

**SECTOR GUIDELINES FOR  
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR  
HOUSING PROJECTS IN RWANDA**

## **Foreword and Disclaimer**

The Organic Law No. 04/2005 of April 08, 2005, determining the modalities for protection, conservation and promotion of environment in Rwanda, requires all projects to be subjected to environmental impact assessment (EIA). This is part of the fulfilment of the Government of Rwanda (GoR)'s commitment to Rwandans and the international community, to pursue sustainable development goals. The scale and detail of EIA varies with project complexity as well as the ecological, cultural and socioeconomic sensitivity of specific sites. This is consistent with the Constitution of June 2003, Vision 2020, and the environmental sustainability principles enshrined in Agenda 21 and the Millennium Development Goals, especially MDG 7. In order to make these provisions operational, REMA has developed a set of EIA related legislations – that include General EIA guidelines and Regulations; and sector-specific EIA Guidelines. This document is intended to serve as a guideline, which provides recommended approaches and formats for the preparation of a comprehensive EIA report on proposed housing projects.

These sector-specific Guidelines for Housing Projects recognise the role that the housing plays in Rwanda's development process, both in urban and rural areas, and underscore the need to ensure that these developments continue to take place in a manner that not only promotes economic feasibility and social equity, but maintains or enhances environmental sustainability and cross-generational equity. In developing and applying these guidelines, REMA continuously emphasise the cost-effectiveness and financial profitability promoted by application of EIA in investment operations. REMA is optimistic that these guidelines will help deepen understanding of EIA and facilitate greater stakeholder cooperation.

These guidelines should be used together with other EIA instruments developed by REMA i.e. the General EIA guidelines, the regulations and standards, as well as other sector-specific guidelines. It is also meant to be used alongside other policy and legislation documents relating to housing projects.

These guidelines have been made at a time when development processes are highly dynamic. While they are an authentic administrative tool, they never the less will be subjected to technical and public review at a time it is deemed appropriate.

Finally, I would like to recognise the team from the Centre for Resource Analysis (CRA), who assisted us in preparing these guidelines. In the same spirit, I applaud the staff of REMA and other national institutions, led by Mr. Theobald Mashinga, for the tireless efforts in ensuring that these guidelines are completed.

**Dr. Rose Mukankomeje**

**Director General, REMA**

## **Glossary of Terms and Concepts Used**

**Environment:** relates to the physical, biological and human interactions surrounding a specific activity or the project.

**Environmental Impact Assessment:** refers to the scientific process of examining the environmental and human consequences, both beneficial and adverse, of a proposed activity or project, and for incorporating appropriate measures to address them into project design and implementation.

**Developer/Developer:** The entity, person, company/agency - proposing to develop/implement/install a new project/sub-project or expand an existing project under the road construction strategy.

**Direct impacts:** An effect on the environment brought about directly by the project.

**Disclosure:** Information availability to all stakeholders at all stages of the development.

**Environment:** The physical, biological and societal components and processes that define our surroundings.

**Environment Assessment (EA):** Includes environmental reviews, environmental scans, initial environmental examinations, environmental audits, etc.

**Environmental impact assessment (EIA):** A systematic, comprehensive, logical process of analysis of a project and its effects (positive and negative) on the environment based on prevailing baseline conditions and a description of the mitigative actions.

**Environmental Impact Statement:** Report submitted to the authority by the developer stating the likely impacts of the proposed project, as well as measures for mitigating or managing the environmental impacts during the project development and operation.

**Environmental monitoring:** describes follow-up activities and decisions on a regular basis to ensure the development and operational activities of the project comply with the conditions agreed upon in the environmental management plan.

**Impact:** A positive or negative effect that the project is likely to have on any aspect of the biophysical and/ or socio-economic environment.

**Indirect impact:** A positive or negative effect that the project indirectly has on an aspect of the environment

**Involuntary resettlement:** The forceful loss of land / resources that requires individuals, families and / or groups to move and resettle elsewhere.

**Lead Agency:** The agency with primary responsibility. For instance, the lead agency for environmental matters in Rwanda is REMA.

**Mitigation measures:** The actions identified in an EIA to negate, minimize or otherwise the negative environmental impact that a project may have on the environment.

**Pollution:** Contamination altering the state of purity (e.g. chemical effluent discharge into a surface water body).

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

**Project Brief:** The initial submitted document to REMA to initiate the process that will lead to the issuance of the EIA certificate of approval.

**Scoping:** The initial and most important stage in an environmental assessment that determines the likely major environmental parameters that will be affected and the aspects of the project that will cause these effects.

**Reviewing:** Is an assessment of the so far submitted project details by an environmental agency to decide as to whether there are gaps to be answered.

**Screening:** An initial step when a project is being considered for environmental assessment. The screening is the determination of the level of assessment that will be conducted. In the case of GoR, screening will place the project into one of three environmental categories (I, II, or III). At this stage, it may be decided that the project does not require a full EIA and therefore can proceed based on the Project Brief recommendations.

**Stakeholder:** Any person or group that has an interest in the project, and the environmental affects that the project may bring about.

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## **Chapter 1: INTRODUCTION**

### **1.1 Rising Demand for Housing and booming construction sector in Rwanda**

Rwanda's post-genocide recovery and reconstruction period has been associated with high demand for housing – domestic and commercial, rural and urban, as more people returned and as Rwanda's successful economic growth and political stability continue to attract many foreign investors and tourists. This has been paralleled by a significant expansion of the construction industry including industrial buildings, hotels and recreational centres, residential houses as well as roads and other infrastructural works. The country's hilly and mountainous terrain make it susceptible to earth quakes, landslides and other natural disasters especially in the western and northern parts of the country. This, together with increasingly strict housing modernisation drive have forced, encouraged or motivated people to construct brick and mortar houses (concrete, burnt brick and cement). And then the real estate has in the last 8 years, expanded considerably, attracting local and international investors.

The influx of people into Kigali and other parts of the country in the aftermath of the 1994 genocide, and the highly disorganised housing system that the post-genocide Government inherited, increased the crisis of housing in Rwanda. The concept of grouped settlements (*Umudugudu* concept) was adopted as a rational measure to provide adequate housing to all returning refugees on the little land that was available. The concept worked successfully especially for rural areas, and has since been transformed into a national policy of Villagisation to rationalise land use, to free up more land for productive activities and to ensure equity in the land-based transformation process. To this effect, the human settlements sector targets to have at least 60% of the population in grouped settlements by 2020 (MINITERE 2003; National Land Policy). In the urban areas, where there is an acute shortage of housing, demand for housing outstrips supply. In February 2009, the Ministry of Infrastructure issued Comprehensive Building Control Regulations and Standards, and expects all urban areas to have elaborated Urban Development master plans and land use management plans by 2010. This and other measures implemented by the GoR since 2000 have enabled to streamline and organise the housing sector, and it will improve when clear housing standards are put in place alongside these sector-specific EIA guidelines. These will not only facilitate optimal use of land for housing, but also facilitate controlling the destructive effects of scattered and disorganised housing in the rural and urban areas. This is in line with the Vision 2020 of decent and sustainable settlement for all Rwandans.

## **1.2 Enabling Environment for Public-Private partnerships in the Housing Sector**

It is in this context that the Economic Development and Poverty Reduction Strategy (EDPRS) targets to have developed 13 Urban Master plans that provide specific areas for residential, commercial, industrial buildings, as well as recreational areas and associated infrastructures. As of 2007 when the EDPRS was elaborated, there were 5,486 *imidugudu* settlements. Between then and 2012, an additional 5,700 *imidugudu* sites will be constructed, raising the number to 11,186 grouped settlements. Another 10,000 Hectares of land will be provided with infrastructure for housing, according to the EDPRS (MINECOFIN 2007).

*Who will do this?* The policy and legislative framework created by the GoR in the sectors of land governance, housing and financial services, and the incentives made available e.g. by extending public utilities, have attracted local and international private investments in real estate and associated service provision such as mortgage finance. Thus, large tracts of land are being converted into housing estates, high rise commercial buildings, and recreational areas, institutional and industrial facilities as demand increases.

*What are the implications for the environment?* All these have significant environmental impacts, as they will involve:

- change of land use which inevitably impacts on the ecology, hydrology and the socioeconomics of the area including demographic changes;
- infrastructure development that attracts more people, change lifestyles and cultures;
- use of physico-chemical and biological substances in the construction and other activities;
- increased consumption of energy, water, air and other utilities
- increased waste generation; and
- reduced scope for green house gas emissions as the green spaces (with tree and plant cover) are replaced by brown or grey earth or concrete structures.

Very often these developments are outstripping the capacity of public regulatory agencies like housing and public works inspectors, environmental regulation and impact monitoring agencies, and utility service providers, among others, who are often inadequate in numbers and insufficiently equipped with the requisite skills, technical and financial resources, and legislative tools to effectively ensure environmental compliance.

These guidelines are part of the legislative tools put in place with the intension of promoting environmentally sustainable housing in Rwanda.

## 1.2 Purpose and objectives of the Guidelines

Environmental Impact Assessment (EIA) is a process having the ultimate objective of providing decision makers with an indication of the likely environmental consequences of a proposed activity.

The objectives of an EIA are to:

- ✓ determine environmental compatibility of the project
- ✓ evaluate and select the best project alternative from the options available
- ✓ identify and evaluate the significant environmental impacts of the project
- ✓ incorporate environmental management plans and monitoring mechanisms
- ✓ assess the environmental costs and benefits of the project to the community

These housing sector-specific EIA guidelines are intended to apply to all proposals that undergo EIA in accordance with the overall national policy and organic Law on Environment. It is intended that these guidelines will be used by:

- i) Housing/ building Project proponents;
- ii) REMA EIS reviewers and Monitoring experts;
- iii) Independent consultants undertaking EIA studies and preparing EIA reports
- iv) Stakeholders affected by the housing project developments and/ or proposals;
- v) Community representatives and/ or interested persons

These guidelines provide advice to encourage sound EIA practices and outcomes across all phases of planning for housing proposals through scoping studies, feasibility studies, design phases, consultation, and seeking approval. They are not intended to establish mandatory requirements, but seek to provide advice and guidance on:

- issues and criteria considered in EIA;
- available EIA process options;
- information requirements for the various EIA processes; and
- drafting appropriate EIA reports (or EISs).

It is expected that these guidelines will not only assist developers and their consultants to prepare better quality Environmental Impact Assessment reports but will also ensure that sufficient information is available for a proper assessment and for good decision making.

Summary of the Guideline objectives:

- ✓ To aid in the preparation of reports that are comprehensive in their content and to reduce cost of EIA
- ✓ To protect the environment from costly and irreversible mistakes
- ✓ To aid review of the reports
- ✓ To avoid time delays and cost overruns

One of the key aspects of housing projects is the specificity of each proposal especially in terms of design and location. Thus, EIA practitioners and reviewers must look at the particular circumstances of each project proposal especially occasioned by differences in design and location. Stakeholders must understand that simple differences such as the direction of the face of the building or orientation of the slope of the plot can make a large difference in the types of impacts created.

