BIODIVERSITY MANAGEMENT PLAN

I. Objective

The physical presence of the project will result in the destruction of the biodiversity initially present on the site. The activities that have a direct impact on biodiversity can be summarized as follows:

- cutting of vegetation,
- vegetation clearing
- excavation of surface soil layers and earthworks on the site.

II. General Conditions

A. Scope of Application

Applicable to all sub-contractors (SC) and ZIC ESG / HS Teams.

B. Measures to preserve biodiversity

The activities that lead to the destruction of the flora are supervised to avoid unnecessary destruction and to restore the natural environment on the site and in its immediate surroundings as much as possible:

Regarding clearing operations, sub-contractors:

- Limit clearing activities and more generally the works easement to the strict necessary and clearly mark the rights-of-way.

In terms of works planification:

- clearing activities are conducted, as much as possible, outside the rainy season to reduce the risk of erosion and avoid the main period of bird reproduction. As much as possible, these activities have to be planned between November and March,

- cleared vegetation is made available to villagers in a form that can be used/transported by the population (cut the wood in a format that can be easily handled). Communication is done on these available vegetation.

Flora and Fauna

Flora species will be directly affected from the construction of the industrial area through vegetation removal, earthworks and potential application of herbicides.

One species, the yellow iroko (*Milicia regia*, VU) was identified in the area, with several specimens present in Phase 1 and Phase 2 of the Project area. This threatened species can be considered as of medium-high sensitivity.

The remaining flora found in the Project area is considered common and not threatened. Therefore, it can be considered of low sensitivity.

In addition, vegetation clearance activities can result in indirect loss of fauna by habitat degradation and direct by vehicle and machinery collisions. Illegal hunting and poaching by Project staff are also a potential direct risk to fauna.

- No protected/vulnerable fauna species were observed in the field or are known to the local biodiversity specialist. The species identified or likely to occur on such modified habitats are generally common in the region and considered to have low sensitivity. It is worth noticing that, despite the fact that no threatened fauna was found during the site visits, as per the local biodiversity specialist, the wetland to the north of the AoI is a likely potential habitat for the threatened, white-bellied pangolin (*Phataginus tricuspis*, EN) and this species is of high sensitivity.

Recommendations

- Preferably allow fauna to leave the area and relocate themselves to adjacent habitat without the need for further intervention. If no active nests, roosts, nests, burrows or dens are present, vegetation clearing should be completed gradually, and within a few days of the initial wildlife checks / inspections. All cuttings are raked off and removed from site on the same day they are generated, to avoid creating refugia for wildlife. After the flushing of wildlife from the Project area, the area that will be disturbed adjacent to natural habitats during construction and at project specific locations will be fenced off appropriately to exclude re-entry by wildlife;
- Activities such as hunting, trapping, fishing, and general disturbance of wild animals are to be prohibited. Informative and warning signs will be placed at construction sites. The EPC Contractor who is liable to control labour and any sub-contractor staff in this regard will be instructed strictly on prohibitions regarding hunting and poaching control;

- Any injured animals of protected species are to be transported carefully but efficiently to a local wildlife authority;
- Maintain vehicles and equipment in good working condition. Use noise minimizing technology where possible. Maintain speed limits to reduce disturbance and risks related to wildlife;
- Limit construction activities to daytime hours to limit impacts to nocturnal species. Where works need to take place at night, use low intensity lighting (within safe and legal limits) and/or aim lights down and away from nearby habitats. Use non-UV sources of lighting to avoid attracting wildlife; and
- Provide protection against animal entry on any excavated trenches, pipes. overflow lines, drains, and vents on tanks and vessels. Prevent egress by wildlife to construction areas e.g., by capping pipes at night, fencing off ditches. Any excavations which are to be left overnight are to be filled in/ or covered and ramps installed (e.g., an earthen ramp or wooden board) to allow any trapped animals to escape. All excavations are to be checked daily prior to the commencement of work.
- Project construction sites, access roads, borrow pits, storage areas and camps will be separated from other areas with appropriate signboards, signs, and fences. Similarly, areas of medium to high sensitivity (i.e., the wetland on Phase 2) will be fenced-off and any activities in that area will be avoided. Use existing access roads or upgrade existing roads wherever possible before considering new access road construction.
- Limit the clearing of natural vegetation, particularly near the wetland on Phase 2, to the absolute minimum necessary. If possible, gradual vegetation clearance will be undertaken, to allow fauna the opportunity to move to adjacent areas outside of the construction zone. It is recommended that 'green' space allocated to the Project according to the Master Plan layout be used to restore forest habitat or woodland on these sites where conditions allow.
- Felling of trees will be kept to the strict minimum whenever feasible, especially the specimens of yellow iroko (*Milicia regia*, VU) will not be removed from the area. Set back distances of 2 m to the trees will be maintained during construction works to avoid any damage to them. If this distance cannot be kept for technical reasons, temporary fences around the specimens will be kept to protect them.
- Revegetation will be undertaken already during the construction phase since the Project has green areas planned within the Project area. Only indigenous plants species will be used in re-vegetation and landscaping. Furthermore, ARISE has a tree plantation initiative (carbon sequestration) in which the design team will consider setting up tree plantation on land areas near right of way, boundary wall, and inside green spaces provisioned as per regulation. Local plantation species with optimum

spacing aligned with a viable carbon credit strategy shall be worked out by ARISE ESG Team (Carbon Team). Temporary soil stockpiles are to be retained for use in post-construction restoration / rehabilitation of habitats.

- To avoid this development, a regular monitoring of sites, or at least priority sites or habitats for these invasive species is conducted. At **each accessible place** where invasive species is observed, the following measures will be implemented:
  - Elimination of the plant and avoid its installation: manual uprooting by removing all the roots of the young shoots.
  - Safe evacuation of all residues according to the waste management plan.
  - Cleaning of tools.

Under this Project, excavated land can be moved to other sites or reused elsewhere. Thus, the spread of seeds and seedlings of terrestrial invasive species from the study area to other areas is expected. Other invasive species could be accidentally introduced by improperly cleaned construction equipment from other areas. In order to limit this risk, following actions are implemented:

- Before transporting the engine from / to the Project site, the engine (interior and exterior) are cleaned to ensure the absence of invasive plants.
- Little soil pile : the temporary storage of excavated soil are covered with a waterproof geotextile to limit the development of invasive species.
- Large soil pile : regular mixing of soil are performed.

Note that soil stock are supposed to be reused during construction works as backfill materials under road and building, that are not considerate as sensitive place for invasive species.

If plants of invasive species are identified, remove and burn them as the waste management plan preconisation.

Monitoring indicators	• number of complaints about accidental degradation of vegetation outside the right-of-way, • number of individual fauna died on site, • number of fauna encountered and moved off site, • number of invasive species cluster observed

	• number of times soil stock is turned over • number of cut trees, • Presence of vegetation clearing permit • Surface of revegetation area