions, tolerances and designation | This part specifies the requirements for thread form, dimensions, tolerances and designation for jointing pipe threads, sizes 1 /I6 to 6 inclusive, for joints made pressure-tight by the mating of the threads. |
| 240 | RS 401:2009<br>ISO 4706:2008 | Refillable welded steel gas cylinders | This Standard gives minimum requirements for<br>certain aspects concerning material, design, construction and workmanship, procedure and test at manufacture of refillable welded steel gas cylinders of a test pressure not greater than 75 bar, and of water capacities from 1L up to and including 150 L for compressed, liquefied or dissolved gases, exposed to ambient temperatures. |

| | | | |
|---|---|---|---|
| 241 | RS 402:2009<br>ISO 4427-1:2007 | Plastics piping systems —Polyethylene (PE) pipes and fittings for water supply —<br>Part 1:General specifications | This part specifies the general aspects of polyethylene (PE) piping systems (mains and service pipes) intended for the conveyance of water for human consumption, including raw water prior to treatment and water for general purposes. It also specifies the test parameters for the test methods to which it refers. |
| 242 | RS 403:2009<br>ISO 1461:1999 | Hot dip galvanized coatings on fabricated iron and steel articles— Specification and test methods | This standard specifies the general properties of coatings and test methods for coatings applied by dipping fabricated iron and steel articles (including certain castings) in a zinc melt (containing not more than 2 % of other metals). |
| 243 | RS 404:2009<br>ISO 559:1991 | Steel tubes for water and sewage | This Standard specifies the technical conditions for delivery of seamless and welded steel tubes for the conveyance of water and sewage at temperatures between - '$10^0$C and $120^0$C. |
| 244 | RS 405:2009<br>ISO 2531:1998 | Ductile iron pipes, fittings, accessories and their joints for gas application | This Standard specifies the requirements and test methods applicable to ductile iron pipes, fittings, accessories and their joints for the construction of pipelines: to convey water (e.g. potable water) or gas; operated with or without pressure; installed below or above ground. |
| 245 | RS 406:2009<br>ISO 65:1981 | Carbon steel tubes suitable for screwing in accordance with ISO 7/1 | This Standard establishes the dimensions and characteristics of seamless and welded steel tubes for four separate series, namely :<br>a)Heavy series, for seamless and welded steel tubes;<br>b)Medium series, for seamless and welded steel tubes;<br>c)Light series 1, for seamless and welded steel tubes;<br>d) Light series 2, for welded steel tubes. |
| 246 | RS 407:2009<br>ISO 404:1992 | Steel and Steel Products — General Technical delivery requirements | This Standard specifies the general technical delivery requirements for all steel products covered by IS0 6929*(Steel products - Definitions and Classification),* with the exception of steel castings and powder metallurgical products. |
| 247 | RS 455-1:2009<br>ISO 4948-1:1982 | Steel-Classification —<br>Part 1:Classification of steels into unalloyed and alloy steels based on chemical composition | This part lays down a classification of steels into unalloyed and alloy steels based on Chemical composition. |
| 248 | RS 455-2:2009<br>ISO 4948-2:1981 | Steel-Classification —<br>Part 2:Classification of steels into unalloyed and alloy steels according to main quality classes and main property or application characteristics | This part lays down a classification of unalloyed and alloy steels according to main quality classes and main property or application characteristics. |
| 249 | RS 456-1:2009<br>ISO 7989-1:2006 | Steel wire and wire products —<br>Non – ferrous metallic coatings on steel —<br>Part 1:General principles | This part specifies the requirements for the coating mass per unit area, for other properties and also for testing of non-ferrous metallic coatings on steel wire products, of circular or other cross-section. |
| 250 | RS 456-2:2009 | Steel wire and wire products — | This part specifies the requirements for the coating mass per unit area, |

| | | | |
|---|---|---|---|
| | ISO 7989-2:2006 | Non – ferrous metallic coatings on steel — Part 2:Zinc or zinc alloy coating | for other properties and also for testing of zinc or zinc-alloy coatings on steel wire and steel wire products, of circular or other section. |
| 251 | RS 458:2009 ISO 7900:2006 | Steel wire and wire products for fences — Zinc and zinc — alloy coated steel barbed wire | This Standard specifies the characteristics of zinc- and zinc-alloy-coated steel barbed wire, with conventional and reverse twist consisting of two stranded line wires, around which the barbs are tightly wound, a twist being imparted between the barbs to restrict their movement. |
| 252 | RS460:2009 ISO 10144:1991 | Certification scheme for steel bars and wires for reinforcement of concrete structures | This Standard specifies rules for a certification scheme for continuous production of steel bars and wires for ordinary reinforcement of concrete structures in order to verify the conformity with requirements specified in product standards such as IS0 6935-1 and IS0 6935-2. |
| 253 | RS 276:2009 EAS 533:2008 | Earth-moving machinery — Seat belts and seat belt anchorages —Performance requirements and tests | This Standard establishes the minimum performance requirements and tests for restraint systems — seat belts and their fastening elements (anchorages) — on earth-moving machinery, necessary to restrain an operator or rider within a roll-over protective structure (ROPS) in the event of a machine roll-over , or within a tip-over protection structure (TOPS) in the event of a machine tip-over |
| 254 | RS 277 :2009 EAS 534:2008 | Motor vehicle safety — Lights and light-signaling devices installed on motor vehicles and trailers | This Standard specifies the essential characteristics for the installation of lighting and light signaling devices on motor vehicles with or without bodywork and with at least four wheels, intended for on-road use and having a maximum design speed of more than 25 km/h, and their trailers. It is not applicable to vehicles that run on rails, to agricultural or forestry tractors and machinery, or to public works vehicles. |
| 255 | RS 278:2009 EAS 537-1:2008 | Measurement of noise emitted by accelerating road vehicles — Engineering method —Part 1: M and N categories | This part specifies an engineering method for measuring the noise emitted by road vehicles of categories M and N under typical urban traffic conditions. It excludes vehicles of category L1 and L2, which are covered by ISO 9645, and vehicles of category L3, L4 and L5 covered by ISO 362-2. |
| 256 | RS 280:2009 EAS 539:2008 | Road vehicles — Symbols for controls, indicators and tell-tales | This Standard establishes symbols (i.e. conventional signs) for use on controls, indicators and telltales applying to passenger cars, light and heavy commercial vehicles and buses, to ensure identification and facilitate use. |
| 257 | RS 287:2009 EAS 547:2008 | Road vehicles — Location of hand controls, indicators and tell-tales in motor vehicles | This standard specifies the location of the controls in motor vehicles by subdividing the space within reach of drivers into specific zones to which certain controls essential to the safe operation of vehicles are assigned. it also specifies certain combinations of functions for multifunction controls and the degree to which certain indicators tell- tales are to be visible. |
| 258 | RS 288:2009 | Road vehicles — Dimensional codes for passenger cars | This Standard establishes dimensional Codes for passenger cars and for |

| | | | |
|---|---|---|---|
| | EAS 548:2008 | | commercial vehicles which are derived from passenger cars, to be used for the exchange of vehicle data and their electronic processing. |
| 259 | RS 445:2009<br>EAS 549:2008 | Road vehicles —Special warning lamps — Dimensions | This Standard specifies the dimensions of special warning lamps for road vehicles, in order to ensure interchangeability and accurate positioning, bearing in mind the rapid change of light intensity from such devices in a vertical cross-section of the projected beam. |
| 260 | RS 291-1:2009<br>EAS 552-1:2008 | Tractors and machinery for agriculture —Seat belts —<br>Part 1: Anchorage location requirements | This part specifies the location, relative position and threaded hole dimensions of the anchorages for pelvic restraint (seat) belt assemblies intended to be used by the operators of agricultural tractors and self-propelled machinery. |
| 261 | RS 291-2:2009<br>EAS 552-2:2008 | Tractors and machinery for agriculture —Seat belts —<br>Part 2: Anchorage strength requirements | This part specifies the strength requirements of the anchorages for pelvic restraint (seat) belts intended to be used by the operators of agricultural tractors and self-propelled machinery. |
| 262 | RS 292:2009<br>EAS 553:2008 | Road vehicles — Coupling balls for caravans and light trailers — Dimensions | This Standard lays down the dimensions necessary for the compatibility of mechanical coupling devices between light trailers or caravans and towing vehicles, when the latter are fitted with a coupling ball. |
| 263 | RS446:2009<br>EAS 554:2008 | Road vehicles — Specification of non-petroleum-base brake fluids for hydraulic systems | This Standard gives the specifications -requirements and test methods- for non-petroleum-base fluids used in road-vehicle hydraulic brake and clutch systems that are designed for use with such fluids and equipped with seals, cups or double-lipped type gland seals made of styrene-butadiene rubber (SBR) and ethylene-propylene elastomer (EPDM). |
| 264 | RS 293:2009<br>EAS 555:2008 | Road vehicles — Hydraulic braking systems — Non-petroleum-base reference fluids | This Standard specifies the composition and characteristics of a reference fluid used for the compatibility testing of hydraulic braking systems and components mounted on road vehicles. |
| 265 | RS 299:2009<br>EAS/PAS 560:2008 | Road vehicles — Brake linings frictions materials — Visual inspection | This Standard defines visual aspect for the identification and assessment of brake friction lining characteristics in quality assurance, as well as a basis for commercial and technical agreements. |
| 266 | RS 300:2009<br>EAS 561:2008 | Road vehicles — Collection of accident data for evaluation of occupant restraint performance | This Standard specifies information for the field collection of traffic accident data that is necessary or may assist in the evaluation of occupant restraint systems in passenger cars and trucks. |
| 267 | RS 303:2009<br>EAS 564:2008 | Road vehicles — Hydraulic jacks — Specifications | This Standard specifies design and safety requirements, and test methods for hydraulic jacks for road vehicles, used for changing wheels and putting on chains. |
| 268 | RS 305:2009<br>EAS 566:2008 | Road vehicles — Spark-plugs —Terminals | This Standard specifies the dimensions of the solid post terminals and threaded terminals for spark-plugs for use with spark ignition engines. |
| 269 | RS 308:2009<br>EAS 569:2008 | Agricultural tractors —Operator's workplace, access and exit — Dimensions | This Standard specifies the design dimensions of agricultural tractors having a minimum track width exceeding in respect of:<br>a) the minimum dimensions of their access doorways, |