### **1.3 Scope of the Guidelines and need for continuous review**

This guide has been developed in the absence of specific building/ housing laws describing the range of project sizes that should be subjected to EIA. These guidelines are applicable to the following categories of projects:

- ✓ Urban housing projects on at least 1 acre;
- ✓ Urban housing projects on slopes greater than 50%;
- ✓ Housing structures of at least 6 storeys (6 levels above ground) irrespective of intended use;
- ✓ All housing projects with capacity or provision for at least 100 people at any one time.
- ✓ Housing projects intended for community or group activities. This category includes such facilities as spiritual/ worship places (churches, mosques, temples), transit homes, schools, hotels, hospitals/clinics, funeral homes, recreation facilities (indoor or otherwise);
- ✓ Rural settlements (grouped or otherwise) on at least 10 Acres.

*The level of EIA should vary from simple environmental review to detailed EIA. For all housing projects, special attention by reviewers and inspectors should be paid to installation of utilities (water, electricity and sewerage services), solid and liquid waste treatment/ disposal, noise, public access to essential facilities, anti-lightening and fire installations; and conformity to established land use plans and regulations.*

This guideline is by no means exhaustive, and not all matters outlined in this guideline will be applicable to every proposed development. The EIA report should be tailored to suit the potential impacts of the proposed project. Proponents and consultants are also advised to consult other relevant documents such as the Economic Development and Poverty Reduction Strategy (EDPRS), Sector Strategic Plans of the Ministries of Infrastructures (MININFRA), Natural Resources (MINIRENA), Local Government, Community Development, Good Governance and Social Affairs (MINALOC), and the Land Use and Urban Development Master Plans of the various districts and urban authorities, alongside the sector specific guidelines for water, waste management, roads and of course the general EIA guidelines earlier developed by REMA.

As our understanding and awareness of the environment-development relationships improves, and as new challenges arise, these guidelines will be updated to reflect new ideas or issues. In particular, these guidelines are likely to be reviewed when new legislations come up especially in the area of land, housing and infrastructure development, as anticipated.

### 1.4 The Housing Project Cycle

A typical housing project entails 3-4 phases. These phases and the examples of specific environmental impacts associated with each phase are summarised in the figure 1.

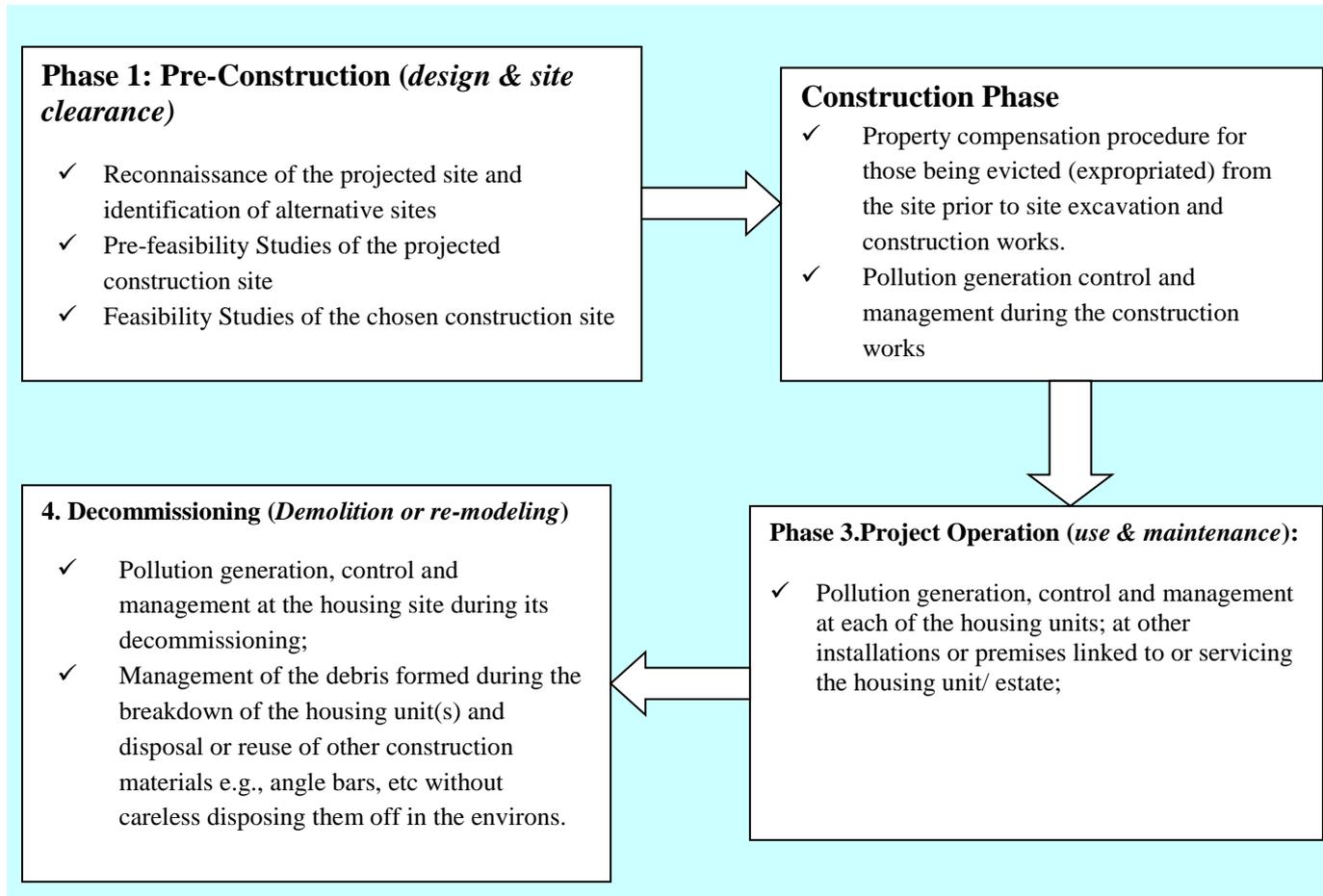


Figure 1: Phases/ Project Cycle of a Housing Project: and associated environmental impacts.

## Chapter 2: POLICY, LEGAL AND INSTITUTIONAL FRAME WORK

### 2.1 Policy Framework

In the aftermath of the 1994 genocide, there was huge influx of people into Rwanda – mostly refugee returnees and international development workers (in NGOs and donor organisations). These imposed a huge housing demand for residential and operational work. This demand has since escalated with the resuscitation of security and socioeconomic recovery. As a result, the construction industry is one of the fastest growing components of the economy. In order to encourage rational, well planned housing and buildings, the Government of Rwanda has enacted a number of policy instruments, key of which include the following:

*National Urbanisation Policy* – anticipates that 30% of the population will live in urban areas by 2020, and seeks to promote urbanisation as a way of reducing the pressure on rural land and to optimise land use.

*The National Urban Housing Policy for Rwanda, 2008* recognises housing as basic human rights of its citizens in accordance the 1996 Istanbul declaration, and underscores the importance of planned settlements as the most environmentally friendly and sustainable way of providing adequate housing to its citizens, among others. The policy, *inter alia*, seeks to improve urban management, control development, and the spatial expansion of cities, particularly urban centres using effective planning tools.

*Land Policy 2004* advocates for rights to land, through secure tenure, and grouped and organised settlement as the most rational, optimal and productive use of rural and urban land for development. Subsequent to

*The Environmental Protection, conservation and management policy 2004*, seeks to integrate environmental sustainability principles into all development processes, programmes and projects – including housing. The implications for the housing sector are that scattered settlements must stop; housing and construction – projects must undergo environmental impact assessments to ensure that they do not impose negative impacts on the social, ecological, economic and cultural resources of the country.

*The national population policy 2003 (revised in 2008)* raises concerns for high population growth and seeks to change Rwanda's demography, to ensure more even population growth, well educated populace, living in organised housing conditions. The implications for this, is that more and more people will demand better and more spacious housing.

*Water and sanitation policy 2005* seeks to ensure access to clean drinking water and appropriate sanitation t all Rwandan households. The policy encourages organised housing as the most cost-effective way to provide water and sanitation services, and seeks to use provision of such services as an incentive to promote organised settlements/ housing development.

## 2.2. Legal and Regulatory Framework

The National Constitution of June 2003 obliges the Government of Rwanda - current and future – together with the population, to carefully harness environmental resources in order to ensure sustainability and inter-generational equity. In particular, articles 29, 30, 49, 62, 88, 90, 93, 108, 118, 190, 191 and 201, make various provisions for environmental management- from guaranteeing rights to a healthy environment for every citizen, to making and enforcing specific legislations on environmental management. The degree of relevance of these legislative instruments varies with the activity and area, because environmental consequences of development tend to be area and theme specific.

The main legislative instruments relevant for EIA in housing projects and the most relevant provisions therein are summarised in the following table:

Laws related to road construction	Relevant provisions
The Rwandan Constitution of June 2003	<p><b>Article 29 provides the following:</b></p> <ul style="list-style-type: none"> <li>▪ Every person has a right to private property whether personally or collectively owned.</li> <li>▪ The right to property may not be interfered with except in public interest, in circumstances and procedures determined by law and subject to fair and prior compensation</li> </ul> <p><b>Article 30 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Private ownership of land and other rights related to land are granted by the State. The law specifies the modalities of acquisition, transfer and use of land.</li> </ul> <p><b>Article 32 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Every person shall respect public property. Any act intended to cause sabotage, vandalism, corruption, embezzlement; squandering or any tampering with public property shall be punishable by law.</li> </ul> <p><b>Article 49 provides that:</b></p> <ul style="list-style-type: none"> <li>▪ Every citizen is entitled to a healthy and satisfying environment.</li> </ul>
Organic Law on Land No. 08/2005 of 14/07/2005 determining the use and management of land in Rwanda	<p><b>Article 3 provides that:</b></p> <ul style="list-style-type: none"> <li>▪ Land is part of public domain and that the state has supreme powers to manage all national land in public interests for sustainable economic development and social welfare.</li> <li>▪ The state guarantees the right to own and use the land and at the same time reserves the right to expropriate individuals in public interests at a cost of compensation</li> </ul> <p><b>Article 75 provides that:</b></p> <ul style="list-style-type: none"> <li>▪ Unutilized or degraded land may be confiscated without compensation (Article 7 of the Law N0. 18/2007 relating to expropriation in the public interests )</li> <li>▪</li> </ul>
Organic Law No. 04/2005 of April 08, 2005, determining the modalities for the Protection and Conservation of Environment in Rwanda	<p><b>Article 7 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Principles that conserve rational use of environment and natural resources to include protection, sustainability of environment and equal opportunities among generations, information dissemination and community sensitization in conservation and protection of environment, cooperation and principle of polluter pays system.</li> </ul> <p><b>Article 11-39 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Protection of the natural environment and human activities.</li> </ul> <p><b>Articles 40-64 provides:</b> The obligations of the state, the decentralized entities and the population.</p> <p><b>Article 67 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Every development project likely to have negative impact to the environment shall be required to undergo Environmental Impact Assessment prior to its</li> </ul>

