

Environmental Classification: This is a category III project according to the IIC's environmental review procedure because it could produce certain effects that may be avoided or mitigated by following generally recognized performance standards, guidelines, or design criteria. During the environmental and social appraisal of the project the following main issues were assessed: (1) compliance with local legislation; (2) water resource management; (3) sustainable natural resource management; (4) reduction in air emissions as a result of the project (Clean Development Mechanism project); (5) labor and working conditions; and (6) social issues, including community health and safety.

Environmental Compliance: HVM has conducted environmental and social evaluations of the Project in order to request permits for the following: water concession, forest resource use, water course occupation, and earthmoving. HVM has developed preliminary baseline assessments of the project area including a social baseline evaluation of the project's area of influence and has assessed the project's impacts on aquatic and terrestrial biotic resources and local water resources.

HVM has developed an Environmental and Social Management Plan (ESMP) for the project. The ESMP details the measures to be implemented in order to minimize impacts related to the construction and operation phases. In addition, HVM plans to obtain ISO 14001 (Environmental Management Systems) and OHSAS 18001 (Occupational Health and Safety Management) international certifications by 2009.

Water Resource Management: A baseline assessment of hydrologic resources and aquatic ecology was conducted to evaluate potential project impacts and to establish the minimum ecologic flow, which is required for obtaining the water concession permit. Various factors were considered in selecting the minimum ecological flow, including the length of the river subject to the reduction in flow, the river's water quality (physical, chemical and biological), competing uses of the river (such as fishing), the river's potential to be used for fluvial transport or migration of fish, and the extent to which the landscape of the affected part of the river will change. According to the assessment, the Guadalupe River is home to several species of fish, aquatic plants, and microinvertebrates; however, none are threatened or endangered and their migration patterns are considered to be limited to a small portion of the river. In addition, the portion of the river affected by the project is not used for fluvial transport or intensive fishing. Average monthly flow data were used in conjunction with scores for the above-mentioned variables to determine the minimum ecological flow values. The ecological flow values defined for the project vary depending on the month of the year, from 3% of the multiannual mean stream flow for the rainiest month (February) to approximately 12% of the multiannual mean stream flow for the driest month (September). The minimum ecological flow values to be used for the project have been reviewed and approved by the Corporación Autónoma Regional del Centro de Antioquia, the regional environmental authority.

Natural Resource Management: The project will be located in an area consisting primarily of pasture land used for cattle grazing. Evaluations of the project area indicate that the project will have a limited impact on the vegetation, particularly as it is a run-of-the river project that does not require that a reservoir be built (which typically involves clearing a greater area). Approximately 6.47 hectares will have to be cleared in order to build the Guanaquitas facility (including access roads, canals, and penstock). Only 2.5 hectares of this area consist of forest (secondary growth), and the remaining area is significantly degraded land used for grazing. No critical habitats or protected areas are located in the project area. HVM has developed a forest resource management plan as required by the forest resource use permit, which calls for the replacement of every tree removed.

Air Emissions: The project will have minimal air emissions as it is a renewable energy project that will indirectly result in the reduction of greenhouse gases and is anticipated to be a Clean Development Mechanism project under the Kyoto Protocol. The project is expected to result in the

avoidance of 22,545 tons per year of CO₂ emissions during an average hydrologic year. HVM will ensure that trucks are well maintained to minimize engine emissions and ensure safe operation on the roadways. In addition, the trucks used to transport excavated materials will be covered during transport to reduce fugitive dust emissions.

Wastewater/Water Quality: Soil erosion and runoff into local waterways due to vegetation removal and earthmoving will be minimized using silt screens and other standard methods; disturbed areas will also be replanted with native vegetation as soon as possible. In addition, contractors will be barred from dumping excavated soil and rock into streams and other waterways or within riparian areas. During the operational phase, sanitary wastewater will be discharged to a properly designed septic system.