| | | | |
|---|---|---|---|
| | | | b) the number, location and minimum dimensions of their emergency exits, and<br>c) Their minimum internal clearance dimensions. |
| 270 | RS 314-1:2009<br>EAS 575-1:2008 | Road vehicles — Mechanical coupling between tractors and semi-trailers — Interchangeability | This Standard specifies dimensions to ensure interchangeability between a tractor vehicle and a coupled semi-trailer, the two together constituting an articulated vehicle. It specifies certain interchangeability dimensions, including those of the gooseneck contour, as well as operating dimensions related to angle values. |
| 271 | RS 314-2:2009<br>EAS 575-2:2008 | Road vehicles — Mechanical couplings between tractors and semi-trailers<br>— Part 2: Interchangeability between low-coupling tractors and high-volume semi-trailers | This part specifies dimensions to ensure interchangeability between a low coupling height tractor vehicle and a coupled high-volume semi-trailer, the two together constituting a high-volume articulated vehicle. It specifies certain interchangeability dimensions, including those of the optimized gooseneck contour, as well as operating dimensions related to angle values. |
| 272 | RS 315:2009<br>EAS 576:2008 | Road vehicles — H-point machine (HPM II) — Specifications and procedure for H-point determination | This Standard provides the specifications and procedures for using the H-point machine [HPM1)] to audit vehicle seating positions. |
| 273 | RS 317:2009<br>EAS 580:2008 | Agricultural tractors — Operator's seating accommodation —Dimensions | This Standard lays down dimensions for the Operators seat and the location of specific controls relative to the Seat Index Point (SIP) within the seating accommodation on agricultural tractors with a track width greater than 1 150 mm. |
| 274 | RS 318:2009<br>EAS 581:2008 | Road vehicles — Retro-reflective registration plates for motor vehicles and trailers — Specification | This Standard specifies the provisions applicable to retro-reflective registration plates for motor vehicles and their trailers. |
| 275 | RS 319:2009<br>EAS 582:2008 | Commercial road vehicles — Dimensional codes | This Standard establishes dimensional codes for commercial road vehicles to be used for the exchange of vehicle data and electronic processing. It applies to commercial road vehicles as defined in IS0 3833. |
| 276 | RS 323:2009<br>EAS 586:2008 | Road vehicles — Graphical symbols to designate brake fluid types | This Standard specifies the graphical symbols and colours used to identify, on road vehicles, the correct type of fluid to be used for:<br>a) petroleum-base brake fluid systems;<br>b) non-petroleum-base brake fluid systems |
| 277 | RS 324:2009<br>EAS 587:2008 | Road vehicles — Fuel pump electric connections | This Standard specifies the requirements for electric connections for electric fuel Pumps used in road vehicles.It does not apply to electric fuel Pumps with free couplers, i.e. cable to cable terminations. |
| **G. ELCTRICAL ENGINEERING STANDARDS** | | | |
| 278 | RS IEC 60227 -1:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V — Part 1: General requirements. | Applies to rigid and flexible cables with insulation and sheath if any, based on polyvinyl chloride, of rated voltages U0/U up to and including 450/750 V used in power installations of nominal voltage not exceeding |

| | | | |
|---|---|---|---|
| | | | 450/750 V a.c. |
| 279 | RS IEC 60227 - 3:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V — Part 3: Non – sheathed cables for fixed wiring. | Details the particular specifications for polyvinyl chloride insulated single-core non-sheathed cables for fixed wiring of rated voltages up to and including 450/750 V. |
| 280 | RS IEC 60227 - 4:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V — Part 4: Sheathed cables for fixed wiring. | Details the particular Specification for light polyvinyl chloride sheathed cables of rated voltage of 300/500 V. |
| 281 | RS IEC 60227 - 5:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V – Part 5: Flexible cables (cords). | Details the particular specifications for polyvinyl chloride insulated flexible cables (cords), of rated voltages up to and including 300/500 V |
| 282 | RS IEC 60227 - 6:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V — Part 6: Lift cables and cables for flexible connections fixed wiring. | Details the particular specifications for both circular and flat lift cables and cables for flexible connections of rated voltages up to and including 450/750 V |
| 283 | RS IEC 60227 - 7:2006 | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V — Part 7: Flexible cables screened and unscreened with two or more conductors. | Details the particular specifications for polyvinyl chloride insulated screened and unscreened control cables of rated voltages up to and including 300/500 V. |
| 284 | RS IEC 60228:2006 | Conductors of insulated cables | Specifies the normal cross section area in the range of 0.5sqmm to 2500sqmm.Numbers and size of wires and resistance values are also included. |
| 285 | RS IEC 60884 - 1:2006 | Plugs, Socket –outlets for house hold and similar purposes — Part1:General requirements | Applies to plugs and fixed or portable socket-outlets for a.c.only, with or without earthing contact, with rated voltage greater than 50 V but not exceeding 440 V and a rated current not exceeding 32 A, intended for household and similar purposes, either indoors or outdoors. |
| 286 | RS IEC 60884-2 - 1:2006 | Plugs, Socket –outlets for house hold and similar purposes — Part2 -1:Particular requirements for fused plugs | Applies where fuses are primarily intended to protect the flexible cable or cord (e.g. with ring circuits).The fuses are not intended to protect appliances or parts of them against overload. |
| 287 | RS IEC 60884 -2 - 2:2006 | Plugs, Socket –outlets for house hold and similar purposes — Part2 -2:Particular requirements socket outlets for appliances | Applies to socket –outlets integrated or intended to to be incorporated in or fixed to appliances(hereinafter referred to as ''socket-outlets for appliances'') |
| 288 | RS IEC 60884 - 2 - 5:2006 | Plugs, Socket –outlets for house hold and similar purposes — Part2 - 5:Particular requirements for adapters | Applies to shuttered and non-shuttered, fused and non-fused adaptors for a.c. only. Fused of fused adaptors are not intended to protect appliances or parts of them against overload. |
| 289 | RS IEC 60998 - 1:2006 | Connecting devices for low voltage circuits for household and similar purposes— Part 1:General requirements | Applies to connecting devices as separate entities of two or more electrical copper conductors. |
| 290 | RS IEC 60086 - 1:2005 | Primary batteries — Part 1:General | Specifies electrochemical system, nomenclature, terminal configurations, markings, test methods, typical performance, safety and environmental aspects for primary batteries |

| | | | |
|---|---|---|---|
| 291 | RS IEC 60086 - 2:2005 | Primary batteries —Part 2:Physical and electrical specification | Specificies the physical dimensions, discharge test conditions and discharge performance requirements |
| 292 | RS IEC 60086 - 3:2005 | Primary batteries —Part 3:Watch batteries - Specification | Specifies dimensions, designation, methods of tests and requirements for primary batteries for watches |
| 293 | RS IEC 60086 - 4:2005 | Primary batteries — Part 4: Safety of lithium batteries | Specifies tests and requirements for primary lithium batteries to ensure their<br>Safe operation under intended use and reasonably foreseeable misuse |
| 294 | RS IEC 60086 -5:2005 | Primary batteries — Part 5: Safety of batteries with aqueous electrolyte | Specifies tests and requirements for primary batteries with aqueous electrolyte to ensure their safe operation |
| 295 | RS IEC 60095-1:2005 | Lead acid starter batteries — Part 1:General requirements and methods of test | Applicable to lead-acid batteries with nominal voltage of 12V, used primary as a power source for the staring and igniting of internal combustion engines, lighting and for auxiliary equipment of internal combustion engine vehicles |
| 296 | RS IEC 60095 - 2:2005 | Lead acid starter batteries — Part 2: Dimensions of batteries and dimensions and marking of terminals | Applicable to lead-acid batteries used for staring, lighting and ignition of passenger automobiles and light commercial vehicles with a nominal voltage of 12V fastened to the vehicles by means of ledges on the long sides of the batteries case( standard fastening) |
| 297 | RS IEC 61427:2005 | Secondary cells and batteries for photovoltaic energy systems(PVES) —General requirements and methods of test | Gives general information relating to the requirements of the secondary batteries used in photovoltaic (PV) solar energy systems and to the typical methods of test used for the verification of battery performances |
| 298 | RS IEC 60335 - 1:2005 | Household and similar electrical appliances —Safety—<br>Part 1General requirements | It deals with the common hazards presented by appliances that are encountered by all persons in and around the home |
| 299 | RS IEC 60335 - 2-15:2005 | Household and similar electrical appliances — Safety—<br>Part 2-15: Particular requirements for appliances for heating liquids | Applicable to the safety of electrical appliances for heating liquids for household and similar purposes, their rated voltage being not more that 250 V. |
| 300 | RS IEC 60335 - 2-35:2005 | Household and similar electrical appliances — Safety—<br>Part 2-35:Particular requirements for instantaneous water heaters | Deals with the safety of electric instantaneous water heaters for household and similar purposes and intended for heating water below boiling temperature. |
| 301 | RS IEC 60335 -2 - 13:2005 | Household and similar electrical appliances —Safety —<br>Part 2-13: Particular requirements for deep fat fryers, frying pans and similar appliances | Deals with the safety of electric deep fat fryers, frying pans and other appliances in which oil is used for cooking, and intended for household use only, their rated voltage being not more than 250 V. |
| 302 | RS IEC 60335 - 2 - 14:2005 | Household and similar electrical appliances — Safety —<br>Part 2-14:Particular requirements for Kitchen machines | Deals with the safety of electric kitchen machines, their rated voltage being not more than 250 V, for household and similar purposes. |
| 303 | RS IEC 60335 - 2 - 3:2005 | Household and similar electrical appliances — Safety—<br>Part 2-3:Particular requirements for electric irons | Deals with the safety of electric dry irons and steam irons. It includes those with a separate water reservoir or boiler with a capacity less than 5 l. |
| 304 | RS IEC 60335 - 2 - 24:2005 | Household and similar electrical appliances —Safety—<br>Part 2- 24:Particular requirements for refrigerating appliances | Deals with the safety of refrigerating appliances for household and similar use; ice-makers incorporating a motor-compressor and ice- |