	<p>commencement.</p> <p><b>Article 86</b></p> <ul style="list-style-type: none"> <li>▪ At least 50 metres from any Lake shore, 10 metres from any other water body as per the provisions for protection of river/stream banks and lake shores,</li> </ul>
Law No. 16/2006 of 03/04/2006 on organization, operation and attributions of Rwanda Environment Management Authority (REMA);	- Establishes REMA as the overall national authority responsible for regulating all environmental management activities, including sanctioning, reviewing and approving EIA activities for all investment projects.
Land Expropriation Law promulgated N° 18/2007 of 19/04/2007	<p><b>Art. 3 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Only Government shall carry out expropriation</li> <li>▪ Expropriation as provided for in this law shall be carried out only in the public interest and with prior and just compensation.</li> <li>▪ No person shall hinder the implementation of the program of expropriation on pretext of self centered justifications.</li> <li>▪ No land owner shall oppose any underground or surface activity carried out on his or her land with an aim of public interest. In case it causes any loss to him or her, he or she shall receive just compensation for it.</li> </ul> <p><b>Art. 4 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Every project, at any level, which intends to carry out acts of expropriation in public interest, shall provide funds for inventory of assets of the person to be expropriated and for just compensation on its budget.</li> </ul> <p><b>Art. 5 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Acts of public interest to include roads and railway lines, water canals and reservoirs, water sewage and treatment plants, water dams, rainwater canals built alongside the roads, waste treatment sites, electric lines, gas, oil, pipelines and tanks, communication lines, airports and airfields, motor car parks, train stations and ports, biodiversity, cultural and historical reserved areas among others.</li> </ul> <p><b>Article 6 provides for</b> definitional scope of public interests  <b>Article 7 provides for</b> eligibility to compensation of expropriated property  <b>Articles 8-20 designates</b> competent organs to be charged with expropriation exercise, procedures and rights of expropriated persons and that expropriation exercise.  <b>Articles 21-22 provides for and expressly defines</b> Fair Valuation of the property to be expropriated  <b>Articles 23-28 provides for</b> Determination of compensation based on market rates  <b>Article 29 provides for</b> Intermediate measures applicable in absence of Land Commissions</p>
Presidential Order N° 54/01 of 12/10/2006 determining the structure, the responsibilities, the functioning and the composition of Land Commissions	<p><b>Article 14 (7) provides:</b></p> <ul style="list-style-type: none"> <li>▪ Responsibilities of land commission at the national level to monitor and approve expropriation carried out in public interest to accommodate activities with a national character.</li> </ul> <p><b>Article 19 (7) provides:</b></p> <ul style="list-style-type: none"> <li>▪ Responsibilities of land commission at the district level to approve and disapprove land expropriation.</li> </ul> <p><b>Article 28 (5) provides:</b></p> <ul style="list-style-type: none"> <li>▪ Responsibilities of land commission at the sector level to participate in identification of community settlement sites.</li> </ul>
Ministerial Order N° 001/2006 of 26/09/2006 determining the structure of Land Registers, the responsibilities and the functioning of the	<p><b>Article 5 provides that land bureau:</b></p> <ul style="list-style-type: none"> <li>▪ will be responsible for among others to issue construction permits and monitor compliance with construction plans</li> <li>▪ Sign construction certificates certifying that construction of buildings is in conformity with approved plans</li> </ul>

District Land Bureau	
Rwanda Building control Regulations 2009. MININFRA, February 2009	<p>Outlines procedures and requirements for construction of buildings and installation of utilities therein.</p> <p>Provide General and detailed rules on the quality and standards to be followed in all construction work including the qualifications and experiences of Building contractors; standards of materials to be used and maintenance of the infrastructure established.</p>
Draft Law on Urbanisation and Construction code in Rwanda	<p><b>Article 94 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Central government and decentralised entities may proceed to expropriate properties belonging to physical or moral persons for public interests in accordance with laws and procedures in force.</li> </ul>
WB operations policies on Resettlement – OP 4.12	<p><b>Policy objective 2 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Involuntary resettlement should be avoided wherever possible, or minimized, exploring all alternatives</li> <li>▪ Resettlement programs should be sustainable and allow displaced persons an opportunity to participate in planning and implementing resettlement programmes</li> <li>▪ Displaced persons should be assisted in improving livelihoods etc, or at least restoring them to previous levels.</li> </ul> <p><b>Policy objective 6 requires:</b></p> <ul style="list-style-type: none"> <li>▪ that displaced persons be provided with prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project.</li> <li>▪ If physical relocation is an impact, displaced persons must be provided with assistance during relocation and residential housing, housing sites and/or agricultural sites to at least equivalent standards as the previous site.</li> <li>▪ Replacement cost does not take depreciation into account. In terms of valuing assets, if the residual of the asset being taken is not economically viable, compensation and assistance must be provided as if the entire asset had been taken.</li> </ul> <p><b>Policy objective 10 provides:</b></p> <ul style="list-style-type: none"> <li>▪ Resettlement activities associated with a subproject are linked to the implementation of the EIDP programme to ensure that displacement or restriction of access does not occur before necessary measures for resettlement are in place. In particular, resettlement sites and moving allowances have been provided to displaced persons.</li> </ul> <p><b>Policy objective 14 gives eligibility to:</b></p> <ul style="list-style-type: none"> <li>▪ Those who have formal legal rights to the land;</li> <li>▪ Those who do not have formal legal rights to land, but have a claim to such land; and</li> <li>▪ Those who do not have recognizable legal right or claim to the land</li> </ul> <p><b>Policy objective on valuation and displacement cost:</b></p> <ul style="list-style-type: none"> <li>• With regard to land and structures, “replacement cost” is defined as follows: For agricultural land, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.</li> <li>• For land in urban areas, it is the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes. For houses and other structures, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors’ fees, plus the cost of any registration and transfer taxes.</li> </ul>
Law N° 52 Bis/2006 of 12/12/2007 Determining the attributions of the structure and functioning of the road maintenance	<p><b>Article 6 provides that:</b></p> <ul style="list-style-type: none"> <li>▪ FER has an obligation to oversee and supervise activities of road construction.</li> <li>▪ To assess the expertise of tenders and their capacity to undertake road construction to their satisfaction.</li> </ul>

Fund (FER)	
Law on Property valuation of 2007	The law provides the basis on which to undertake evaluation of objects expropriated.
Other subsidiary legislations	<ul style="list-style-type: none"> <li>• Presidential Order No. 53/01 creating and determining the organisation, functioning and powers of the Registrar of Land Titles;</li> <li>• Organic Law N° 29/2005 of 31/12/2005 determining the Administrative Entities of the Republic of Rwanda, including all its annexes.</li> <li>• Ministerial Order N° 001/2006 Authorizations required for cutting and transporting trees at maturity;</li> <li>• Ministerial Order N° 0001/2004 Ban of fuel wood use in making brick and tiles;</li> <li>• Ministerial Order N° 01/2003 Ban of cutting trees before maturity. Requires the permit of the district Mayor;</li> <li>• Ministerial Order of 9/8/2004 Banning the manufacture, importation, use and disposal of plastic bags/containers;</li> </ul>

### 2.3 Institutional Framework

The housing and building construction sector is multi-faceted, encompassing both social, economic and governance sectors. The institutional framework for environmental impact assessment in housing and building construction is, therefore, complex. The main institutions involved and their roles are summarised in Annex 4.

### Chapter 3: THE EIA PROCESS

#### 3.1 Overview of the EIA Process for Housing Projects

A full EIA for a housing project follows an iterative process as shown in figure 2 below.

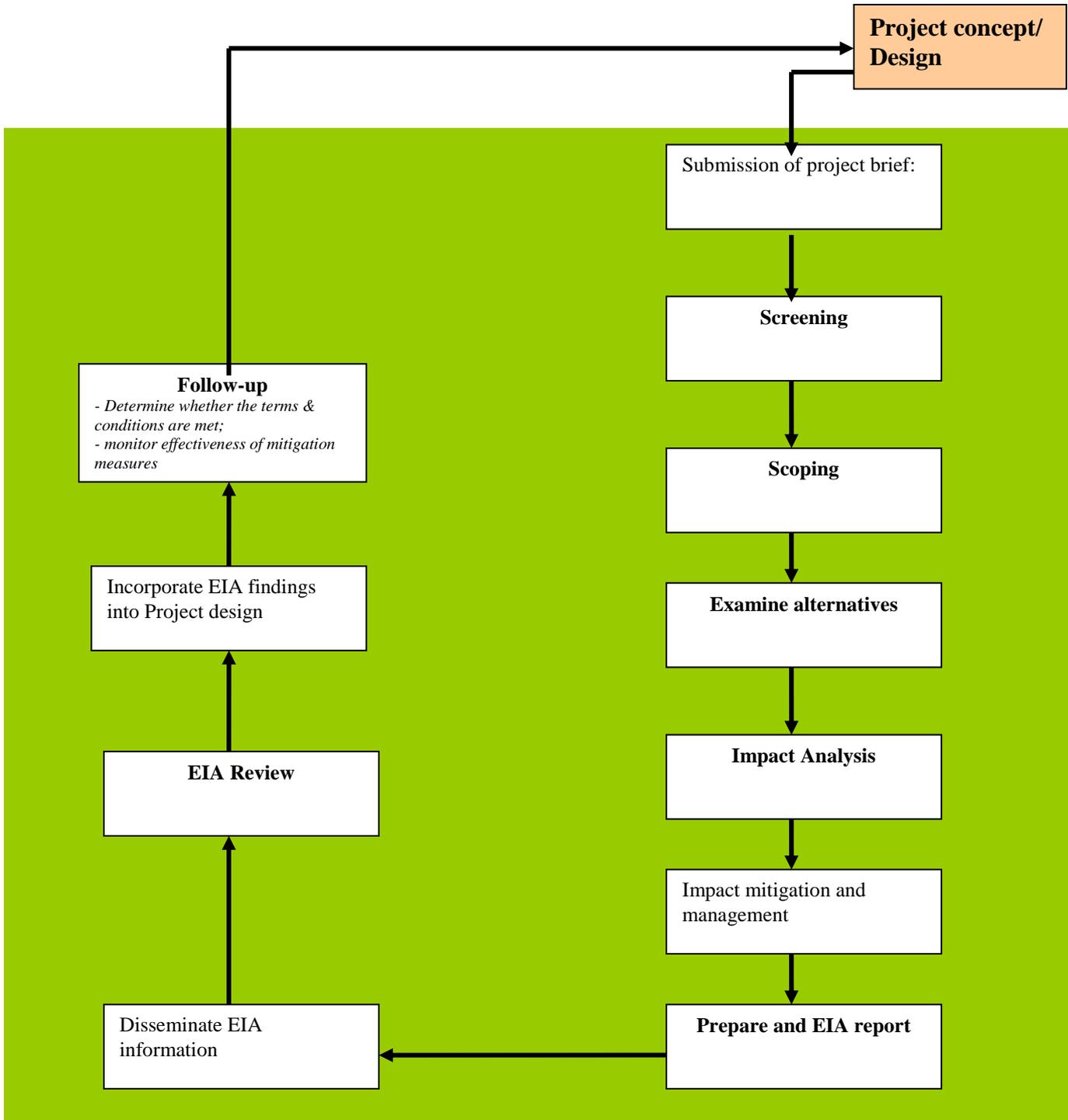


Figure 2: EIA Process for a housing project.

