9 PROPOSED ESIA STUDY PLAN (TERMS OF REFERENCE)

9.1 INTRODUCTION

Information obtained through available secondary data provided an overview of the environmental and socio-economic aspects of the Project Area. The objective of specialist input at this scoping stage is to validate the secondary data obtained, to identify any gaps in data, and to suggest a plan of study for the ESIA. This plan of study is aimed at addressing any data deficiencies that exist in order that comprehensive specialist studies may be carried out to properly assess and address those environmental and social impacts identified.

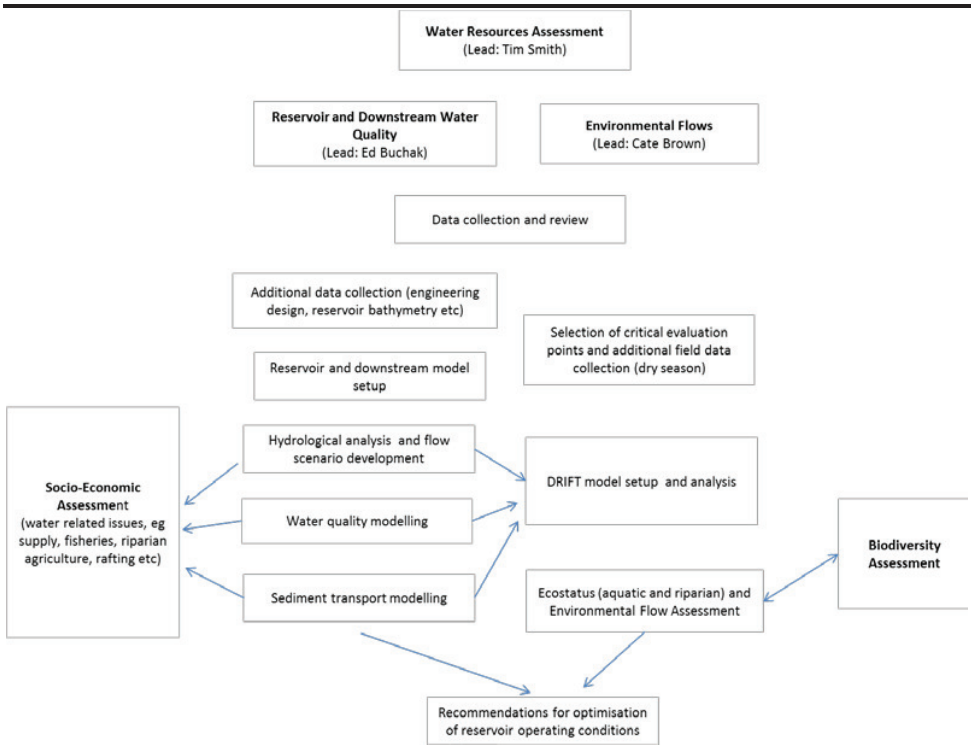
This *Chapter* outlines the proposed study plan for the proposed specialist studies over the course of *Phase 2: Environmental and Social Impact Assessment* and *Phase 3: Risk Management and Mitigation* having completed the desk top data review, site visits, and gap assessment.

9.2 WATER RESOURCES

9.2.1 Overview

Figure 9.1 shows the main tasks that will be carried out for the water resources assessment in support of the ESIA. The inter-relations between the various activities are shown (and discussed in the following sections), together with the important linkages between the water resources assessment and the socio-economic and biodiversity assessments that will be conducted in parallel.

Figure 9.1 Water Resources Assessment Tasks



Source: Environmental Flow Study, Southern Waters (2014)

The following sections describe the two main activities in more detail, the reservoir and downstream water quality and environmental and social flow assessments. As described, all of the hydraulic and hydrologic simulations carried out in support of these activities will necessarily rely on hydrological data and dam operation simulation data and information supplied by ZRA and Studio Pietrangeli (and reviewed by the ESIA consultant).