| | | | |
|---|---|---|---|
| | | and ice – cream appliances and ice - makers | makers intended to be incorporated in frozen food storage compartments; refrigerating appliances and ice-makers for use in camping, touring caravans and boats for leisure purposes. |
| 305 | RS IEC 60335 - 2 - 25:2005 | Household and similar electrical appliances — Safety— Part 2-25:Particular requirements for microwave ovens, including combination microwave ovens | Deals with the safety of microwave ovens for household use. The rated voltage is less than 250 V. It also deals with combination microwave ovens. |
| 306 | RS IEC 60502-1:2006 | Power cables with extruded insulation and their accessories for rated voltages from 1 kV(Um = 1,2 kV) up to 30 kV(Um= 36kV) Part 1:Cables for rated voltages of 1 kV(Um=1,2kV) and 3 kV(Um=3,6kV) | Specifies the construction, dimensions and test requirements of power cables with extruded solid insulation for rated voltages of 1 KV up to 3kV |
| 307 | RS IEC 60598 -1:2006 | Luminaires —Part 1:General requirements and tests | Specifies general requirements for luminaries, incorporating electric light sources for from supply voltages up to 1000 V |
| 308 | RS IEC 60598 - 2 - 17:2006 | Luminaires.— Part 2-17: Particular requirements. Section Seventeen —Luminaries for stage lighting, television and film studios (outdoor and indoor) | Specifies requirements for stage, television and film studio luminaries (including spot and floodlighting projectors) |
| 309 | RSIEC 60598 - 2 - 1:2006 | Luminaires— Part 2- 1: Particular requirements —Section one :Fixed general purpose luminaires | Specifies requirements for fixed general purpose luminaries for use with tungsten filement , tubular fluorescent and other discharge lamps on supply voltages not exceeding 1000V |
| 310 | RS IEC 60598 - 2 - 3:2006 | Luminaires— Part 2 - 3: Particular requirements— Luminaires for road and street lighting | Specifies requirement for luminaries for road lightning and other public outdoor lighting applications |
| 311 | RS IEC 60598 -2 - 4:2006 | Luminaires— Part 2-4 : Particular requirements — Section 4:Portable general purpose luminaires | Specifies requirements for portable general purpose luminaries other that handlamps, for use with tungsten filament, tubular fluorescent and other discharge lamps on supply voltage not exceeding 250V |
| 312 | RS IEC 60598 -2 - 8:2006 | Luminaires— Part 2 -8: Particular requirements —Section 8: Handlamps | Specifies requirements for handlamps and similar portable luminaries which are held in the hand when used, for use with tungsten filament and tubular fluorescent lamps on supply voltage not exceeding 250V |
| 313 | RS IEC 60598 - 2 - 9:2006 | Luminaires— Part 2-9: Particular requirements. Section Nine : Photo and Film luminaires (non – professional) | Specifies requirements for photo and film luminaries (non professional) for use with low-pressure tungsten halogen lamps |
| 314 | RS IEC 61960:2005 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Secondary lithium cells and batteries for portable applications | Specifies performance tests designations, markings, dimensions and other requirements for secondary lithium single cells and batteries for portable applications |
| 315 | RS IEC 62133:2005 | Secondary cells and batteries containing alkaline or other non-acid electrolytes —Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications | This standards specifies requirements and tests for the safe operation of portable sealed secondary cells and batteries(other than button)containing alkaline or other non-acid electrolyte, under intended use and reasonably foreseeable misuse |

| | | | |
|---|---|---|---|
| 316 | RSIEC 60601 - 1-1:2009 | Medical electrical equipment — Part 1-1:General requirements for safety Collateral standard: Safety requirements for medical electrical systems | This standard applies to the safety of medical electrical systems. It describes the safety requirements necessary to provide protection for the patient, the operator and surroundings. |
| 317 | RSIEC 62115 :2009 | Electric toys — Safety | This standard deals with the safety of toys that have at least one function dependent on electricity. |
| 318 | RSIEC 61010 -1:2009 | Safety requirement for electrical equipment for measurement, control, and laboratory use — Part 1:General requirements | This standard specifies general safety requirements for electrical equipment intended for professional, industrial process, and educational use, any of which may incorporate computing devices. |
| 319 | RSIEC 62040 - 2:2009 | Uninterruptible power supplies(UPS) — Part 2:Electromagnetic compatibility(EMC)requirements | This standard applies to single UPS units or UPS systems comprising a number of interconnected UPS and associated control/switchgear forming a single power system, intended to be installed in any operator accessible area or in separated electrical locations, connected to either industrial or public low voltage supply networks. The standard does not cover d.c. supplied electronic ballast or UPS based on rotating machines. |
| 320 | RS 273-1:2009 IEC 60364-5-52:2009 | Electrical installations of buildings — Part 5-52: Selection and erection of electrical equipment — Wiring system | The standard applies in general to protective conductors during installation of buildings. |
| 321 | RS273-2 :2009 IEC 60364-5-53:2009 | Electrical installations of buildings — Part 5-53: Selection and erection of electrical equipment — Isolation, Switching and Control. | This standard deals with general requirements for isolation, switching and control and with the requirements for selection and erection of the devices provided to fulfill such functions |
| 322 | RS273-3:2009 IEC 60364-5-54:2002 | Electrical installations of buildings — Part 5-54: Selection and erection of electrical equipment — Earthing arrangement, protective conductors and protective bonding conductors. | The standard details the earthing arrangements, protective conductors and protective bonding conductors in order to satisfy the safety of the electrical installation. |
| 323 | RS 410-1:2009 IEC 60335-2-9::2008 | Household and similar electrical appliances — Safety — Part2 -9: Particular requirements for grills, toasters and similar portable cooking appliances | The standard deals with the safety of electric portable appliances for household purposes that have a cooking function such as baking, roasting and grilling, their rated voltage being not more than 250 V |
| 324 | RS 410-2:2009 IEC 60335-2 -29:2004 | Household and similar electrical appliances — Safety — Part2 -29: Particular requirements for battery chargers | The standard deals with the safety of electric battery chargers for household and similar use having an output at safety extra-low voltage, their rated voltage being not more than 250 V |
| 325 | RS 410-3:2009 IEC 60335 -2 -7:2008 | Household and similar electrical appliances — Safety — Part 2 -7: Particular requirements for washing machines | The standard deals with the safety of electric washing machines for household and similar use, that are intended for washing clothes and textiles, their rated voltage being not more than 250 V for single – phase appliances and 480 V for other appliances |
| 326 | RS 410-4:2009 IEC 60335-2 -26:2008 | Household and similar electrical appliances — Safety — Part 2 -26: Particular requirements for clocks | The standard deals with the safety of electric clocks having a rated voltage not more than |

| | | | |
|---|---|---|---|
| 327 | RS 410-5:2009<br>IEC 60335 - 2 -23:2008 | Household and similar electrical appliances — Safety — Part 2 -23: Particular requirements for skin or hair care | The standard deals with the safety of electric appliances for the care of skin or hair of person or animals and intended for household and similar purposes, their rated voltage being not more than 250 V |
| 328 | RS 365-2:2009<br>EAS 498-2:2008 | Low-frequency cables and wires with PVC insulation and PVC sheath —Part 2: Cables in pairs, triples, quads and quintuples for inside installations | This standard is applicable to cables for inside installations, intended for the<br>interconnection of the following:<br>– transmission equipment;<br>– telecommunications equipment;<br>– equipment for data processing |
| 329 | RS 365-3:2009<br>EAS 498-3:2008 | Low-frequency cables and wires with PVC insulation and PVC sheath — Part 3: Equipment wires with solid or stranded conductor wires, PVC insulated, in singles, pairs and triples | This standard is applicable to equipment wires with solid or stranded conductor, polyvinyl chloride (PVC) insulated, in singles, pairs and triples to be used for internal wiring of telecommunication equipment, industrial and consumer electronic equipment. |
| 330 | RS 370-1:2009<br>EAS 506-2:2008 | Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1.2 kV) up to 30 kV (Um = 36 kV) —Part 2: Cables for rated voltages from 6 kV (Um = 7.2 kV) up to 30 kV (Um = 36 kV) | The standard specifies the construction, dimensions and test requirements of power cables with extruded solid insulation from 6 kV up to 30 kV for fixed installations such as distribution networks or industrial installations. Cables for special installation and service conditions are not included |
| 331 | RS 370-2:2009<br>EAS 506-4:2008 | Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1.2 kV) up to 30 kV (Um = 36 kV) — Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7.2 kV) up to 30 kV (Um = 36 kV | The standard specifies the test requirements for type testing of accessories for power cables with rated voltages from 3,6/6 (7,2) kV up to 18/30 (36) kV.<br>Accessories for special applications, such as aerial cables, submarine or ship cables or hazardous situations (explosive environments, fire resistant cables or seismic conditions), are not included. |
| 332 | RS 371:2009<br>EAS 507:2008 | Aluminium-magnesium-silicon alloy wire for overhead line conductors | This standard is applicable to aluminium-magnesium-silicon alloy wires of two types having different mechanical and electrical properties for the manufacture of stranded conductors for overhead power transmission purposes. It specifies the mechanical and electrical properties of wires in the diameter range 1.50 mm to 4.50 mm. |
| 333 | RS 373:2009<br>EAS 509:2008 | Zinc-coated steel wires for stranded conductors | This standard applies to zinc-coated steel wires used in the construction and/or reinforcement of Conductors for overhead power transmission purposes. It is intended to cover all wires used in constructions where the individual wire diameters, including coating, are in the range of 1.25 mm to 5.50 mm. |
| 334 | RS 374:2009<br>EAS 510:2008 | Hard-drawn aluminium wire for overhead line conductors | This standard is applicable to hard-drawn aluminium wires for the manufacture of stranded Conductors for overhead power transmission purposes. It specifies the mechanical and electrical properties of wires in the diameter range 1.25 mm to 5.00 mm. |