### **3.2 Project brief preparation & submission**

These guidelines categorise housing projects into 3 categories. The criteria used are mainly size of the project and purpose.

- a) Large scale residential housing projects (single and cluster units, high rise flats);
- b) Low cost residential housing;
- c) Small scale mixed residential and commercial;

The EIA of a proposed housing project shall ensure that all the environmental parameters have been addressed and their consequences recognised and taken into account in the project design. The EIS of a housing project shall not comprise statements of a general nature but instead shall provide substantive and indicative information on the proposed activity, the measures proposed to mitigate all adverse impacts as well as the opportunities for environmental enhancement so as to enable a proper assessment.

### **3.3 Screening**

This is undertaken, especially for small and medium size housing projects, to determine whether or not the project should be subject to a full EIA or whether additional inquiry is needed to determine this. (Refer also to the General EIA Guidelines). Environmental screening which examines the type, location, sensitivity, and scale of the proposed project as well as the nature and magnitude of its potential impacts. Many agencies categorise projects at this stage to reflect the significance of potential impacts or risks that a project might present. A generic screening checklist is attached in Annex 1.

### **3.4 Scoping process**

The purpose of scoping is to identify the issues and impacts likely to be important in a housing project, and to establish terms of reference (ToRs) for EIA in consultation with key stakeholders. The nature and extent of work required should be proportional to impact and risk.

### **3.5 Terms of Reference for the Housing Projects EIA**

The general format of the terms of reference (ToRs) for a typical housing project is attached as Annex 5.

### 3.6 EIA study

This sub-section provides a basic guide on how to prepare and undertake the EIA study for a housing project. The study should, among others, look at the following:

#### 3.6.1 Basic elements of the Study:

##### **1) Identification and Prediction of the ecological impacts of the proposed development:**

- ✚ Direct losses of habitats, flora and fauna, natural features (*Feeding grounds, shelter, breeding sites and areas used during seasonal migration may be lost*), including habitat fragmentation;
- ✚ Negative effects on the health of biota including plants, animals and fish;
- ✚ Threat to rare and endangered species;
- ✚ Reduction in species diversity or disruption of food webs;
- ✚ Determining the significance of the ecological impacts. Factors include timing, duration and frequency of impacts, timescale of investigation, spatial scale of the evaluation, conservation value of species or habitats;
- ✚ Disturbance of aquatic organisms and aquatic habitats;
- ✚ Hydrological disturbances – changes in quality and quantity of surface and groundwater flows;
- ✚ Changes in the physico-chemical environment;
- ✚ Impact of the construction technology or the construction materials used.

##### **2. Social Impacts**

- ✓ Impacts on local populations, namely demographic aspects, displacement of people, labour demands, etc.
- ✓ Impacts on social infrastructure namely educational, recreational and health care facilities; transport; waste collection, treatment and disposal facilities; housing; water and power supply; public safety;
- ✓ Impacts on land use namely conversion of land use from agricultural, recreational and conservation land into built/ settled land, etc., and associated impacts.

Possible effects to be considered in the EIA may include:

- Improvements in the infrastructure and economic opportunities in the area;
- Impact on surrounding land use, including agriculture, for example where loams or garden soils are extracted;
- Changes in land values;
- Alteration to existing noise levels and visual appearance for local residents;
- Alteration to availability and costs of building and construction materials.

The economic and social impact of stone crushing industry development should be examined in order to establish the total impact of such development on the environment. This needs to be done not only in terms of costs, but also in terms of potential benefits of a development.

**3. Economic issues to be considered** include:

- (a) Market demand of the type of housing that the proponent plans to develop, and possible alternatives including analysis of supply and future demand
- (b) Any additional employment as a result of the proposed development at the site, surrounding community and other areas;
- (c) Potential economic impacts as a result of this development on the availability and costs of building or construction materials;
- (d) Change in property values.

**4. Socio-cultural impacts** including adjacent centres of population; current activities carried out by different stakeholders; and recreational use on site. Consider social costs and benefits especially those relating to improvement or loss of livelihoods. Displacements and relocation of people affected by projects should ensure that the dignity, human and civic rights, livelihoods, cultures and social networks of affected people are upheld. These should be taken into consideration when conducting the EIA or formulating social and economic safeguards. To do this satisfactorily, the developer and authorities should engage or facilitate engagement of all stakeholders in prior, free and informed consultations.

**5. Impacts on Human Health and Safety:** document negative effects on human health, well-being or quality of life; Studies of Health effects and risks resulting from potential exposures to health hazards. *Risk Assessment* is an important task in an EIA study, particularly so for housing. The frequency and severity of adverse events e.g. traffic accidents, natural disasters like floods or landslides; Likelihood of occurrence, reversibility, catastrophic potential, impacts on humans, wildlife and the biophysical environment.

**6. Mitigation Measures** separated into ecological, economic, and socio-cultural/anthropological:

**7. Identification and consideration of Alternative Options:** various scientific methodologies- including multi-criteria analysis (MCA) techniques - should be deployed to evaluate the possible alternatives to the project. The questions to resolve include:

- The alternative considered to be the “ most environmentally friendly “ even if this is not the project or project site;
- Can the project be undertaken elsewhere (e.g. is the developer able to find other land)?
- Any alternative manner or process in which the project may be carried with less environmental damage (include incentives e.g. alternative public land or bank guarantee);
- Evaluation of the impacts of each alternative, with clear information on the criteria used to assign significance and for rejecting the alternatives;
- The stage in the planning process when they were rejected.

Include any irreversible residual impacts, which cannot be mitigated, any alternative options that have not been considered for whatever reasons.

### **3.6.2 Qualifications and/ or Expertise of EIA experts:**

A multi-disciplinary team of qualified and experienced professionals may conduct the EIA for a housing/ building construction project. The team should be qualified and experienced in the following disciplines:

- Civil, building/ construction engineering (including civil engineering and Architecture) ; land scale
- Land and/ or Quantity Surveying, Building Economics; Urban and Regional Planning; Property Development;
- Natural resources management; Environmental science;
- Public health and sanitation engineering; Chemical Cleaner Production (Environmental technology);
- Political economy; socioeconomics (sociology, law enforcement and demography).

It is preferable that the EIA practitioners be certified by and registered with the Authority.

### **3.7 Public Consultations**

Proponents and their EIA consultants embarking on a housing project are required to identify and consult all key stakeholders – in the public, private and civil society sectors, including the local communities that are likely to be affected by the project. For the public sector, the following Ministries/ Authorities/ Agencies must be consulted prior to finalising the EIA reports for housing projects:

- ✓ Ministry for infrastructure (housing and settlements; Urbanism; roads; utilities,...);
- ✓ Ministry responsible for Natural resources; National Land Centre;
- ✓ Ministry of Health
- ✓ Ministry responsible for Trade, Industry and Tourism
- ✓ Ministry responsible for local government, community or social development;
- ✓ Public utilities: Rwanda Utilities Regulatory Authority (RURA); Electrogaz;
- ✓ Local Authorities (City, District, sector authorities as required).

The Public Consultations brief should document and present the following:

- Statutory bodies, environmental and amenity groups and local residents who are likely to be affected by the proposed development.

- Means for informing the public for providing publicity about the project (leaflets, public display, questionnaires, letters);
- A brief summary of public responses detailing the issues of concern raised, suggestions made by stakeholders and any modifications to the EMP as a result of their input.

### **3.8 Monitoring and Audit: The Environmental Monitoring Plan**

An EMP should be a realistic plan of action that the developer or proponent can implement, not just an impressive set of ideas to impress or convince the concerned decision-maker to issue a certificate. Developers should know that exaggerating their investment proposals with respect to mitigating environmental impacts is as dangerous as understating the likely impact. The project will be evaluated against what the developer proposes and agrees to undertake. This report should be furnished with the Authority (REMA); Building and Public Health Inspection Units of concerned districts; MININFRA Urbanism and Settlements Unit; and other relevant authorities, depending on the nature, scale and purpose of the project.

An environmental monitoring plan should include provisions made for on-site monitoring during site preparation, construction and commissioning phases; future maintenance requirements; and provision for audit during the operation of the project. In general, an EMP should provide a clear implementation schedule for mitigation, which shall include: environmental impacts identified; recommended mitigation measures; objectives of the recommended measures and main concerns to address; responsible party (who is accountable for implementing the proposed/approved measures); location of the impacts and measures; appropriate implementation time and place of the measures; standards to be achieved; responsible officer/party to provide feedback to the relevant authorities; additional studies necessary to implement the EMP. Annex 4 presents a format of a typical EMP.

### **3.9 EIA Reporting: General outline of an EIA report**

After the EIA study has been undertaken, a report is submitted detailing the profile of the intended project, the likely impacts and proposed mitigation measures. A general outline of contents for a full EIA for a housing project is summarised as follows:

- 1. Title page:** This should contain the full title of the EIA; location of project; the names of the consultants (individuals or organisation) that undertook the EIA; the proponent name and signatures; and the date of submission.
- 2. Executive Summary:** Outline the key environmental impacts and the proposed mitigating measures. This means a highlight of the main findings and recommended actions related to the housing project's environmental and social feasibility and/ or sustainability.
- 3. Project Description:** Describe, in concise terms, the housing project characteristics, including size, site location and biophysical characteristics; socio-cultural features including land ownership and existing infrastructure, land use, the number and type of population

targeted (rural, urban, low Vs high class;). Technical plans, maps and photographs of the project site and area of influence should be submitted.

**4. Policy, Legal and Institutional framework:** Discuss the policy, legal and institutional framework associated with the environment and social management issues of the project. In this case, such policies should include, the National Settlements Policy, Urban Development policy; Building Control Regulations; Decentralisation Policy; Population, and cross sectoral policies related to land, environment, utilities, financing and social protection, among others.