As shown in *Figure 9.1*, the main objective of these linked assessments is to identify any modifications to the proposed reservoir design and/or operating conditions that may be required in order to mitigate significant impacts on important ecological or socio-economic receptors. These results, including any associated Environmental Flow Requirements (EFR), will need to be provided to Studio Pietrangeli as early as possible in their design process in order to allow for energy production simulations to be completed.

9.2.2 *Reservoir and Downstream Water Quality*

Overview

This component of ERM's study assesses the project's impacts on water quality in the reservoir and downstream in the Zambezi River to the upper end of Lake Kariba. Baseline and post construction conditions will be calculated using two numerical models (CE-QUAL-W2 and BATHTUB) that utilize historical water quality and quantity information, data collected at the site, and engineering design information.

The 1993 and 1998 feasibility study reports included a fairly significant amount of study on the eutrophication potential of the Batoka reservoir. The present study will therefore make maximum use of these earlier studies, whilst updating the results based on the latest available design configuration and baseline water quality data.

Methodology

It is proposed that a combination of hydrodynamic and water quality modelling techniques will be used to assess the underlying aquatic conditions. The inputs for the models will be developed from basic cross-sectional and topographic data, meteorological data, and the long-term flow time-series developed from data supplied by the project engineers. All of the models proposed are non-proprietary and will be made available to stakeholders on request.

To assess both in-reservoir and downstream water quality impacts, ERM proposes to model the potential for eutrophication and dissolved oxygen and temperature changes in the reservoir and downstream reaches of the proposed scheme. Available site-specific water quality and meteorological data and information will be used wherever possible in this analysis, supplemented by estimated or representative data drawn from elsewhere where necessary and appropriate.

ERM will assess the potential for eutrophication in the reservoir by applying the BATHTUB model to obtain Carlson's TSI score, which is a steady-state estimate of trophic status. The BATHTUB model is a U.S. Army Corps of Engineers model that applies empirical eutrophication algorithms to make reservoir-wide predictions of total phosphorus, total nitrogen, chlorophyll a, and transparency using nutrient load estimates.

To estimate in-reservoir and downstream dissolved oxygen and temperature effects, the longitudinal-lateral hydrodynamic and water quality model CE-QUAL-W2 will be employed. CE-QUAL-W2 is the U.S. Army Corps of Engineers' standard reservoir water quality model. This model is time-varying and computes detailed flow fields, water surface elevations, and temperature at appropriate resolutions along the reservoir axis and in the vertical. A selected range of scenarios for hydrology, meteorology, and hydropower operations will be simulated. In-reservoir, vertical temperature profiles and downstream release temperatures will be computed by the model and used to assess potential impacts.

Deliverables

Final modelling results consisting of in-reservoir temperature and nutrient water quality; and downstream sediment, temperature and dissolved oxygen effects will be used to support the water resources impact assessment, and

will also feed into the environmental and social flow Assessment (see next section).

Together, and in dialogue with the project design engineers, the results of these analyses will support the subsequent preparation of any associated mitigation options (eg in terms of potential modifications to reservoir design and/or operational conditions) in the final ESIA deliverable.

9.2.3 Environmental and Social Flows

The objectives of this task are to select two representative sites on the Zambezi River between Batoka Gorge and the upper end of Lake Kariba; undertake a survey at these sites that accurately describes their present day condition, ecological importance and anthropogenic influence (flow and non-flow related); describe the relationship between flows and condition, and; assess the impact of future changes to the flow regimes based on operational scenarios for Batoka HPP.

The EF assessment comprises eight sub-tasks, namely:

1. EF Process and DSS management
2. River Delineation and initial site selection
3. Review of existing information and compilation of initial relationships
4. Hydrology and scenario production
5. Eco-hydraulic modelling
6. Field data collection
7. Specialist reports and Ecostatus assessments
8. EF Assessment and scenario analysis.