Solid Waste Management: The operational phase of the plant will not generate significant amounts of waste, other than domestic waste that will be disposed of in licensed facilities. Nonhazardous solid waste from the construction phase (such as wood, metal, and food scraps) will be separated for recycling or disposed of in legally authorized municipal landfills. Hazardous materials, such as fuel, lubricants, and paint will be stored in containers in order to prevent accidental release to soil and groundwater. Portable fuel storage tanks used during construction will have secondary containment systems, and workers will be trained in how to respond to accidental fuel, lubricating oil, or hydraulic oil leaks.

Community Health, Safety, and Security: HVM will implement a series of measures to minimize risks to the health and safety of the community, principally related to traffic and pedestrian safety from the transport of construction materials and equipment to and from the construction site, and the potential for structural damage to local housing along the transport routes. Transport equipment operators will be required to adhere to a driver safety program developed by HVM in order to ensure compliance with speed limits. Local communities will be notified of potential traffic safety risks, and residents along transport routes will be given a point of contact to relay any concerns or grievances.

The intake diversion structure will be protected from public access with warning signs and fencing to the extent possible in order to discourage and prevent unauthorized access. The concrete channels will also be covered for almost their entire length, reducing the risk to people or livestock. The intake structures are designed to withstand a 100-year flood event, and the power houses are designed to withstand a 500-year flood event. Geotechnical studies have been conducted in the project area in order to ensure that the project is located in the best spot with the least risk of erosion and slope instability. The potential risks to downstream users of the river due to discharge of water in the tailrace is not considered high, given the small size of the intake structures and the rural nature of and low population densities in the area. In addition, warning signs and fencing will be in place to prevent access into higher-risk areas. HVM will also have emergency and emergency response plans in place for the project. No significant security risks have been identified in the project area.

Social Issues: HVM has actively engaged the local community and its representatives since the initial project design phase. It has held meetings to discuss the project with various stakeholders from the project area of influence, including landowners, members of the community and their representatives (Community Action Committees), municipal governments, and the Corporación Autónoma Regional. HVM has provided the community with informational leaflets that illustrate and describe the different components of the hydroelectric project. They have also discussed potential environmental and social impacts of the project, received feedback and responded to questions. The municipal government, landowners, and community know about the project and appreciate the potential benefits for the community, particularly as related to employment opportunities.

Subsequent meetings will be held with the community and its representatives to explain the specific scope of the Environmental and Social Management Plan and to determine the type of assistance that the communities most need. The specific assistance to be provided by the project (for activities such as improving the local school and access to potable water) will be defined in an interactive meeting with the community, where each member will participate and express what he or she considers the most pressing needs for the community. HMV plans to hold regular meetings with local stakeholders and other interested parties throughout the construction phase, and will develop a community grievance mechanism to ensure that any concerns and grievances are effectively resolved as described in the Environmental and Social Management Plan.

Occupational Health and Safety: HMV will require that subcontractors follow HMV's Health, Safety, and Environment Manual. They will also require that contractors train their employees in identifying and preventing workplace risks, including the use of personal protective equipment, handling of hazardous materials, and emergency response. HMV will routinely monitor construction activities to ensure compliance with its health and safety requirements.

Labor Issues: HMV's internal labor policy (Reglamento Interno de Trabajo) is in compliance with Colombian labor laws. This policy recognizes HMV employees' freedom of association, prohibits discrimination against employees or potential employees, and bars hiring persons below the age of 18 (for activities considered to be of higher risk). HMV also has control procedures for subcontractors to ensure they comply with HMV's labor and health and safety requirements (such as wage and social security payments). HMV will improve its subcontractor oversight procedures in order to ensure that their workers have the same above-mentioned rights as HMV employees.

Monitoring and Annual Reporting: The company's monitoring procedures are described in the Environmental and Social Management Plan. The company will submit an annual report to the IIC summarizing the monitoring data related to the implementation of its ESMP.