**5. Baseline Data:** Describe the existing environmental and social conditions that are relevant to decision-making regarding the project in question. The scope is the project site and the entire area of project influence (likely impact). Provision of accurate data is important, and should include maps, photographs, tables, graphs, etc. The EIA report should include:

- Primary and secondary data sources, data collection methodology, and site investigations;
- Result of site investigation in form of a geotechnical report (subsurface strata, water table levels, results of soil percolation tests, trial pits,...);
- Information on the uncertainties and assumptions involved in interpreting or using results for predictive methods and analytical techniques and a description of gaps in baseline and other data used in EIA reporting.
- Baseline data on biophysical aspects (e.g. air quality, water quality, noise, ecological resources and their conditions including species and habitats, and ecologically sensitive areas, microclimate, hydrology / hydrogeology, management practices, etc);
- Baseline data on socioeconomic setting e.g. settlement patterns, presence of sacred sites, tenure systems, community relations.
- Data gaps, constraints in data collection, and proposed remedial measures.

**6. Impacts and risks:** Analyse the direct and indirect environmental and social impacts and risks, including benefits from housing development. Here, in-depth evaluation of the quality of available data and key data gaps, is essential, to establish the level of certainty of decision making. Examples of environmental and/ or social impacts by project phase are summarised in table 1 below.

**7. Analysis of Alternatives:** provide a summarised description and evaluation of the alternatives considered for project implementation. This should include the rationale for selecting the proposed alternative, and analytical description of its impacts.

**8. Mitigation measures and Environmental Management Plan (EMP):** Options and recommendations to prevent, avoid, reduce, mitigate, eliminate, compensate for, or otherwise address any adverse impacts of the selected alternative. Mechanisms to include recommendations into project design. This includes the schedule, assignment of responsibility and budgets for the environmental and social impact management measures.

**9. Capacity Building:** Proposals for capacity building incorporated into the management plan when (or where) institutional capacity is not sufficient

**Table 1: Examples of environmental impacts and mitigation measures by project Phase:**

Project phase	Examples of predicted impacts	Examples of mitigation measures
Pre-construction (Design & site preparation)	<ul style="list-style-type: none"> <li>-Displacement and compensation/re-settlement of affected persons;</li> <li>- Loss of biological resources from destruction of flora and fauna habitats during site preparation economic losses from traffic diversion, closure or blockage of major utility lines (e.g. power, telecommunication and water);</li> <li>- Loss of social amenities like schools and recreation grounds, loss of aesthetic value as landscape and its cover are altered, cultural sites;</li> <li>- Noise and dust pollution from machinery and human activity.</li> </ul>	<ul style="list-style-type: none"> <li>- provision of</li> <li>- Construction of schools, health centres and other facilities in alternative areas for affected communities;;</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Removal of vegetation, risk of soil erosion, loss of amenity, levelling and other earthworks to be undertaken;</li> <li>• Frequency, duration and location of intrusive operations;</li> <li>• Transport of construction materials;</li> <li>• Public nuisances in terms of noise, dirt, dust, odours, fumes, visibility, emissions, traffic implications.</li> </ul>	<ul style="list-style-type: none"> <li>※ Proper timing of construction activities – e.g. to avoid rain washing away dangerous materials before they are properly disposed off; undertaking some activities when traffic is off-peak e.g. at night; cutting down trees when birds are not nesting, etc;</li> <li>※ Mitigation measures commonly required for construction activities should be incorporated (e.g., construction schedules that minimize impacts on public access and recreation, visual screening, noise buffers, siting away from high resource areas, limited construction zones and corridors, etc.)</li> <li>※ Sediment and runoff control measures during construction properly considered</li> <li>※ Architectural design should include provisions to reinforce natural buffers to reduce visual impacts</li> <li>※ Precautionary measures against risk of soil erosion</li> </ul>
Operational	<p>Solid Waste &amp; Wastewater generated by human activities;</p> <ul style="list-style-type: none"> <li>➤ Source, type and volume of wastewater generated. Physical, chemical and biological characteristics, method of collection, treatment and disposal (with appropriate design calculations and drawings) of wastewater;</li> <li>➤ Material balance of the activity;</li> <li>➤ Amount of solid waste produced and mode of disposal;</li> <li>➤ Detail design, specification and layout of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Eliminate and minimise the production of waste;</li> <li>➤ Re-use and recycle materials used in the house/ building or accumulated during the construction process;</li> <li>➤ Re-use and recycle rejected products from block making, concrete and asphalt/tar macadam production operations, (if made on site), tile cuttings, etc.;</li> <li>➤ Use designated storage areas for particular waste types and ‘authorized’ waste contractors for the collection, re-use and disposal of waste oils, batteries, tyres, domestic waste and scrap metal;</li> </ul>

	surface drains for storm water disposal indicating its final exit;	<ul style="list-style-type: none"> <li>➤ Particular waste materials such as oils, batteries, fluorescent lamps, printer cartridges, are classified as hazardous waste. These should be stored on site in designated areas, collected and recycled or disposed of, by authorized agents.</li> </ul>
	Air Quality	<ul style="list-style-type: none"> <li>※ Planting sufficient and fast growing trees around the house/ building to filter some of the dust;</li> <li>※ Construct traffic slow-downs (e.g. humps) to reduce speeds and limit movement of vehicles and motorcycles;</li> <li>※ Design windows and outlets in such a way that the do not allow direct wind flow;</li> <li>※ If building is to house commercial or recreational activities, locate it a reasonable distance from residences (ensure that building regulations can provide a legal back-up otherwise it may be challenged)</li> <li>※ Carry out regular maintenance on all electrical, plumbing/ drainage and earth protection installations;</li> <li>※ Provide alternative routes for heavy traffic that may emit dangerous fumes or raise dust into/ around the surroundings;</li> <li>※ Use or cause to use covered (closed or sheeted) vehicles, or spraying, for the transport of solid waste and other materials that may emit dangerous gases or otherwise pollute the environment;</li> <li>※ Clean-up any accidental spillages on public roads which are in proximity to the housing/ building, as soon as such a spillage arises or is notified.</li> </ul>
	Noise	<ul style="list-style-type: none"> <li>◆ Installation of noise suppressors, silencers, shields e.g. corrugated iron sheets around the site during site clearing and construction.</li> <li>◆ Alternative locations of parking, queuing, loading or truck routes to reduce noise.</li> <li>◆ Alternative grading of load to reduce sharp transition of gradients and reduce impacts of brakes and gear change noise.</li> <li>◆ Management strategies to reduce impacts including relocation of recreation grounds, regulating activities that gather people, etc;</li> </ul>
	Transport and other traffic related impacts	<ul style="list-style-type: none"> <li>※ Careful design and layout of the site entrance, providing adequate visibility and</li> </ul>

		<p>optimal space to negotiate turns and/ or ensure convenient parking;</p> <ul style="list-style-type: none"> <li>※ Regular vehicles maintenance</li> <li>※ Agree on main traffic routes to avoid sensitive areas; and use smaller vehicles in narrow winding roads</li> <li>※ Provide on site truck parking to avoid queuing of trucks on public road.</li> </ul>
	<ul style="list-style-type: none"> <li>◆ <b>Land use/cover change issues</b> Impacts on land, boreholes, caverns, rocks;</li> <li>◆ Impacts on water table and aquifer and treatment proposed;</li> <li>◆ Impacts on geology of site and the likely geological constraints such as geological features being threatened with destruction, the potential for vegetation growth in soil being compromised.</li> <li>◆ Seismological factors –such as the susceptibility to earthquakes and/ or landslides. The construction technology and materials should be selected to mitigate these factors.</li> </ul>	<ul style="list-style-type: none"> <li>◆ <i>Proper siting</i></li> <li>◆ <i>Colonisation of vegetation to stabilise slopes</i></li> <li>◆ <i>Sediment control measures.</i></li> </ul>
	<p><b>Landscaping and Visual Impacts:</b> Loss of areas of distinctive landscape character, valued landscapes (e.g. beauty spots), specific landscape elements (beaches, woodlands, beautiful hills and valleys), landscape viewers (residents, tourists and visitors), and conservation interests (archeological sites, historic landscapes, important habitats).</p>	<ul style="list-style-type: none"> <li>- Alternative sites; relocation of movable facilities;</li> <li>- Design housing facilities in a way that preserve important landscapes &amp; archaeological values;</li> <li>- Limit the categories and number of users;</li> </ul>
	Consumption of water, energy and other utilities	The EIA should indicate how the design and construction will address energy efficiency concerns.

**10. Monitoring and Audit:** The monitoring, reporting and evaluation of requirements during the execution of the operation and thereafter. Environmental Audit will entail regular visits or checks or submissions by the developer, in accordance with the Environmental Audit Guidelines for Rwanda, developed by REMA, 2009.

**11. Public Consultation:** A record of the process and a summary of the results of consultation with affected groups.

### 3.10 Submission of EIA Reports

As provided for under the EIA Regulations, and in accordance with the Rules of Disclosure for information on EIA, applicants submitting EIA reports are required to submit both hard

copy and soft copy versions. The aim is to enable wider access to the EIA reports especially through web-based communication. This information will be available on the web-sites of REMA and/ or the Ministry responsible for environment, in a format that is easily downloadable or otherwise user-friendly.

***For hard copy submissions***, the proponent or their EIA experts submit 3 hard copies of all reports including annexes and appendices like maps, and technical drawings.

For soft copies, they should be submitted in electronic files preferably on a CD or in WinZip format in floppy disks.

### **3.11 Approval or disapproval**

The decision to approve or disapprove the project will be based on whether the terms and conditions of approval, pursuant to the General EIA Guidelines, are met. This implies that the EIA reports submitted (as per revisions if required) are approved and the certificate of approval is issued by the authority.

## **Chapter 4: ANNEXES**

Annex 1: Checklist for Environmental Screening for a Housing Project

Annex 2: Checklist for EIA of a Housing Project

Annex 3: Matrix of Predicted Environmental Impact and Planned Mitigating Measures

Annex 4: Proposed Format for an Environmental Monitoring Plan (EMP)

Annex 5: Sample ToRs for full EIA

## Annex 1: Checklist for Environmental Screening for a Housing Project

**General:** This checklist is designed to help users decide whether EIA is required based on the characteristics of a project and its environment.

Start by providing a brief description of the project, then answer the question in column 2 (Y/N or NS). For column 3, briefly describe the relevant project characteristics or its environment and then consider whether any action is likely to result in significant effects on the environment, and state the reasons why you argue so.

A. Brief description of the project:		
(E.g. <i>Development of 1000 residential housing units on 2 Ha sloping land in Kibagabaga, Gasabo district, adjacent to an existing residential area and hospital.</i> )_		
B. Project Category: B.1: New; B2. Existing (Modification/Expansion; C3 Existing (Modification/ No expansion)		
C. Key screening questions	Yes/No/ Not sure	Is this project likely to result in significant impact?
1. Will construction, operation or decommissioning of the project involve actions which will cause physical changes in the locality ( <i>topography, land use, changes in water bodies, etc.</i> )?		
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, surface waters, ground waters, lake or river?		
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, 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/around the location which are protected under international or national or local legislation for the ecological, landscape, cultural or other value, which could be affected by the project?		
12. Are there any other areas on/around the location which are important or sensitive for reasons of their ecology, e.g. wetlands, watercourses or other water bodies, mountains, forests or woodlands, which could be affected by the Project?		
13. Are there any areas on/around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the project?		