| | | | |
|---|---|---|---|
| 335 | RS 375:2009<br>EAS 511:2008 | Sleeves of insulating material for live working | This standard is applicable to insulating sleeves for the protection of workers from accidental contact with live electrical conductors, apparatus or circuits. |
| 336 | RS 376:2009<br>EAS 512:2008 | Thermal-resistant aluminium alloy wire for overhead line conductor | This standard is applicable to thermal-resistant aluminium alloy wires before stranding for manufacture of stranded conductors for overhead lines. It specifies the mechanical, electrical and thermal resistant properties of wires in the diameter range commercially available. |
| 337 | RS 377:2009<br>EAS 513:2008 | Overhead electrical conductors — Formed wire, concentric lay, tranded conductor | This standard specifies the electrical and mechanical characteristics of concentric lay, overhead conductors of wires formed or shaped before, during or after stranding |
| 338 | RS 380-1:2009<br>EAS 516-1:2008 | Lead-acid traction batteries—Part 1: General requirements and methods of tests | This standard specifies certain essential characteristics of lead-acid traction batteries or cells used as power sources for electric propulsion, together with the relevant test methods of those characteristics. |
| 339 | RS 380-2:2009<br>EAS 516-2:2008 | Lead-acid traction batteries — Part 2: Dimensions of cells and terminals and marking of polarity on cells | This standard is applicable to lead-acid traction batteries used as power sources for electric propulsion. |
| 340 | RS 381:2009<br>EAS 517:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Sealed nickel-cadmium prismatic rechargeable single cells | This standard specifies marking, tests and requirements for sealed nickelcadmium prismatic secondary single cells. |
| 341 | RS 382:2009<br>EAS 518:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Vented nickel-cadmium prismatic rechargeable single cells | This Standard specifies marking, designation, dimensions, tests and requirements or vented nickel-cadmium prismatic secondary single cells. |
| 342 | RS 383-1:2009<br>EAS 519-11:2008 | Secondary cells batteries — Part 11: Vented types—General requirements and methods of tests | This part is applicable to lead-acid cells and batteries which are designed for service in fixed locations (i.e. not habitually to be moved from place to place) and which are permanently connected to the load and to the d.c. power supply. This part 11 of the standard is applicable to vented types only. |
| 343 | RS 383-3:2009<br>EAS 519-22:2008 | Stationary lead-acid batteries —Part 22: Valve regulated types — Requirements | This part applies to all stationary lead-acid cells and monobloc batteries of the valve regulated type for float charge applications, (i.e. permanently connected to a load and to a d.c. power supply), in a static location (i.e. not generally intended to be moved from place to place) and incorporated into stationary equipment or installed in battery rooms for use in telecom, uninterruptible power supply (UPS), utility switching, emergency power or similar applications. |
| 344 | RS 385-2:2009<br>EAS 521-2:2008 | General purpose lead-acid batteries (valve-regulated types) —Part 2: Dimensions, terminals and marking | This part specifies the dimensions, terminals and marking for all general purpose lead-acid cells and batteries of the valve regulated type |
| 345 | RS 386:2009<br>EAS/TR 522:2008 | Opportunity-charging of lead-acid traction batteries | Covers the opportunity charging of lead-acid traction batteries, i.e. the use of free time during a working period to top up the charge and thus extend the working day of a battery whilst avoiding excessive discharge. |

| | | | |
|---|---|---|---|
| 346 | RS 390-1:2009<br>EAS 526-1:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Portable sealed rechargeable single cells — Part 1: Nickel-cadmium | This part specifies marking, designation, dimensions, tests and requirements for portable sealed nickel-cadmium small prismatic, cylindrical and button rechargeable single cells, suitable for use in any orientation. |
| 347 | RS 390-2:2009<br>EAS 526-2:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Portable sealed rechargeable single cells — Part 2: Nickel-metal hydride | This part specifies marking, designation, dimensions, tests and requirements for portable sealed nickel-metal hydride, small prismatic, cylindrical and button rechargeable single cells, suitable for use in any orientation. |
| 348 | RS 393:2009<br>EAS 529:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Secondary lithium cells and batteries for portable applications | This Standard specifies performance tests, designations, markings, dimensions and other requirements for secondary lithium single cells and batteries for portable applications.<br>This standard defines a minimum required level of performance and a standardized methodology by which testing is performed and the results of this testing reported to the user. |
| 349 | RS 395:2009<br>EAS 531:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications | This Standard specifies requirements and tests for the safe operation of portable sealed secondary cells and batteries (other than button) containing alkaline or other non-acid electrolyte, under intended use and reasonably foreseeable misuse. |
| 350 | RS 396:2009<br>EAS 532:2008 | Secondary cells and batteries containing alkaline or other non-acid electrolytes — Design and manufacturing recommendations for portable batteries made from sealed secondary cells | Identifies and recommends procedures to ensure that batteries for portable equipment are designed, manufactured and marketed according to good practice. |
| 351 | RS397:2009<br>EAS 721:2008 | Photovoltaic(PV) systems — Characteristics of the utility interface | This Standard applies to utility-interconnected photovoltaic (PV) power systems operating in parallel with the utility and utilizing static (solid-state) non-islanding inverters for the conversion of DC to AC. This document describes specific recommendations for systems rated at 10kVA or less, such as may be utilized on individual residences single or three phases. This standard applies to interconnection with the low-voltage utility distribution system. |
| 352 | RS416 - 1:2009<br>EAS 722-1:2008 | Photovoltaic(PV) module safety qualification — Part 1:Requirements for construction | This standards describes the fundamental construction requirements for photovoltaic (PV) modules in order to provide safe electrical and mechanical operation during their expected lifetime.<br>The specific requirements for marine and vehicle applications are not covered. This standard is not applicable to modules with integrated AC inverters (AC modules). |
| | | | |
| 353 | RS 452:2009<br>ISO/IEC 2382-25:1992 | | |

| | | | |
|---|---|---|---|
| 354 | RS 454:2009<br>ISO/IEC 8802-1:2001 | | |
| **H. PHARMACEUTICAL** | | | |
| 355 | RS 109-1:2006 | Quality assurance of pharmaceuticals-good manufacturing practices and inspection-Part1:Main principles for pharmaceutical products | This Rwanda Standard shall be used to justify good manufacturing practices (GMP) status. |
| 356 | RS 109-2:2006 | Quality assurance of pharmaceuticals-good manufacturing practices and inspection- Part 2:Starting materials | The present guidelines outline procedures and practices that manufacturers should employ to ensure that the methods, facilities and controls used for the production of active pharmaceutical ingredients and pharmaceutical excipients are operated or managed so that such products have the quality and purity appropriate for their use in finished pharmaceutical products. |
| 357 | RS 109-3:2006 | Quality assurance of pharmaceuticals-good manufacturing practices and inspection- Part 3: Specific pharmaceutical products | These guidelines do not replace any of the requirements in Parts 1 and 2 but stress specific points for the manufacture of specific pharmaceutical products to minimize the risks of microbiological, particulate and pyrogen contamination. |
| 358 | RS 109-4:2006 | Quality assurance of pharmaceuticals-good manufacturing practices and inspection- Part 4: Inspection | This standard gives guidelines for the inspection of pharmaceutical manufacturers. |
| 359 | RS 187:2006 | Labeling and marking of pharmaceutical products | This Rwanda Standard specifies general mandatory and optional requirements of a label. It also gives special labelling and marking requirements for some preparations, biological, sterile products and aerosols. |

## ANNEX R: CONTENT OF TOR FOR EISTUDY

A sample of the Terms of Reference for EIA Studies should follow a guide presented in Appendix 4 of the General EIA Guidelines for Rwanda, 2006.

## ANNEX S: BASIC CONTENTS OF AN EIA REPORT

Appendix 3 of the General EIA Guidelines for Rwanda, 2006 provide an outline of the contents of an EIA Report (Environmental Impact Statement).

## ANNEX J: GENERAL REQUIREMENTS FOR EMS

The developer shall establish and maintain an environmental management system (EMS), the requirements of which are described below:

| | |
|---|---|
| Environmental policy | Top management shall define the organization‘s environmental policy |
| Environmental aspect | The organization shall establish and maintain (a) procedures to define the environmental aspects of its activity, products or services that it can control over which it can expect to have an influence, in order to determine those which have or can have significant impacts on the environment |
| Legal and other requirements | The organization shall establish and maintain a procedure to identify and have access to legal and other requirements to which the organization subscribe, that applicable to the environmental aspects of its activities , products or services. |
| Objectives and targets | The organization shall establish and maintain documented environmental objectives and targets, at each relevant faction and level within the organization. The organization shall establish and maintain (a) programme(s) for achieving the objectives & targets. |
| Stricture and responsibility | Roles, responsibility & authorities shall be defined documented communicated in order to facilitate effective environmental management. |
| Training, awareness and competence | The organization shall identify training needs. It shall require that all personnel, whose work may create a significant impact upon the environment, have received appropriate training. |
| Communication | With regard to its environmental aspects and the environmental management system, the organization shall establish and maintain procedure for a) International communication between the various levels and functions of the organizations b) Receiving the documenting and responding to relevant communication from external interested parties |
| Environmental management system documentation | The origination shall establish and maintain information, in paper or electronic form to: a) describe the core elements of the management system and their reaction: b) provide direction to related documentation |
| Monitoring and measurement | The organization shall establish and maintain documented procedures to monitor and measure, on a regular basis the key characteristics of its operations and activities that can have a significant impact on the environment. |
| None conformance and corrective and protective action | The organization shall establish and maintain procedures for defining responsibility and authority for handling and investigating non-conformance, taking action to mitigate any impacts caused and for initiating and completing corrective and prevention action. |
| Records | The organization shall establish & maintain procedures and for the identification, maintenance & disposition of environmental records. |
| Environmental management system audit | The organization shall establish and maintain (a) programme (s) and procedures for periodic environmental management system audits to be carried out, in order to a) Determine whether or not the environmental Management system b) Provide information on the results of audits to managements |
| Management review | The organization’s top management shall, at intervals that is determine, review the environmental management system, to ensure its continuing suitability, adequacy and effectiveness |

## ANNEX K: ENVIRONMENTAL CRITERIA FOR LOCATING THE PROJECT

The following environmental criteria for locating tanning industry project in any area of the country should be given due consideration.