Task 1: Environmental and Social Flow (EF) Process and Decision Support System (DSS) management

The DRIFT DSS (King et al. 2003; Brown et al. 2013) will be the method of choice for the EF assessments. DRIFT is adaptable and suited to the task at hand:

- Its custom-designed Decision Support System (DSS), once populated with the results of the data-collection phase, allows investigation of any number of scenarios of interest to managers and decision makers, without reconvening specialist workshops.
- It is a time-series based approach that is equally applicable to daily or hourly fluctuations in flow.
- It addresses both low flow and flood flow aspects of the flow regime in a structured single approach.
- It is adaptable and so in a project it is adapted to suit the river under investigation rather than the river having to 'fit' the method
- It has been the focus of 18 years of applied development, and is published in international scientific journals (e.g., King *et al*. 2004; Brown and Joubert 2004).

- It has already been used in the Zambezi system (Beilfuss and Brown 2010; Southern Waters 2012).
- It has been widely applied internationally (e.g., Cunene River, Angola and Namibia; Huaura River, Peru; Mekong River, Thailand, Lao PDR, Cambodia and Viet Nam; Nile River, Sudan; Poonch and Neelum Rivers, Kashmir/Pakistan, Odzi, Pungwe and Mzingwane Rivers, Zimbabwe; Okavango River, Angola, Namibia and Botswana; Pangani River, Tanzania; Zambezi River, Mozambique).
- It produces easily understood predictions that detail how the river could change, and how this could impact people, in way that stakeholders can relate to.

The process requires management of a team of specialists, who will collect data and populate the response curves in the DSS, as well as review and quality control of their reports.

Sub-Task 2: River Delineation and Initial Site Selection

The objective of this task is to delineate morphologically uniform zones (from the longitudinal profile, Google Earth imagery, available maps and other available data). Identification of morphologically uniform zones enables sites to be selected to cover the diversity of river morphologies and associated habitat conditions, for the assessment of flows for the different zones, and can be used to inform the sensitivity or resilience of different reaches of the river to flow related impacts. The methods used are those as prescribed for EF studies in South Africa by the Department of Water Affairs and Forestry (DWAF 1999).

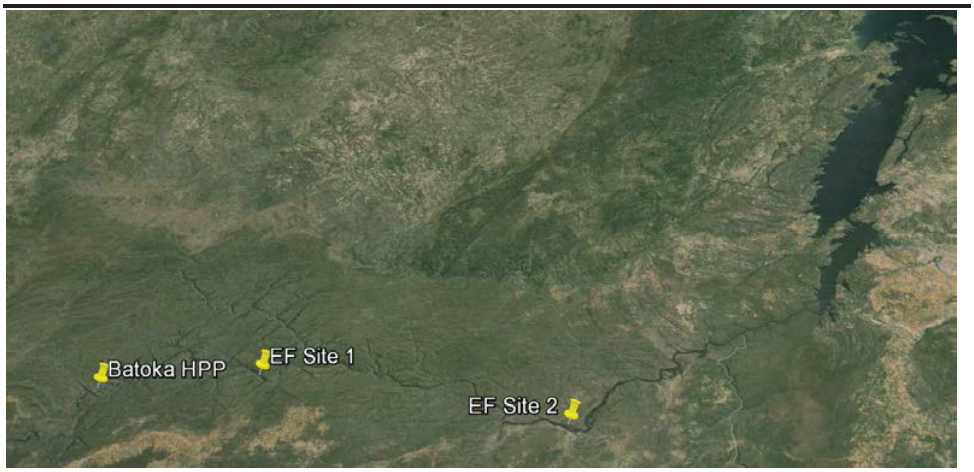
The EF studies will focus on two representative sites/river reaches on the Zambezi River between Batoka Gorge and the headwaters of Lake Kariba.

Final site selection will be done in September 2014, but will focus on the following likely locations (*Figure 9.2*):

- Site 1: Zambezi River in Batoka Gorge c. 20 km downstream of Batoka HPP;
- Site 2: Zambezi River c. 20 km upstream of Lake Kariba.

The tributaries entering the Zambezi have been taken into consideration in the identification of the EF study sites. It was considered that an EF study site be included downstream of the second tributary joining the Zambezi just upstream of Lake Kariba, due to potential back up effects (water and biota) from Lake Kariba. Furthermore, the currently identified EF study sites adequately represent the downstream river reach between Batoka HES and Lake Kariba. Hence EF Site 1 will represent the worst case scenario in terms of flow and sediment and EF Site 2 will include some incremental inflows of both in the considerations.