14. Are there any inland, marine, 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/around the location 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/around the construction site or surrounding area, 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 underdeveloped area where there will be loss of Greenfield land?		
21. Are there existing land uses on/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/around the housing location which could be affected by the project?		
23. Are there any areas on/around the location which are densely populated or built-up, which could be affected by the project?		
24. Are there any areas on/around the location which are occupied by sensitive activities or infrastructures e.g. health centres, schools, places of worship or other community facilities, which could be affected by the project?		
25. Are there any areas on/ around the location which contain important, high quality or scarce resources e.g. ground water, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?		
26. Are there any areas on/around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?		
27. Is the project location susceptible to erosion, earthquakes, subsidence, landslides, flooding, or extreme or adverse climatic conditions e.g. temperature inversions, fog, severe winds, which could result in environmental problems?		
Summarise the Project characteristics indicating the need for EIA:		

## Annex 2. Checklist for EIA of a Housing Project

1. Name and Address of Proponent \_\_\_\_\_
2. Table of contents \_\_\_\_\_
3. Executive (non-technical) summary \_\_\_\_\_
4. Introduction \_\_\_\_\_
  - Background information on project, promoters, any experience in similar projects \_\_\_\_\_
  - Project cost-benefit analysis \_\_\_\_\_
  - Time scale for development \_\_\_\_\_
  - Socioeconomic and Environmental benefits (e.g. employment opportunities, conservation activities,..) \_\_\_\_\_
  - Technical, economical and environmental features of project \_\_\_\_\_
5. Site Description \_\_\_\_\_
  - Copy of Title deed / Notary's Certificate / Permission from Owner \_\_\_\_\_
  - Zoning, land extent \_\_\_\_\_
  - Site plan (prepared and signed by land surveyor) \_\_\_\_\_
  - Context plan \_\_\_\_\_
  - Certified site / location plan to scale \_\_\_\_\_
  - Known landmarks \_\_\_\_\_
  - Surrounding environment \_\_\_\_\_
  - Number of similar undertakings in the area \_\_\_\_\_
  - Compatibility of land uses within the area \_\_\_\_\_
  - Conformity with Local Authorities' Area Development Plan \_\_\_\_\_
6. Project Description \_\_\_\_\_
  - Principle, concept and purpose of the housing building (including whether its objective is commercial or social) \_\_\_\_\_
  - Benefits and/ or losses of the project \_\_\_\_\_
  - Design, size and scale of project \_\_\_\_\_

- Capacity of project and its amenities (e.g. number of housing units, maximum population to be accommodated, number of cars to be parked, swimming pool capacity..)\_\_\_\_\_
  - Detailed site / layout plan \_\_\_\_\_
  - Detailed specification of technology used\_\_\_\_\_
    - Building and roofing materials to be used\_\_\_\_\_
    - Type of machinery to be used\_\_\_\_\_
  - Access road types (whether earth/ murrum, stone paved or asphalt)\_\_\_\_\_
  - Plans policies and regulations with which the project conforms\_\_\_\_\_
  - Detailed buildings plans \_\_\_\_\_
  - Capital investment\_\_\_\_\_
  - Provision for utilities\_\_\_\_\_
  - Surface drains\_\_\_\_\_
  - Disposal of wastewater\_\_\_\_\_
  - Disposal of solid waste\_\_\_\_\_
  - Contingency plan\_\_\_\_\_
  - Renovation/ re-modelling plan after specified life period\_\_\_\_\_
7. Description of existing environment\_\_\_\_\_
- Baseline data\_\_\_\_\_
  - Detailed bathymetric study of lagoon\_\_\_\_\_
  - Physical, chemical and biological characteristics of the natural (running) water\_\_\_\_\_
8. Climatic conditions and associated impacts\_\_\_\_\_
9. Environmental Monitoring Plan (EMP)\_\_\_\_\_
- During site preparation and implementation phase\_\_\_\_\_
  - During operation phase\_\_\_\_\_
  - During decommissioning phase\_\_\_\_\_
10. Identification of additional studies\_\_\_\_\_
11. Implementation schedule\_\_\_\_\_
- Permit / clearances obtained\_\_\_\_\_

- 12. Enhancement opportunities \_\_\_\_\_
- 13. Public consultation \_\_\_\_\_
- 14. Consultation with relevant stakeholders \_\_\_\_\_
- 15. Alternatives \_\_\_\_\_
- 16. Conclusion \_\_\_\_\_
- 17. Appendices \_\_\_\_\_
- 18. References \_\_\_\_\_

**Annex 3: Matrix of Predicted Environmental Impacts and Planned mitigating measures** \_\_\_\_\_

Environmental Issues	Pre-Construction Phase (Design& site preparation)		Construction Phase		Operation Phase		Decommissioning Phase	
	Impacts	Mitigating Measures	Impacts	Mitigating Measures	Impacts	Mitigating Measures	Impacts	Mitigating Measures
1.Air quality								
2. Noise								
3.Traffic and road								
4.Solid waste								
5.Wastewater								
6.Land issues								
7. Sewage								
8.Landscape and visual impact								
9.Landscape and visual impact								
10. Energy								
11.Ecological								
12.Social impacts								
13.Socio- cultural and economic impacts								
14.Risk assessment								
15.Residual impacts								
16.Cumulative and synergistic effects								

**Appendices** should include information such as approved drawing plans and maps, species lists, press releases, written responses to the project brief, and land use conversion permits if relevant. Additional technical information and description of approaches or methods used to make conclusions in the EIA report, a full list of reference materials, names and qualifications/expertise and experiences of the EIA consultants.

#### **Annex 4: Proposed format for an Environmental Monitoring Plan (EMP)**

An EMP should be a realistic plan of action that the developer or proponent can implement, not just an impressive set of ideas to impress or convince the concerned decision-maker to issue a Certificate. Developers should know that exaggerating their investment proposals with respect to mitigating environmental impacts is as dangerous as understating the likely impact. The project will be evaluated against what the developer proposes and agrees to undertake. This report should be furnished with Building and Public Health Inspection Units of Local Governments, MININFRA Urbanism and Settlements Unit, REMA Environmental Impact Assessment and Compliance Department, and other relevant authorities, depending on the nature, scale and purpose of the housing project.

EMP should reflect the environmental impacts of each phase of the project as follows:

##### **1. Site Preparation and Commissioning phase**

- ✓ Site characteristics (include plans/photographs/drawings/ showing the project area any environmental sensitive receivers and ambient air/water/sea water qualities)
- ✓ Works involved and proposed mitigating measures to prevent negative impacts on water course /road users/immediate neighbours.
- ✓ Social and cultural issues including conflicts over land ownership, boundaries, access roads, water ways, etc., and how they have been/will be addressed;
- ✓ Clauses to be included in contract documents to ensure implementation of proposed mitigating measures.
- ✓ Person(s) responsible for informing the authorities on the date of commencing works and monitoring the proposed mitigating measures;
- ✓ Reporting procedures to the authorities.

##### **2. Construction/ Operation Phase**

- Parameters to be monitored (e.g. effectiveness of the fire fighting provisions, traffic flow during the construction phase, effectiveness of the waste management measures for liquid, solid as well as dust particles especially arising from cement, earth extraction, stone crushing, etc.; preventing or managing noise from construction work; conservation of energy and/ or water, waste management, etc.
- Monitoring methodology, including equipment to be used and calibration details e.g. if heavy concrete mixers or crane lifters are to be used
- Monitoring locations and control stations, as well as the frequency and duration
- The institutional system by which monitoring data will be collected, analysed, interpreted and action taken if necessary to prevent or reduce unwanted impacts;

- Contingency plan (in case of emergencies such as uncontrolled discharge of pollutants, fire outbreak, natural calamities);
- Maintenance component i.e. periodic maintenance of buildings, site, set up and deployment of maintenance teams for treatment plant, standby generator, etc.
- Management structure for maintenance and monitoring.
- Reporting procedures to the authorities.

### **3. Decommissioning phase**

- Works involved and proposed mitigating measures to prevent negative impacts on water course/road users/immediate neighbours.
- Clauses to be included in contract documents to ensure implementation of proposed mitigating measures.
- Person/s responsible for informing the authorities on the date of commencing works and monitoring the proposed mitigating measures.
- Reporting procedures to the authorities.

The progress reports on the EMP implementation should at least contain the following:

- 1) An executive summary.
- 2) Basic information on the Housing project including a synopsis of the project location, size, organization and management structure (for maintenance and monitoring), works undertaken during the monitoring works; implementing technical staff and their competences;
- 3) A brief summary on the requirements of the EMP including all parameters monitored, methodology used, environment quality performance/standards limits, and environmental mitigating measures as recommended in the EIA report and consent condition imposed in the EIA licence, and environmental requirements in contract documents;
- 4) Status on the implementation of the mitigating measures and pollution control measures;
- 5) Drawings/plans showing the project area, any environmental sensitive receivers and the location of the monitoring and control stations.
- 6) Monitoring results including date, time frequency and duration.
- 7) Presentation of monitored parameters (preferably graphical plots of trends including photographs, maps, graphs, tables,..);
- 8) Constraints and any factors which might have affected the monitoring results
- 9) A summary of non-compliance of the environmental quality performance limits.

- 10) A review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures, non or inadequate compensation of affected parties, etc.;
- 11) A description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance;
- 12) A summary record of all complaints received (written or verbal) for each media, including locations and nature of complaints, liaison and consultation undertaken, actions and follow-up procedures taken and summary of complaints;
- 13) A summary record of notification of summons, successful prosecutions for breaches of environmental protection/pollution control legislation, and actions taken to rectify such breaches;
- 14) A forecast of the works programme, impact predictions and monitoring schedule for the next three months; and
- 15) Comments, recommendations and conclusions for the monitoring period.

## **Annex 5: SAMPLE TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT ASSESSMENT OF HOUSING/ BUILDING CONSTRUCTION PROJECT**

**Objective:** The main objective of these Terms of Reference (TOR) is to facilitate and guide the proponents of building construction projects and their consultants to prepare Environmental Impact Assessment (EIA) and the Environmental Management Plan (EMP), which are informative, compact and easy to comprehend. The overall purpose of undertaking EIA is to identify any environmental and social impacts that the housing construction project is likely to have in the area and beyond.

### **Background Information**

**Project Rationale:** State the Goal and objectives of the proposed project, Significance of the project both at local and national level, relevance of the project in light of the existing development plans of the region.

**Basic Project Information:** Profile of the Project Proponent, Project's Official name and contact address, Implementing Organization, Organizational Chart, Project coverage and scope and total cost of the project should be spelt out clearly.

Background information and overall scenario of the proposed activity in the Indian Context, procedures adopted for selection, Criteria for selection of the site for the proposed activity, such as environmental, socio-economic, minimization of impacts, ecological sensitivity, Impact of existing activities on the proposed activity, etc. should be spelt out. Resource and manpower requirements have to be detailed. Time frame for project initiation, implementation and completion should be given.