- Environmental Sensitivity value and availability based on the uniqueness, sensitivity and inventory of natural resources in the specific section of the identified areas;
- Importance social importance and priority based on heritage and archaeological sites and level of attractiveness to the public for purposes of leisure, tourism and recreation;
- Land use zone whether the selected area is in compatible with the national or local land use plans or not;
- Alternative technologies Introduction and promotion of environmental sound alternative technologies, which are suitable to the local situation;
- Carrying capacity of the natural resources; etc.

## ANNEX L: PREPARING ENVIRONMENTAL MANAGEMENT PLAN

The major output of environmental assessment for proposed project is an EIA report, which includes Environmental Management Plan (EMP). In view of the increasing importance in improving the quality of project implementation and to ensure compliance with required mitigation and monitoring measures identified EIA report will include, as part of EMP, concerned government or related agency undertaking the activities included in environmental management and monitoring plan.

Environmental management involves the implementation of environmental protection and mitigation measures and monitoring of significant environmental impacts. Environmental protection measures are taken to (i) mitigate environmental impacts, (ii) provide in-kind compensation for lost environmental resources, or (iii) enhance environmental resources. These measures are usually set out in an EMP, which covers all phases of the project and outlines mitigation and other measures that will be undertaken to ensure compliance with environmental regulations and reduce or eliminate adverse impacts. The EMP will also cover a proposal for recommending the proposed project to use goods and products that are environmentally friendly.

The contents of an EMP should include the following:

a) Summary of potential impacts
b) Description of planned mitigation measures
c) Description of planed environmental monitoring
d) Description of planned public consultation process
e) Description of responsibilities for the implementation
f) Description of responsibilities for reporting and review
g) Work Plan: staff chart, schedules, activities and inputs of all including lead agencies
h) Procurement Plan that is environmentally responsible
i) Detailed cost estimates
j) Mechanism of feedback and adjustment

### Environmental Monitoring

Environmental monitoring involves (i) planning a survey and sampling program for systematic collection of data/information relevant to environmental assessment and project environmental management; (ii) conduct of the survey and sampling program; (iii) analysis of samples and data/information collected, and interpretation of data and information; and (iv) preparation of reports to support environmental management. Environmental monitoring is normally carried out before and during planning to establish baseline data needed for environmental assessment and evaluating environmental impacts during project implementation. It continues through project operation to detect changes in the key environmental quality parameters, which can be attributed to the project. The results of the monitoring program are used to evaluate the following: (i) extent and severity of the environmental impacts against the predicted impacts; (ii) performance of the environmental protection measures or compliance with pertinent rules and regulations; (iii) trends in impacts; and (iv) overall effectiveness of the project EMP.

Environmental monitoring should have clear objectives, and the survey and sampling program designed to focus on data required to meet the objectives. In addition, the design of the monitoring program has to take into account its practicability considering the technical, financial, and management capability of the institutions that will carry out the program and period of monitoring that will be needed to achieve the objectives. The monitoring program should include action or emergency plans so that appropriate action can be taken in the

event of adverse monitoring results or trends. It should also be constantly reviewed to make sure that it is effective, and determine when it can be stopped.

An Effective Environmental Monitoring Plan should include:

a) Realistic sampling programme (temporal and spatial)
b) Sampling methods relevant to sources
c) Collection of quality data
d) Comparable new data with other relevant data used in environmental assessment
e) Cost-effective data collection
f) Quality control in measurements and analysis
g) Innovative methods (e.g. automated stations tracing pollutants)
h) Appropriate databases
i) Data interpretation by multidisciplinary team
j) Internal reporting and external checks
k) Allowance for third party inputs
l) Avenues for public participation (e.g. public presentations, external assessments)

Both the environmental management and monitoring plans need to include who will implement them, when, and where. The capacity of the executing agency, Local Government and community organization should be reviewed to identify feasible approach for implementing the plans. The project lifecycle should be taken into account in setting the timing of implementation. For example, the EMP should identify environmental mitigation measures that should be implemented in the engineering design for the contract documents, and materials to be avoided in procurement, among others. On the other hand, the location for monitoring should be selected based on where the impacts would occur and the areas to be affected. To ensure that the environmental management and monitoring plans will be implemented, it is necessary to identify the key management issues to be included.

## ANNEX M: REGISTER OF STAKEHOLDER CONSULTATIONS

| Register for Stakeholder Consultations, July 2012 | | | | | |
|---|---|---|---|---|---|
| **N** | **NAME** | **ORGANISATION / COMPANY** | **POSITION** | **TELEPHONE** | **E-MAIL** |
| 1 | Madeleine Usabyimbabazi | Ministry of Agriculture & Animal Resources | Environment Facilitator | 788879101 | madousa2020@yahoo.fr |
| 2 | Nyirampabwa J.Fr | Ministry of Agriculture & Animal Resources | Legal Advisor | 788522462 | nyirajeafea@yahoo.fr |
| 3 | Dusabeyezu Sebastian | Rwanda Development Board (EIA Unit) | Senior Environmental Analyst | 788517589 | dusabeseba@yahoo.fr |
| 4 | Jacqueline Musoni | Rwanda Development Board (EIA Unit) | Environment Analyst | 788595753 | musoja2001@yahoo.com |
| 5 | Tsimisanda Henri | Rwanda Development Board (Department of Agriculture) | Advisor to Agriculture Department | 784971058 | henri.tsimisanda@rdb.rw |
| 6 | Karuranga Dismas | Ministry of Natural Resources | Water Expert | 788779208 | karurangadismas@yahoo.fr |
| 7 | Rugira Christophe | Rwanda Agriculture Board (Infrastructure & Mechanisation) | Agro-meteorologist | 788666146 | rugachris@yahoo.fr |
| 8 | Dr. Seraphin Niyonsenga | Rwanda Agriculture Board (Livestock Department) | Livestock Extensionist | 788569037 | sniyonsenga@gmail.com |
| 9 | Nshimiyimana A. M | Rwanda Agriculture Board (Livestock Department) | Director Animal Production | 788506713 | namume@yahoo.fr |
| 10 | Nyirishema Felix | Ministry of Agriculture & Animal Resources (Animal Production) | Professional in Charge of Cattle development | 788848812 | fnyirishema@minagri.gov.rw |
| 11 | Marara Madeleine | Private Consultant | EIA Consultant | 788769482 | kmarara@yahoo.fr |
| 12 | Muganga Robert | RNRA (Integrated Water Resources Management) | Water Quality Expert | 788521209 | mmuganga11@yahoo.fr |
| 13 | Rusandazangabo Justin | MINAGRI (PHH & Storage Task Force) | Member-Post Harvest Handling & Storage Taskforce | 788406353 | rusandazangabo@gmail.com |
| 14 | Murenzi Raymond | RBS (Standards Unit) | Head Environment & Chemistry Section | 788747256 | murenzir@yahoo.fr |
| 15 | N. B. Gohil | Kabuye Sugar Works | General Manager | 788305225 | kabuye@rwanda1.com |
| 16 | Habimana A. | Kabuye Sugar Works | Administration Manager | 788587987 | habansel@yahoo.fr |
| 17 | Bazambanza Badrou | National Agricultural Export Development Board | Coffee Processing Officer | 788872186 | bazambanza_bad@yahoo.fr |
| 18 | Businge Moses Anthony | HABO Company Ltd (Social Impact Assessments) | Executive Director | 785342567 | |
| 19 | Umulisa Flora | Kinazi Cassava Plant | Public Relations Manager | 788478300 | fumulisa8@gmail.com |

| | | | | | |
|---|---|---|---|---|---|
| 20 | Muhizi Robert | Kinazi Cassava Plant | Plant Engineer | 785342567 | |
| 21 | John Mugabo | Kigali City Council | Environment Officer | 788716358 | mugjohn06@yahoo.com |
| 22 | Eng. Alfred D. Byigero | Rwanda Utilities Regulatory Agency | Director of Planning & Communications Services | 788303910 | by-alfred@rura.gov.rw |
| 23 | Eng. Niyonzima Stephen | Rwanda Resources Efficient & Cleaner Producion Centre | National Consultant | 788306742 | niyosteve@yahoo.fr |
| 24 | Songa Silvin | Private Consultant | EIA Consultant | 788356191 | mapetule1@gmail.com |
| 25 | Dr. Bucagu Charles | National University of Rwanda (Agriculture Department) | Crop Scientist | 788305182 | |
| 26 | Umwizerwa J. Claude | Rwanda Agribusiness Industries | Marketing Manager | 788447221 | umwiconfi@yahoo.fr |
| 27 | J. Niyamathullah | New RUCEP, Huye | Production Manager | 783720667 | |
| 28 | Nzabakurana Jodeste | New RUCEP, Huye | Personnel Manager | 783506612 | |
| 29 | Prof. Naramabuye F. X | National University of Rwanda (Agriculture Department) | Environmental Soil Science | 788874436 | fnaramabuye@nur.ac.rw |
| 30 | Augustine A. Okea | Nyabihu Tea Factory | Factory Engineer | 786347016 | |
| 31 | Silomana Benoit | BRALIRWA, Rubavu | Technical Controller | 788455354 | benoit.sibomana@heineken.com |
| 32 | Gatali Joseph | BRALIRWA, Rubavu | Lab. Team Leader | 788620648 | jgatali@heineken.com |
| 33 | Nahayo Philippe | Nyabihu Tea Factory | Factory Manager | 783868006 | p.nahayo@yahoo.fr |
| 34 | Rwakagara N. Emmanuel | COOPAC | President | 788353543 | contact@coopac.com |
| 35 | Anita K. Nzungize | COOPAC | Sales & Marketing Manager | 788322223 | anita.keza@gmail.com |
| 36 | Munanira Berchimas | Rwanda Leather Industries | Chief of Stock | 788648492 | bmunanira@yahoo.fr |
| 37 | Juvenal Kabiligi | Food Agriculture Organisation (FAO) | National Project Manager (Cross-Border Food Security Project) | 250583722 | juvenal.kabiligi@fao.org |
| 38 | Ashimwe Rwivanga | Inyange Industries | OHE Manager | 788300627 | info@inyangeindustries.com |
| 39 | Jacques KAZIMBAYA KABIRU | Rwanda Utilities Regulatory Agency | Director of Legal, Licensing and Enforcement Unit | 788490010 | jacques.kabiru@rura.gov.rw |
| 40 | Muzola Aime | Ministry of Infrastructure | Advisor to the Minister | 788539399 | muzaiz@yahoo.fr |