Figure 9.2 ***Approximate Locations of EF Sites 1 and 2 Relative to Batoka HPP and Lake Kariba (top right of image)***



In addition, the assessment will include an evaluation of the potential impacts, if any, on fisheries in Lake Kariba.

Sub-Task 3: Review of Existing Information and Compilation of Initial Relationships

The duration of the project is such that relationships between the riverine ecosystem and flow that provide the basis for the EF assessment will for the most part be obtained from existing reports and EF studies conducted elsewhere, particularly life-history studies for key species. These data will be augmented by existing distributional and habitat data from the Zambezi River.

The aims of Sub-Task 3 will be as follows:

- Generate a list of biophysical indicators that will be used to predict flow related changes in the Zambezi River.
- Develop initial relationships between the indicators and flow based on existing information.
- Identify key aspects for additional EF data collection.

Sub-Task 4: Hydrology and Scenario Production

Daily flow data for present day and post-impoundment scenarios (baseload and peak power generation) will be provided as input to the DRIFT DSS for the two EF sites. The precise flow scenarios based on the design and operation of Batoka HPP will be decided based on discussion with the Client, the design engineers, and the ESIA water resources team. The scenarios are likely to comprise permutations of the following (with each scenario linked to total annual power output):

- Minimum compensation releases in the dry season ranging from the values used in the design assumptions (if any) up to 80% of the baseline average 5-day minimum discharge.
- Weekly schedules for peaking operation(s), including release time, peak discharges and off peak discharges.
- Baseload operation(s).
- Spills.

Sub-Task 5: Ecohydraulic Modelling

The slope and width of the Zambezi River within the study area is such that there is unlikely to be any significant attenuation of peak flows from Batoka Dam when these occur. The river drops more than 150 m over a distance of c. 70 km, some of this distance is within the Batoka Gorge and there are no significant floodplains in the remainder. For this reason it is deemed unnecessary to undertake hydraulic routing modelling between the Batoka tailrace and EF Site 2.

The hydraulic relationships at the EF sites will still need to be modelled. In this regard, an initial review of the available literature suggested that most of the changes that the ecosystem will react to are temporal changes in the hydrology, such as delays in the onset of seasons, increased duration of dry season, peaking flows. The need for hydraulic data will be (mainly) linked to very low dry season flows, which will only be an issue for peaking scenarios (assuming that if not peaking Batoka HPP would be generating base power). Even in this case, the issues of rapidly changing flows (i.e., hydrological not hydraulic) will be at least as important in driving ecosystem condition as will the absolute velocity, width or depth of the water in the river.

One of the unavoidable constraints of the project is that, without compensation flows, the low flows likely to occur between peaking operations are likely to be much lower than anything that occurs in the river at present or in the recent past (c. 200 m^3s^{-1}). These flows are difficult to model with accuracy no matter the approach used as it is not possible to collect calibration data for these levels. This is further exacerbated by the more hydraulically complex and potentially more sensitive river reach as represented by EF2.

The approach adopted below takes cognisance of these issues, and directs effort toward onsite surveying of EF Site 2 using the techniques suitable to the available time and resources for the study. At the same time, it draws on all available data to enhance the number of points available for calibrating the hydraulics. It also directs the bulk of the effort towards EF Site 2. (Note: The inherent uncertainty at low flows in this type of complex bedrock morphology will remain in the absence of observed data regardless of the methods employed).

For EF Site 1, the tailwater rating relationship provided in the 1993 Batoka Gorge Hydro Electric Scheme Feasibility Report will be used as a basis for the ecohydraulics calculations required for the EFA. This will be augmented as

appropriate with observations and measurements in September 2014. In addition, for any additional surveys, such as vegetation, it will be necessary to link to the datum used for historical rating.