Description of existing National and International Environmental Laws/Regulations on the proposed Activity with Annexure giving references of such Acts should be mentioned. Any litigation pending against the project proposed site and /or any direction / order passed by any court of law against the project, if so, details thereof.

After preparing the EIA report covering the above mentioned issues, public hearing should be conducted, and recommendations of the panel and the commitment of proponent to address them will be recorded. After this take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification of.....(insert date!!).

### **1.0 Introduction**

The purpose of the report is to identify for the project proponent, regulatory authority and stakeholders the information required for conducting EIA for projects related building construction sector. Subject to the outcome of environmental, economic and engineering evaluations the site will house the building for residential, commercial, parking use.

### **2.0 Project description**

The project should be described in terms of its basic activities, location, layout, and schedule (in terms of the project life cycle). This description section of the report should furnish.

- i. Type of the project.
- ii. Need for the project
- iii. Location (use maps showing general location, specific location, project boundary and project site layout).
- iv. Provide evidence of consultation with the Historical Sites and Archives Service, Area

### **Site Selection and Planning**

The environmental impacts of construction and operation are established during the early phases of site selection and planning. Planning, site selection and design form an important stage in the development of these projects and will determine their environment impact(s) throughout construction and operation. Some Important factors for development which should be addressed are:-

The legal land description:

- The boundaries of the project area
- A map and that identifies the locations of all proposed development activities; and
- A map and photo mosaic showing the area proposed to be disturbed in relation to existing topographic features, township grids, wetlands and water bodies.
- The environment where the development will occur;
- Proximity to local communities;
- Proximity to sensitive surface or ground water bodies
- Compliance with land zoning policy;
- Compatibility with national planning, policy, legal and regulatory framework;
- Ability to meet relevant local standards
- Indicate the amount of surface disturbance that will be created by the construction activity.

### **3.0 Environmental Data**

This section deals with the following subsections for each environmental Parameter:

- a) Collection and analysis of baseline data
- b) Identification on critical issues /concerns
- c) Determination of potential impacts
- d) Relevant mitigation measures

A clear idea of the study area is important to define the area within which impacts must be considered. The area to study must be large enough to include all valued environmental resources that might be significantly affected by the project.

### **3.1 Land Environment**

The first feature which should influence the development of a new project is the existing land use pattern of the neighbourhood of the project, whether the proposed development conforms to the development for that area or not.

- Study of land use pattern, habitation, cropping pattern, forest cover, Environmentally sensitive places etc, employing remote sensing techniques (if available) and ground truth and also through secondary data sources.
- Study about trend of change in land use pattern, if any, with reasons thereof for the last 10 years based on remote sensing techniques data and its extrapolation to future 10 years with and without the project.

#### **3.1.1 Baseline**

Geographical latitude and microclimatic factors such as solar access and wind loads have a major impact. The following parameters have to be addressed under the baseline data for land environment.

##### **Geology**

- Underlying rock type
- Surficial material
- Geologic structures (faults etc.)
- Geologic resources (minerals, etc.)

##### *a. Topography*

- Slope form
- Landform and terrain analysis
- Specific landform types

*b. Soil*

- Type and characteristics
- Porosity and permeability
- Sub-soil permeability
- Inherent fertility

*c. Geohydrology*

- Temperature patterns
- Prevailing Wind - direction, speed, anomalies
- Climatological Extreme events
- Climate change projections
- Hydrogeology

Discuss the meteorology including wind speed, direction, and inversions, in so far as it affects dispersion.

### ***3.1.2 Anticipated Impacts***

All impacts with reference to the quality of soil should be addressed in both the construction phase and the operational phase

Some of the anticipated impacts, which need to be addressed, are

- Estimation of anticipated impacts on the surrounding land use pattern, on infrastructure like housing, ground water, surface water, road net work,
- Environmentally sensitive places etc,
- Impact on the public utilities arising out of the utilities for the project activities.
- Impact on the natural drainage system.
- Loss of productive soil and impact on natural drainage pattern.
- Study of the problem of land slides and assessment of soil erosion potential and the impact
- Impact of construction activity on the fertility status of soil in the study area
- Prediction of ground water pollution due to seepage of pollutants through soil column

### ***3.1.3 Mitigation Measures***

Proper mitigation measures have to be suggested. Some examples include:-

- Improved of road network infrastructure to handle the increase in traffic &
- truck parking arrangements.
- Selection of suitable local plant species for greenbelt development in and around the sites.
- Top soil conservation plan and its re-utilization depending on its quality

## **3.2 Air Environment**

The proposed project location should meet the standards prescribed by the environment law (No. 04/2005 of 08/04/2005) and the Rwanda Bureau of Standards for the ambient air quality standards. For example high level of air pollution is expected to be found near pollution sources like heavy traffic roadways and residential buildings in such areas should be carefully examined.

Discuss existing air quality of the region and the impact of the proposed Project on regional air quality. Identify the components of the Project, which will affect air quality. Identify and describe emission sources for the proposed Project.

### ***3.2.1 Baseline status***

Ambient air quality needs to be assessed at the site to determine if it falls under the permissible average levels as prescribed by the Environmental standards. It should be seen that the new activity does not deteriorate the air quality further.

Monitoring of the following parameters is essential

- Suspended Particulate Matter (SPM)
- Respirable Suspended Particulate Matter (RSPM)
- Carbon monoxide (CO)
- Odour levels

### ***3.2.2 Anticipated Impacts***

Anticipated Impacts during the construction stage and operation stage should be predicted. The immediate surroundings may have a greater impact. The existing surrounding features up to 1 Km and impact on them shall be addressed separately. In is necessary to predict the following:

- Prediction of point source emissions
- Prediction of air emissions from the vehicles in the construction area.
- Prediction of air emissions due to increase in traffic.

Consider emissions from other existing and anticipated facilities or regional activities that may impact future air quality. Describe and assess the effects of air emissions (current and predicted) on regional air quality at an appropriate radius of the Project. The radius must be defensible based on results of previous work and the characteristics of the emissions involved. Indicate how site topography affects the dispersion of air emissions. Include on and off-site sources of emissions including vehicles.

Models can be used to calculate and predict the impacts from the various sources and its will be detailed in the manual. Emission inventory for critical pollutants with mitigative measures and without mitigative measures should be brought out clearly. Brief description of models, input requirement and how they are derived with references, if any are to be given. Output of models, 24 hourly concentrations at all monitoring stations (indicating the month(s) and the year), isopleths distribution of major pollutants of concern over 3 km radius (if accepted) of the study area:

- Prediction of impacts due to sanctioned /on going projects in the surrounding area on the proposed project and the ambient environment.
- Prediction for fugitive dust emissions due to demolition activities and transportation activity by road (covered or open to be specified) are to be identified and calculated.

SPM, RSPM, etc should be indicated in a tabular form.

S.No.	Location of Monitoring Station (name, distance & direction)	Background level	Predicted concentration	Resultant Concentration	Air Quality Standard

### ***3.2.3 Mitigating Measures***

Mitigative measures are to be proposed during the construction stage as well as the operational stage of the project. Some measures to be listed include:-

- Mitigative measures to lower the emissions during loading, un-loading, transportation and storage of construction materials.
- Mitigative measures to lower the point source emissions.
- Mitigative measures to lower the emissions from automobile.
- Greenbelt development.

## **3.3 Water Quality**

Identify Project activities, including construction, which may affect surface water or groundwater. Estimate water intake requirements and identify the source of water to be used. Describe how water will be taken from the surface water /river and conveyed to the site. Include any energy considerations.

Provide estimates of water requirements for construction, and normal operation as well as future water needs. Identify on-site water and sewer needs and water allocation requirements for the construction workforce.

Provide the design parameters and criteria for any incremental water management works and water storage facilities. Outline future water allocation planning needs. Describe existing groundwater conditions at the site.

Describe the quantity of wastewater. Describe how waste water will be discharged to the river or any other water body. Describe the potential effects on the river and groundwater. Describe proposed water management programs. Describe anticipated water use minimization; water recycling, water conservation efforts and wastewater handling for this Project.

### ***3.3.1 Baseline Status***

Water quality from all sources such as ground water, municipal water, surface water needs to meet the water quality norms prescribed for drinking water and construction water specifications imposed by the Rwanda Bureau of Standards (RBS) and Rwanda Building Control Regulations respectively.

- Physico-chemical characteristics of coastal / surface water include pH,
- turbidity, TSS, Hardness, chlorides, biological etc
- Ground water
- Water table
- Yield

### ***3.3.2. Anticipated Impacts***

- Impact on water sources due to shifting of watercourses, if any
- Impact of water withdrawal on surface water / ground water resources -Impact on exploitation of surface/ground water
- Waste water generation

### ***3.3.3 Mitigating measures***

Model study for prediction of ground water contamination and suggested mitigating measures to minimize the pollution level

- Water conservation within the buildings
- Suggested exploitation of surface/ground water to protect aquatic biodiversity and ground water development
- Rainwater harvesting to maintain the water level -Construction of
- water harvesting structures
- water conservation in landscape
- Measures for mitigation of wastewater generation

## ***3.4 Noise Environment***

Identify project activities during construction and operation phases, which will affect noise levels and the potential for increased noise resulting from this Project. Discuss the effect on noise levels at local residences during the construction and operational phases of the Project.

Identify noise reduction measures and traffic management strategies.

### ***3.4.1 Baseline Status***

Consider factors such as

- Sound level or loudness,
- Magnitude,
- Frequency,
- Duration and time of day.

### ***3.4.2 Anticipated Impacts***

- Impact of vibrations on the surrounding environment including damage to materials/structures
- Noise due to demolition / construction activities
- Impact due to noise levels generated by existing and proposed activities in relation to human environment and wild life including avifauna
- Impact due to present and future transportation activities by road
- Impact of noise levels on auditory function, i.e. hearing activity
- Operation of DG sets

### ***3.4.3 Mitigating measures***

Prediction of noise levels through modelling at different and representative monitoring stations:

- Proposed measures for control of dust
- Proposed internal road design
- Parking requirements
- Identification and adoption of mitigating measures for noise abatement including noise barriers for point sources and line sources as also measures to minimize effect of vibrations due to demolition and while new construction.
- Estimate any environmental implications from transportation (rail, road) related emissions associated with the construction and operational phases and suggest suitable options.