## ANNEX N: SUMMARY OF ISSUES RAISED BY STAKEHOLDERS

| NO | NAME | ISSUES |
|---|---|---|
| **1.** | Madeleine Usabyimbabazi | • Previously involved in EIA at evaluation of bidding documents and implementation of a flower project, Irrigation, dam construction, drainage projects<br>• Agro processing still at local level hence no big factories yet<br>• Post harvest issues looked at environmental issues e.g. cassava processing at Kinazi Factory in Ruhango District<br>• REMA should consider sharing the final EIA reports with other Lead Agencies e.g. MINAGRI which is also an implementer<br>• Need to allocate budget for implementing Environment Management Plans<br>• EIA Experts to include: Environmental Engineer (to study interactions between engineering & environment), Food Scientist (with experience in handling safety in food processing), Sociologist, Chemist (for waste water chemical analysis)<br>• Need to train people who will use these guidelines once developed i.e. consultants, implementers |
| **2.** | Nyirampabwa J.Fr | • Law on Agro-chemical use and application is still in the process of being gazetted<br>• There is also a law on plant health and could also guide in agro-processing |
| **3.** | Dusabeyezu Sebastian | • Formerly worked with REMA on environmental education especially in promotion of clean development mechanisms in production processes.<br>• There is need to sensitise people especially developers about EIA and why it is important<br>• Previously involved in compliance, review of impact assessment reports<br>• RDB EIA Unit issues certificates but its REMA's responsibility to carryout monitoring and inspection of industries to ensure compliance of EIA<br>• There is limited education background among EIA experts both at policy and implementation levels<br>• EIA Experts to include: Industrial Chemist (waste management), Agronomist /Agro-economist. |
| **4.** | Jacqueline Musoni | • EIA as a tool works once implemented<br>• Involved in reviewing EIA reports, advising investors to embrace EIA and promotion of green economy. Also encourages investors to use environmentally friendly practices<br>• EIA is costly e.g. establishment of a waste treatment plant hence investors fear to undertake EIA due to limited funds.<br>• Most investors have not yet realised the importance of EIA and sensitisation reduced after reform because the EIA Unit was brought to RDB from REMA. The coordination is a challenge.<br>• Monitoring and inspections are to be done by REMA<br>• Previously involved in irrigation and agro-chemicals projects. There is a list of allowed chemicals to be used that are not POPs but there is also need for information sharing on chemical usage.<br>• Hydrology studies especially for irrigation projects is still inadequate<br>• EIA Experts to include: Agriculture Expert, Hydrology, Irrigation Engineer, Environmentalist |
| **5.** | Tsimisanda Henri | • Very promising investment can be very dangerous to the economy due to lack of skill in balancing development with production especially production at large scale. There is need to build capacity for local staff in agro processing for sustainable development<br>• There are pollution effects due to discharge of waste water into the environment leading to corrosive and aggressive for fish |

| | | |
|---|---|---|
| | | and water quality changes<br>• There is an increased use of fertilizers which are degrading soils hence soil pollution<br>• Diversion of water for irrigation leads to insufficient water for other users and can lead to conflict<br>• Investors are usually in a hurry and consider EIA as time consuming<br>• There is need to reduce on costs of undertaking EIA by considering only critical areas in assessments instead of general information like biophysical state<br>• Soil erosion is also a major challenge for agricultural sector in Rwanda<br>• In agro processing, there is usually no chemicals used in treating waste water. Lime is used in clarifying the juice while the mud from the bottom of clarifier after purification is returned to the fields as fertilisers.<br>• Distilling companies usually use lime to reduce the acids and pollution<br>• EIA Experts to include: Socio-economist, Wastewater Treatment Expert (pollution loads), Food Scientist/Agronomist (understands processing). |
| **6.** | Karuranga Dismas | • Previously involved in reviewing EIA reports<br>• Every project with advance environmental and social impacts should be subjected to EIA<br>• Some of the impacts include odour, poor waste management systems, energy sources such as wood used in tea factories produce Cox, noise pollution<br>• Areas critical for EIA studies include: air, soil and water pollution, toxic waste management, occupational safety & health<br>• EIA Experts to include: Agribusiness, Environmentalist<br>• In treating waste water, wetlands play a big role, landfills can be established for solid waste but establish a leachate treatment plant, and Settling Tanks and chlorination can also be encouraged. |
| **7.** | Rugira Christophe | • Been involved in Sebeya project especially looking at impacts of the project.<br>• MINAGRI is usually involved in reviewing EIA reports submitted by developers but there is need also to consider RAB as an entity that is involved in livestock, infrastructure and mechanisation, Agriculture extension and research. |
| **8.** | Dr. Seraphin Niyonsenga | • Agro processing should include; animal industries that deal in animal products such as milk, meat processing<br>• A major challenge is management of wastewater generated during the production process hence most tannery and agro processing directly discharge wastewater into ecosystems without proper treatment<br>• People who reside near tannery factories have been complaining of bad smells<br>• There is also need to properly dispose-of cut off/unwanted parts of hides and skins<br>• A lot of chemicals are used in tannery business hence there is need to monitor usage, type of chemicals used and disposal of waste |
| **9.** | Marara Madeleine | • They are no guidelines at the moment that address agro processing<br>• Some regulations do exist but compliance is still the challenge and developers conduct EIAs to get certificate hence during implementation of project, they do not follow recommendations of EIA/EMP<br>• Follow-up by REMA is also very low due to understaffing<br>• There is usually no proper Monitoring & Evaluation Framework<br>• Environmental impacts include: effluent from factories not treated before being discharged into environment, noise pollution, |

| | | |
|---|---|---|
| | | poor siting of industries leading to pollution<br>• EIA team should include: Food Scientist, environmentalist (experience in pollution control), Chemist and Sanitary Engineer |
| **10.** | Muganga Robert | • They deal with only surface water under his department<br>• They have developed a road map for the whole country for water sampling activities with the National University of Rwanda<br>• The major challenge is pollution from degraded land e.g. due to application of fertilisers<br>• Industries discharge wastewater into ecosystems without treatment e.g. Burarirwa for breweries<br>• Key parameters to be tested regularly under monitoring include: Faecal Coliforms, E.Coli, pH, Temperature, TSS, COD, BOD, DO<br>• There is still need to harmonise water quality standards with RBS<br>• EIA team should include: Water quality specialist, Sanitary engineer, Bio-chemist, Environmentalist with years of experience |
| **11.** | Rusandazangabo Justin | • Agro processing includes grain mill industries e.g. maize, wheat, all legumes<br>• Grain storage also impacts on environment and people because fumigants (knock down pesticides) are used e.g. Methyl Bromide (UNEP has recommended that its use should be stopped), Phostoxin, Detia and Celphos.<br>• Use of fumigants result into occupational health & safety issues e.g. clotting of blood once inhaled/breathed in, loss of sight<br>• There is no law on using fumigants in Rwanda<br>• Other issues are dust emissions and workers should be trained on use of PPE and are supposed to get medical examination annually |
| **12.** | Murenzi Raymond | • Involved in reviewing EIA guidelines before approval<br>• Environmental impacts include: wastewater discharge, hygiene at work place, workers hygiene, air quality, bad smells, noise pollution, solid waste disposal<br>• RBS only conducts water/waste monitoring upon request and REMA is in-charge of monitoring & compliance<br>• RBS also produces standards for REMA, Local Government to use e.g. Water Quality (Tolerance limits of discharged industrial wastewater RS 461:2009), Water Quality (Tolerance limits of discharged domestic wastewater RS 462:2009), Air Quality Standards and Portable Drinking Water Standards<br>• There is still need for strategic environmental assessments and environmental security assessment<br>• Packaging of processed products is also still a challenge since the use of plastic bags is prohibited<br>• EIA team can include: Environmentalist, Environmental Engineer, Occupational Health & Safety, Socio-economist, Agronomy with experience in agro processing |
| **13.** | N. B. Gohil | • We produce sugar and other by-products of sugar i.e. Molasses, filter cake and bagass<br>• We add lime in sugarcane juice to neutralise. But they are other settling agents we use and the wastewater generated is discharged to the wetland |
| **14.** | Bazambanza Badrou | • Coffee processing goes through 4 stages and they are: Cherries (CWS), Parchment Coffee (Dry mills), Green Coffee (Coffee beans/roasting plant), Roasted coffee/Finest coffee (Packaged). Then we have a cup stage on grading of coffee<br>• We have a quality assurance department which handles regulation<br>• Coffee processing is almost a dry process hence little wastewater is generated and they are no chemicals used in processing |
| **15.** | Businge Moses Anthony | • Social Impact Assessment is still lacking in Rwandan EIA laws e.g. we don't have policies on involuntary resettlement |