## **3.5 Biological Environment**

### ***a. Flora***

#### ***3.5.a.1 Baseline Status***

- General type and dominant species
- Densities and distributions
- Habitat value
- Historically important specimen
- Introduced species
- Rare and Endangered species (location, distribution and conditions)
- Timber value
- Specimen of scientific or aesthetic interest

#### ***3.5.a.2 Anticipated Impacts***

- Watershed value
- Habitat fragmentation and blocking of migratory corridors due to project activities

#### ***3.5.a.3 Proposed mitigating measures***

- Mitigating measures to compensate the loss of forest cover
- Regeneration/Restoration of rare plants of economic importance including medicinal plants species which require protection and conservation
- Stabilization of construction and overburdens by development of vegetation cover over them

- Development of thick green belt

## ***b. Fauna***

### ***3.5.b.1 Baseline Status***

- General types/dominant species
- Densities and distribution
- Habitat (general)
- Migratory species
- Exotic (introduced) species
- Rare and endangered species
- Commercially valued species

### ***3.5. b.2 Anticipated Impacts***

- Impact of construction activity on fauna

### ***3.5. c.3 Proposed mitigating measures***

- Identification of measures through scientific conservation plan for protection and conservation of flora, fauna including wildlife, migratory avi-fauna, rare, endemic and endangered species and medicinal plants etc.

c. Aesthetic appeal

d. Landscapes

## **3.6 Socio Economic & Health Environment**

Discuss the workforce for construction and operations phases and their implications on existing local and regional services.

### ***3.6.1 Baseline Status***

Provide information regarding the effects of the Project on the Study Area(s)

- Local employment
- Local procurement;
- Population changes;
- Community Structure
- Settlement patterns and Social structure
- Telecommunications
- Services – health, educational facilities, recreational facilities
- Archaeological heritage
- Cultural values

### ***3.6.2 Anticipated Impacts***

- Damages to any historical sites if present in the area.

### ***3.6.3 Proposed mitigation measures***

- Mitigating measures should take into account the needs of the people based on primary data as obtained through need assessment survey /study
- In plantation work, local species especially fruit bearing trees /orchards based on primary survey should be planted by involving local people
- Local people especially the women and women self help group should be involved in selecting alternative vocation to be made available to the affected people.

*Health Effects:* Determine whether there may be implications for public health arising from the proposed project. Discuss the measures to be taken to prevent or minimize the potential for adverse effects.

### **3.7 Solid waste and Environment**

Solid wastes from construction sector can be categorized into two phases i.e. during construction & during operation.

#### **3.7.1 Baseline Status**

- Construction or demolition waste, i.e., massive and inert waste
- Municipal waste, i.e., biodegradable and recyclable waste
- Hazardous waste,
- E-waste

#### **3.7.2 Anticipated Impacts**

- Topsoil erosion
- Emissions from waste
- Insufficient collection and segregation
- Lack of onsite treatment
- Difficult quantification

#### **3.7.3 Proposed mitigating measures**

- Good practices in construction management
- Construction and demolition Waste management
  - Waste recycling Plan
  - Handling
  - Demolition
  - Waste Segregation
  - Storage
  - Access to and from bin storage areas
- Guidelines for municipal waste management
  - Collection
  - Storage
  - Bin area design and layout
  - Resource recovery or recycling
  - Onsite treatment of waste
- Hazardous Waste Management
  - Collection and storage of hazardous wastes during Pre-construction and Post construction
  - Treatment
  - Disposal
- E-waste management
  - Collection and storage
  - Processing of e-waste

### **Standards**

There are standards that are pertinent to the permit application for this category of development. In relation to environmental management, developers must take the following standards into account to ensure that activities are compliant:

- Ambient Air Quality (Appendix)
- Noise (Appendix (CPCB, NBC))
- Water quality for construction / drinking water

#### **4.0 Specific Studies / Additional studies**

##### **4.1 Transport**

###### **4.1.1 Baseline Status**

- Road facility
- Rail facility

###### **4.1.2 Anticipated Impacts**

- Dust and emissions
- Noise pollution
- Vibrations

##### **4.2 Building material and technologies**

###### **4.2.1 Anticipated issues and concerns**

- High consumption of resources
- High transportation cost
- High life cycle cost of materials]

###### **4.2.2 Alternate methods**

- Alternate building materials
- Alternative for road and open spaces
- Good practices in construction management

##### **4.3 Energy Conservation**

###### **4.3.1 Anticipated issues and concerns**

- Varying climatic zones of the country
- Ventilation
- Lighting
- Cooling and heating equipment

###### **4.3.2 Alternate methods**

- Renewable energy systems
- Energy efficient lighting
- Solar passive techniques
- Green refrigerant / Cooling and heating equipment

##### **5.0 Environmental Management Plan**

- Summary Matrix of EMP
- Costing of the EMP

##### **Post Project Monitoring**

- Frequency of observations

- Types of observations,
- Environmental Monitoring Cell, its organizational chart and its effective functioning
- Summary matrix of Environmental Monitoring Program

### **Alternatives**

All the alternatives taken into account in developing the project should be documented.

Documentation of the project alternatives illustrates that the developer may have considered other approaches to the project. These may include the consideration of other project sites; technology; densities, and / or means of minimizing environmental damage.

- No action alternative
- Alternative locations
- Alternative scales of the project
- Alternative ways of dealing with potential impacts

### **6.0 Risk Assessment and DMP**

- Types of Emergency; internal and external origin
- Emergency Planning
- Emergency Procedures
- Action at site

### **HAZARD RISK**

#### **• Seismicity**

Earthquake hazard; liquefaction potential, tsunami

#### **• Slope stability**

Landslide potential

#### **• Soil erodibility**

#### **• Flood hazard**

Extreme events

Drainage network and storm water runoff potential

#### **• Elements of Environmental Protection**

Watershed conditions, Forest/vegetation cover

### **7.0 Annexures: Feasibility Report**

Questionnaire Flow Chart for EC process for the specific developmental activity

Team of Experts preparing the EIA

Matrix of Baseline Study Zone

*(Illustrative only)*

### **Regulatory Approval**

Identify the provincial and municipal environmental legislation, policies and approvals applicable to all phases of the Project. Indicate any approvals that have already been issued.

**ANNEX 6: Stakeholder Institutions in the Housing Sector**

	<b>Institution/ Agency</b>	<b>Key interests and responsibilities</b>
1	Ministry of Infrastructure (MININFRA)	Formulating policies, laws and standards for building and construction including rural housing/ settlements;
2	Ministry of Natural Resources (MINIRENA)	Formulating policies, laws and standards for land administration and land use planning; environmental protection and natural resources utilisation.
3	Ministry of Local Government (MINALOC).	National policies and laws on decentralisation and local governance – supervising local government authorities which are responsible for building regulations and inspections; as well as local land use zoning.
4	Ministry of Health (MoH)	Responsible for setting policy and guidelines and initiating national legislation relating to Sanitation and Public health issues as well as public safety – which are a key component of building and human settlements.
5	Ministry of Trade & Industry (MINICOM)	Policies and laws relating to licensing of commercial and industrial activities including premises.
6	City Council of Kigali	Responsible for implementation of land use zoning, National and city building standards including adherence to EIA guidelines, and construction approval and inspection in Kigali city.
7	District and Municipal Authorities	Responsible for implementation of land use zoning, enforcement of the national and local building standards including adherence to EIA guidelines, and construction approval and inspection in their districts or towns.
8	Rwanda Environmental Management Authority (REMA)	National authority responsible for environmental regulations and standards setting, and overseeing the implementation of EIA guidelines. REMA will also be responsible for mobilising, educating and sensitising stakeholders to follow or participate in the implementation of the EIA guidelines.
9	Rwanda Utilities Regulatory Agency (RURA)	Imposition of regulations and standards on public utilities associated with housing/ building i.e. water, electricity, and telecommunications. This includes the quality of service provision including tariff setting.
10	National Land Centre (NLC)	Land registration and land use planning throughout the country.
11	Electrogaz	National agency responsible for provision of water and electricity utilities, and have to provide technical guidance and inspection on aspects of housing infrastructure relating to water and electricity

		installations and use.
12	Rwanda Development Board (RDB)	Investment advisory and support especially for real estate developers. RDB is expected to include Housing EIA guidelines as part of the advisory package and criteria for licensing investors involved in the housing, construction and real estate sectors.
13	Rwanda National Police (including specialised Fire Services)	The National police have statutory responsibility for law enforcement including ensuring that the building regulations and EIA guidelines are followed by developers. The specialised Fire Services of the Police respond to fire hazards but as part of the Housing EIA guidelines, they are expected to inspect and certify the fire safety installations especially for public buildings or those designed for many people.
14	Rwanda Development Bank	Provide mortgage financing to individual and public developers of especially large scale housing infrastructures. Unlike commercial banks, RDB provides long-term financing especially in form of projects – such as industries, schools, hotels, etc with commercial or business functions.
15	Private Sector Federation	Mobilising and sensitising members involved in the construction and real estate sector to appreciate and follow the Housing EIA guidelines.
16	Commercial Banks and mortgage companies	Provide mortgage financing (housing loan) to developers. By including EIA guidelines among the set of criteria to be fulfilled by borrowers/ developers, these financing institutions will be important partners in the implementation of the Housing EIA guidelines.
17	Major Construction/ real estate companies	Service providers/ contractors who undertake actual construction and/ or deal in real estate. These are the direct implementers of the laws & regulations/ guidelines relating housing EIA.
18	Media, NGOs and other Civil Society Organisations	Civil society and interested private entities have advocacy roles to ensure that all actors follow the housing EIA guidelines and other building best practices.
19	International Finance Corporation (IFC)/ World Bank	Long-term financing for large-scale construction projects

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**LIST OF PEOPLE MET AND INSTITUTIONS CONSULTED**

	<b>Names</b>	<b>Position</b>	<b>Organisation</b>
1	Theobald Mashinga	Director/ EIACE	REMA
2	Minani Jean Marie Vianney	EIA Officer	REMA
3	Gashugi Innocent	EIA Officer	REMA
4	Fidele Nteziyaremye	Technical Advisor in Sanitation Engineering	MININFRA
5	Bosco Kanyasheja	Technical Officer	ElectroGaz
6	Barrow Lamin	Country Programme Officer	AfDB/ Country Office
7	Kirungi Brian	Team Leader	International Finance Coopération (IFC)
8	Kamurasi Alex	Operations Officer	World Bank/ Kigali
9	Isabirye Peter	Portfolio Management Consultant	World Bank/ Kigali
10	Akamanzi Claire	Deputy CEO/ Business Services	Rwanda Development Board
11	Francois Twagirayezu	In-charge of Settlements	MININFRA
12	Aziza Benegusenga	Planning Officer	“
13	Joseph Mvurirwenande	Statistics & Demography	
14	Happy	Legal Officer	MINIRENA
15	Benoi Niyigira	Water & Sanitation	MININFRA
16	Kamukunde Godfrey	Provincial Coordinator	Caisse Sociale du Rwanda
17	Bugingo Bosco	Legal Expert/ Mortgage Advisor	Independent Mortgage Advisor
18	Butera		Banque Commerciale du Rwanda
19	Dr. Byamungu Livingstone		Development Bank of Rwanda
20	Eng. Olet Emmanuel	Programme Officer	NELSAP/ Nile Basin
21			ROKO Construction
22			FAIR Construction
23			Thomas & Pilon
24			Real Contractors S.A.R.L
25			