| | | |
|---|---|---|
| | | • There is need to consider people's livelihoods once displaced by a project. There is also need to value people's property including land and compensations should be given to displaced people in time<br>• The land law needs to be revised especially compensation to include land not only what is on the land<br>• Social impacts include: air and noise pollution, wastewater pollution as most people have not yet adopted standard wastewater treatment systems<br>• The positive impact is that people get employment and poverty levels are decreased. |
| **16.** | Umulisa Flora | • Kinazi Cassava Plant processes raw cassava into cassava flour through a process of: Cleaning, peeling, fermenting, pressing, drying and packaging without any additives or preservatives<br>• We buy fresh cassava from farmers. The machine then cuts cassava into small pieces forming like porridge and dry the flour to a moisture content of 13%.<br>• Diesel and peat are used as sources of energy<br>• Cassava flour is sold locally and at international market in Belgium, Canada, Turkey, DRC among others<br>• Total employment levels currently are approx. 59people. |
| **17.** | Muhizi Robert | • Processing unit conforms to the WHO CODEX standards for edible cassava and International CODEX Practices—General Principles of food hygiene (CAC/RCP 1-19) among others<br>• We produce 2tonnes of flour from 6tonnes of cassava per hour<br>• Liquid waste includes: wash-down water, water used in cleaning/washing raw cassava and water squeezed out of cassava during the drying process. Liquid wastewater is then pumped to a sedimentation tank and finally into 4 logons. Lime is added in the process. Currently only one lagoon is being utilised as company is still new<br>• The peels are removed from the water used in cleaning cassava roots and this water is recycled back through pumping to be reused at initial stage of washing cassava roots. A water recycling unit is used where 10kgs/day of lime is added.<br>• Cassava peels are then piled in a designated area for re-use as manure. They are also future plans to process feeds in future<br>• Water used is $15m^3$/hour and almost the same goes out as wastewater.<br>• Source of water are 3 Motorised Boreholes of depth of 12m, 50m and 20m. About 24m3/hr is pumped out to our water treatment plant (treatment stages include: Sedimentation tank using sand, Chlorine of 65% added, Activated Carbon to remove chlorine and, finally Ion exchange resin is applied to soften water).<br>• Key impact happen at production, engineering and safety stages e.g. very minimal dust but PPE is provided to workers<br>• EIA team should include: Food Scientist for quality assurance, Civil engineer, Occupational health & safety expert<br>• Cyanide as a content of cassava is very poisonous and we break it down through fermentation and de-watering processes. Then hydrogen cyanide is produced after these processes but we further dry the flour from 50% wetness to 20% moisture level to eliminate cyanide. |
| **18.** | Dr. Charles Bucagu | • National University of Rwanda has modals of various agro-processing where developers come and learn from as they establish their factories<br>• The guidelines should at least cover each agricultural product e.g. cassava, fruits.<br>• Dairy products are not considered as agro processing but livestock i.e. Meat and Milk products<br>• I have worked with coffee, Chili and cassava processing for export funded by USAID under SPEAR Project. |

| | | |
|---|---|---|
| | | • There is currently too much use of fertilisers which could lead to accumulation of nitrates but only in the long run as these are small holder farmers<br>• The source of energy should be looked at as most factories especially Tea depend on fuel wood. Hence impact on forestry. There is also impact on wetlands as a result of harvesting peat.<br>• EIA team should include: Agronomist, Soil Scientist, Plant/Crop Ecologist, Agro-climatologist since agriculture is rain-fed in Rwanda |
| **19.** | Umwizerwa J. Claude | • At RABI we pack pre-cooked beans and maize and we do not use any chemicals in our process<br>• We use approx. 10m3/day of water which is pumped back into the system for recycling/re-use |
| **20.** | J. Niyamathullah | • There is no bad smell here, there is need to sensitize people about tannery<br>• Factory was opened in 2007 but production started in 2010 due to EIA process which delayed it<br>• We use only goat and sheep as raw materials to produce wet blue materials for export (semi-finished leather)<br>• Our process begins with soaking in drums, Liming (use lime & sodium sulphate, enzymes), Re-liming (use same chemicals), Freashing, De-liming (Alum, Enzimatic Bate), Pickling (use Sulphiric Acid and Formic Acid), Chrome tanning (sodium phosphate, Chrome Powder and Rexnen AB-imported from Argentina)<br>• We employ about 30 people who are equipped with PPE |
| **21.** | Prof. Naramabuye F. X | • I was involved in undertaking EIA for RUCEP Tannery project and I established Centre for environment, enterprenuership and sustainable development at NUR<br>• Issues include ownership of the project to understand environmental and social problems because developers focus on profit making not protecting the environment. Developers are willing to do EIAs but compliance still a problem.<br>• Implementation of the EMP is still a big challenge due to lack of enough resources to do follow-up once the project has been approved<br>• Wastewater treatment is also still a challenge because there is no adequate monitoring<br>• Chromium is very toxic thus organic wastes contain nitrates, impacts on water for drinking. But people get jobs and market on positive. Issues of occupational health & safety especially in handling chemicals<br>• REMA needs to follow-up on Monitoring & Compliance<br>• EIA team should include: Soil Scientist, Chemist, Water Quality Specialist, Biologist, Socio-economist, Public Health Expert, Legal Expert and Environmentalist who understands the environment<br>• I teach EIA and EMP and I feel laws are adequate enough to enable us undertake EIAs.<br>• There is need to put in place a tax for environmental protection which REMA can utilise in monitoring. |
| **22.** | Augustine A. Okea | • Tea Production Process: Withering (reduce the amount of water in leaf), Rotorvane (merceration of leaves to activate enzyme)s, CTC (cutting, culling & tearing), Rolling, Fermentation (acquire taste and colour that is required for tea), Dryer (reduce moisture content to approx. 3%), Pre-soating (remove excess fibres, extra large sizes to be taken back for processing), Vibro Grader (different grades of tea e.g. PF1, PD, BP1), Vibro/Trinic Sorter (secondary grades e.g. BMF, Fanings), Bins (soaing according to grades), Packaging.<br>• No chemicals are used in the production process only NPK as fertilisers<br>• We are in the process of constructing a sedimentation tank to separate storm water from wash-down water (contains |

| | | |
|---|---|---|
| | | detergents which we use in cleaning). This is to control soil and water pollution |
| **23.** | Silomana Benoit | • No wastewater treatment but we are looking at options like re-using, recycle and dispose of especially since we are in the process of ISO Certification. But our plant in Kigali already has a wastewater treatment system. At Gisenyi we discharge into Lake Kivu but we monitor some water quality parameters.<br>• Production process is on our website but we deal in both soft and beer drinks. Raw materials include: maize, sugar, water, Barley malt. We use approx. 600,000m3/year of water and our source of energy is hydro power, heavy fuel oil, thermal and diesel.<br>• We conduct in-house surveys on water consumption, waste management with assistance from consultants e.g. EPAS. We produce an environmental report yearly |
| **24.** | Rwakagara N. Emmanuel | • We export cherries not crushed coffee (sold locally)<br>• Production Process: Harvesting of Cherries, Wash station, Dry (reduce moisture by 40%). Red cherries must be brought to washing station within 8hours after harvesting to avoid fermentation which spoils the quality, Hand pick and weighing process, float cherries in water and remove only those that sink & weigh, Reception Bags (ready for processing), use water in processing coffee to ease movement, the Pulper (separates the coffee cherries depending on weight). Then we grade in-terms of quality. Fermentation is next stage (i.e. 1st fermentation takes 12hours, 2nd takes 24hours, Grade coffee under water for 20hours to improve the quality, Pre-dry, another selection done by hand picking, Drying stage on tables for 24hours (to reduce moisture by 12%). Separate brown cherries from green cherries after drying. Package and Certification process with assistance from RBS and NAEB. Roasting/grinding coffee for local consumption done a low scale.<br>• No use of chemicals as they promote organic farming |
| **25.** | Juvenal Kabiligi | • Its processing agricultural products and livestock products<br>• I was involved in EIA to study the hydrological works for Marshlands to grow rice. I managed the project in Runukangoma, Butare funded by Catholic Relief Services (CRS)<br>• Issues include: water and soil pollution due to chemical use, poor waste disposal e.g. they are currently no measures for processing yoghurt and cheese<br>• Need to educate local people on preventing cumulative impacts |
| **26.** | Muzola Aime | • When an investor comes to MINIFRA, we prepare an MoU and send it to RDB for consideration<br>• Some staff of MINIFRA are consulted by consultants during the EIA study but we don't participate in reviewing EIA reports once submitted to RDB<br>• Energy, Water and Sanitation (EWASA) is under MINIFRA. There is a plan to have centralised wastewater treatment systems to prevent pollution but some housing establishments are using stabilisation ponds and machines<br>• In undertaking EIA, there is need to establish baseline information on water and air quality to be used as parameters for future monitoring purposes.<br>• Enforcement & compliance needs to be improved.<br>• EIA team can include: Chemist, Biologist (Microbiology), Food Scientist, Engineer (depending on project), Agricultural Engineer. |
| **27.** | Eng. Niyonzima Steve | In leather and tannery, My main role was to :<br>• Determine waste water parameters (water flow, chemical oxygen demand, Biological oxygen demand, Chromium contents) |

- Make analysis based on the benchmarking during beam house, tanning operations, post-tanning and finishing
- Providing Options: *Determine kind and amount of pollutants, *Identify trimming waste according to stage, *Define recipes for chemicals, Define procedures for loading and dosing chemicals (float ratio, weighing of chemicals, use of personal safety equipment), *Use float rates of approximately 60%, *Recover chromium from wastewater (keep chromium containing floats separate, precipitate the chromium and dissolve it again). Those below section were assessed: water management, pollutants in waste water-bovine hides, wastewater in vegetable tanning, tanning, retaining dyeing and waste water treatment.

Tannery is come from solid waste: based on the kg generated, I have to identify: * Untanned through trimmings and fleshings, * Tanned through Sprits, shavings and trimmings, * Dyed/Finished through dust and trimmings in air, to identify organic solvents was critical and in sludge from treatment must be dried.

These are the major impacts: odour, high pollutant loading rate, clogging, effluent with high contamination some time due to clogging and high pollutant loading and inadequate design of the treatment plant.

These can be adverse: Through providing adequate design, teach them the reduce, reuse, recovery and recycling, segregate solid and liquid waste, using modern technology in dosing of dyes, keep chromium chips separated, compacting chromium chips and use chromium as filler as well as optimize trimming in beamhouse, Undertake at least one week monitoring the process of the wastewater treatment plant and solid waste management mechanism in order to maintain an inventory of inputs and outputs. Verify the efficiency of the treatment plant and the quality of the products, skins to determine kind of chemicals used and check for potential substitutes.

**ANNEX O: CATALOGUE OF MAJOR EXISTING AGRO-PROCESSING INDUSTRIES IN RWANDA**

| No. | Province | District | Sector | Company/Organisation | Product | Contact |
|---|---|---|---|---|---|---|
| 1. | Kigali | Gasabo | Gicaca | Promotion de la transformation des tubercules et plantains. | | MUNYANGANIZI Bikoro |
| | | | Kinyinya | Plantation and production of chilli paper in Murama Wetland, RDB/3/ EC-88/104/09 | Chilli | |
| | | | Rugende | Agriculture Exploitation of Rugende wetland by Cultivating Maize and reedsin Rugende, RDB/3/EC61/07/2010 | Maize | Alex BAYINGANA |
| | | | | Gatare Coffee, RDB/3/EC11/02/2011 | Coffee | BAVUGAMENSHI Théobald |
| | | | Nyagatare district | Construction of an irrigation system in Muvumba perimeter VIII. RDB/3/EC16/03/2011 | Rice | Jolly DUSABE, Rural Sector Project(RSSP) |
| | | | | Rehabilitation of irrigation infrastructures and dam construction in Cyili marshland. RDB/3/EC33/05/2011 | Rice | Jolly DUSABE ,RSSP II coordinator c/o MINAGRI |
| | | | | Agro Coffee | Coffee | Hatari Sekoko |
| | | | | Nshili Kivu Tea | Tea | V. Jayasekere |
| | | | | Rwanda Mountain Tea | Tea | Nihal bopearatchy |
| | | | | Rwanda Tea Trading | Tea | Pierre Claver Karyabwite |
| | | | | Sorwathe | Tea | J.C Calles |
| | | | Gikongoro | Bufcoffee | Coffee | Faustin Gakenyeye |
| | | | | C.B.C Sarl | Coffee | Jean Paul Rwagasana |
| | | | | Caferwa | Coffee | Faustin Mbundu |
| | | | | Enas | Coffee | Alfred Nkubili |
| | | | | Facko Rulindo | Coffee | Viviane Mukanyiligira |
| | | | | Horizon Agro Based | Coffee | Emmanuel Nzamurambaho |
| | | | | Kivu Arabica Coffee | Coffee | Jean Bosco Seminega |
| | | | | Lifemate Company | Coffee | Mukama Frank |
| | | | | MIG S.A | Coffee | Vincent Ngarambe |
| | | | | Misozi Coffee | Coffee | John Rebero |
| | | | | Rwacof | Coffee | Swamy D |
| | | | | Shenga Coffee | Coffee | Jean Bosco Rukundo |
| | | | | Sicaf | Coffee | Ndoba Mugunga |
| | | Kicukiro | Gahanga | Saek Imushirarungu Farm, | | IMUSHIRARUNGU Farm |
| | | | | Production et Raffinerie d'Huile de palme (PALMALAC) | | NZAMWITA Omar |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Masaka | Agro Processing Plant at Masaka, Akarere ka Kicukiro | Fruits | Inyange Industries |
| | | | Nyarugunga | Construction of an agriculture warehouse at Nyarugunga | Warehouse | Nkubili Alfred |
| | | | | Construction and operation of a grain milling factory, RDB/3/ EC -51/67/09 | Grain | Bakhresa Mounir |
| | | | Gikondo | Construction and operation of a coffee roasting and packaging factory at OCIRCAFE Gikondo, RDB/3/ EC-73/89/09 | Coffee | |
| 2. | East | Bugesera | Mwogo | Amanagement hydroagricole de vallée de Rurambi dans le marais Nyabarongo RDB/3/EC34/o4/2010 | | |
| | | | Rweru | Développement et Promotion de la culture du Sisal á Rweru, RDB/3/EC46/05/2010 | Sisal | |
| | | | Gashora | Lake side fish farm in the Eastern Province, RDB/3/EC19/03/2011 | Fish | Lakeside LTD |
| | | Kayonza | | Soya oil Refinery, Kayonza District | Soya | Graham Morgan |
| | | | Murama, Mwiri, Rwinkwavu, Kabare and Kabarondo | Jatropha Curcus L. plantation on 8400ha in Kayonza District.RDB/3/EC25/04/2011 | | Rwanda Biofuels LIMITED |
| | | | Ndengo | Irrigated and Mechanised Maize &Soybeans Production on 650 ha Kayonza. RDB/3/EC08/02/2011 | Maize/Soya | Félicien MUTARIKANWA |
| | | | Nyamirama | Agro-bussines project in Nyamirama | | Women for Women International/Berra Kabarungi |
| | | | Mukarange | Distillery Plant in Eastern Province, RDB/3/EC34/o4/2010 | | Rwanda Distelleries Ltd |
| | | Nyagatare | Karangazi | Construction Activities Operation of Rice Milling Unit, At Ryabega, Mbare Cell, RDB/3/EC71/09/2010 | Rice | BASABIRA Laurant |
| | | Kamonyi | Runda | RUYENZI DAIRY Southern Province, RDB/3/EC40/05/2010 | Dairy | UWIMBABAZI Paul |
| | | | Runda | Extension of the coffee dry mill at Ruyenzi cell, RDB/3/EC30/05/2011 | Coffee | KANINGU Christian, KAY.CO LTD |
| | | Muhanga | Nyamabuye | ENJOY Fruits Iby'iwacu, Akarere ka Muhanga | Fruits | NDAYISENGA J.Pierre |
| | | Nyamagabe | | Mushubi Tea Factory | Tea | |
| | | | Gasaka & Kamegeri | One Village One Product (OVOP): Intensification of coffee for poverty reduction. RDB/3/EC20/03/2011 | Coffee | Nyamagabe District |
| | | Nyanza | | Promotion Mais et Soja au Rwanda (PROMASOR) | | MUNYABURANGA Javan |
| | | Nyaruguru | | | | |
| | | Ruhango | Kinazi | Construction &Operation of cassava flour processing plant at Rutabo site. RDB/3/EC15/03/2011 | Cassava | Banque Rwandaise De Development |
| 3. | West | Karongi | | Karongi Tea Factory at Gasenyi, RDB/3/EC70/08/2010 | Tea | MUTANGANA Jean Baptiste |
| | | Rubavu | Rubavu | Nkora Coffee washing station, Nkora | Coffee | CAFERWA |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Gisenyi | Pfunda Tea Co. | Tea | David Graham |
| | | | Gisenyi | Coopac | Coffee | Emmanuel N. Rwakagara |
| | | | Gisenyi | Socor | Coffee | Philippe Kubwimana |
| | | | Gisenyi | Sopecaf | Coffee | Urinubenshi khamisi |
| | | Rusizi | | Kivu Arabica Coffee Company | Coffee | |
| | | | Butare | Ba Kawa (Maraba) | Coffee | David Rubazabangabo |
| | | | Butare | Rwashoscco | Coffee | Gilbert Gatali |
| | | | Bugarama | Expansion of a modern milling unit of rice paddy "ISHEMA Rice "in Nyange. RDB/3/EC38/06/2011 | Rice | Nyandwi Jacques |
| | | | Cyangungu | Mibirizi Coffee | Coffee | |

# REFERENCES


1. African Development Bank (2003) Integrated Environment and Social Assessment Guidelines.
2. Agricultural Mechanization Strategies for Rwanda Shifting from Subsistence Agriculture to Market-oriented Agriculture 6/7/2010 Ministry of Agriculture and Animal Resources
3. GoR (2003). The Environment Policy
4. GoR (2003).National Strategy and Action Plan for the Conservation of Biodiversity in Rwanda.
5. GOR (2004). National Agricultural policy (July 2004)
6. GoR (2004). National Land Policy(February 2004)
7. GoR (2004). Sectoral Policy on Water and Sanitation
8. GoR (2005) Organic Law No 04/2005 of 08/04/2005
9. GoR (2006). General Guidelines and Procedure for Environmental Impact Assessment (GoR 2006). REMA
10. GoR (2007). Economic Development and Poverty Reduction Strategy (EDPRS) 2008 – 2012. MINECOFIN.
11. MINAGRI (2004). Strategic Plan for Agriculture in Rwanda (October 2004)
12. MINAGRI, 2007. STRATEGY FOR DEVELOPING FERTILIZER DISTRIBUTION SYSTEMS IN RWANDA.
13. MINECOFIN (2002) Vision 2020, Kigali: Government of Rwanda.
14. MINECOFIN (2007). Millennium Development Goals. Against All Odds: Achieving the MDGs in Rwanda. Final Draft Report.
15. MINELA (2005). Organic Law No 04/2005 of 08/04/2005 on Environment Protection and Management
16. MINELA (2006). Law No 16/2006 of 03/04/2006 determining the Organization, functioning and Responsibilities of REMA
17. MINELA (2011). National Policy for Water Resources Management
18. MININFRA (2010) National Policy and Strategy for Water Supply and Sanitation Services, Kigali: Government of Rwanda.
19. MINIRENA (2004) National Land Policy, Kigali: Government of Rwanda.
20. Ministry of Agriculture and Natural Resources (2004). National Agricultural Policy for Rwanda
21. Ministry of Lands, Environment, Water and Natural Resources, MINIRENA (2004). Sector Policy On Water and Sanitation
22. MINISTRY OF TRADE AND INDUSTRY, Small and Medium Enterprises (SMEs) Development Policy June 2010
23. Ministry of Water, Lands and Environment, MWLE, Uganda (2000)
24. MINITERE (2003) National Environment Policy, Kigali: Government of Rwanda.
25. Norman Mhazo et. Al., 2011. The Status Of The Agro-Processing Industry In Zimbabwe With Particular Reference To Small And Medium Enterprises
26. REMA (2004). Sectoral Strategy 2005-2010
27. REMA (2007). Environmental Indicators.
28. REMA, 2009. Rwanda State of Environment and Outlook, Rwanda Environment Management Authority.
29. Republic of Rwanda, 2000. Rwanda Vision 2020, Ministry of Finance and Economic Planning
30. ROR (2000) *Vision 2020*. Ministry of Finance and Economic Planning, Republic of Rwanda (ROR), Kigali.
31. ROR (2008). *Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II*

*(PSTA II)*. Final Report. Ministry of Agriculture and Animal Resources, Republic of Rwanda (ROR), Kigali.
32. ROR 2011, Export Catalogue
33. The Constitution of the Republic of Rwanda 2003, Kigali, Rwanda
34. UNEP (1996). Environmental Impact Assessment Training Manual