For EF Site 2, the approach will be as follows:

- surveys (land-based and bathymetric) of the cross-sectional profile/s at the EF 2 during a low-flow condition (including the survey of geomorphological and ecologically-relevant points of interest; see *Task 6*), plus:
- stage-discharge measurements in June and September 2014, and possibly October 2014 if flows have dropped significantly from September;
- inundation-discharge measurements obtained from remote imagery for low, medium, high and very high flows e.g., *Figure 9.3*).
- cross-sectional calculations for velocity, wetted width, average and maximum depth, plus combinations thereof representing suitable habitat for fish and invertebrates.

Figure 9.3 Potential EF Site 2 at c. 250 m3s-1 (left) and c. 2200 m3s-1

Note: The discharge at both EF sites will be estimated based upon the flow gauging record at Victoria Falls (point EF2 is upstream of the Gwayi and Sanyati River inflows to the Zambezi (the Sanyati River flows into Lake Kariba directly), which are the main contributing catchments between Victoria Falls and Kariba).

Sub-Task 6: Field Data Collection

Field surveys will be undertaken during the low flow to address gaps in the data record and to provide a baseline data set against which any future changes in the rivers can be benchmarked.

The frequency of sampling used here is based on generally acceptable discipline-specific sampling frequencies for EF data collection. The specialists will be afforded one full day at EF1 and two days at EF2. Specialists who finish early will assist others with their data collection.

- ***Final site selection***: The aims of the site selection visit will be to: gain an understanding of the character of the study rivers and the challenges, if any, that they pose; gain an understanding of the locations of water resource and other activities and the implications for site selection; visit the flow monitoring station at Victoria Falls; identify the exact locations for the two EF sites in discussion with the full EF team.

- ***Eco-hydraulic analysis and modelling***: see explanation above.

- ***Geomorphology***: The focus of the field assessments will be on the identification and surveying of alluvial (depositional) morphological cues at the sites and within the reach that may be associated with regular flooding return frequencies. The river is an extremely high energy system, but depositional morphological features such as terraces and alluvial bars that are associated with geomorphologically significant flow classes may develop in more alluvial segments of the river. These alluvial features, usually paired (mirrored) on both banks, can be used to indicate the stage of important flow events. Bed sediments will be sampled at the sites to determine the sediment-size distributions. These will be used in conjunction with the available hydrology (present day and for scenarios) and site hydraulics to evaluate the impact of alterations in hydrology on sediment discharge. The focus of the study will be on the changes in potential sediment transport capacity.

- ***Other disciplines***: The data and frequency of collection are outlined in *Table 9.1*.

Table 9.1 Type of Data and Frequency of Collection for Geomorphology, Vegetation, Macro-invertebrates and Fish

Activity	Data sources
G1: Sediment composition	Field data collection, existing data
G2: Channel characteristics and habitat distribution	Field data collection, maps, Google Earth, etc.
B1: Riparian vegetation community structure (zonation)	Field data collection, scientific literature
B2: Riparian vegetation recruitment	Field data collection, existing data, scientific literature
M1: Macroinvertebrate community structure	Field data collection, existing data, scientific literature
M2: Assessment of macroinvertebrate habitat	Field data collection
F1: Fish community structure	Existing data, scientific literature
F2: Assessment of fish habitat	Field data collection

Specialists will take responsibility for the adequacy of the data collected and provided by them for their components.

Sub-Task 7: Specialist Reports and Ecostatus Assessments

Each specialist report will comprise, *inter alia*: methods used; review of information from other studies; location of monitoring sites; summary of data collected within this study; results of data analysis and/or modelling; summary of Present Ecological Status; a list of suitable DRIFT indicators and their relationship to flow, and a table providing motivations used for every response curve used in the DSS. In addition:

- Hydraulics: Changes in stage and other ecologically relevant hydraulic parameters (viz. average velocity, average and maximum depth, wetted perimeter) as a function of discharge at the site will be provided.
- Other biophysical aspects: For each site, specialists will select a maximum of 10 indicators (preferably no more than five) for the EF assessment, and provide/develop information on, as available/relevant/known: descriptions of the representative species; distribution and abundance (in particular, flow-related limitations to spatial distribution); habitat requirements in terms of water depth, water velocity and substratum type; life histories (e.g. spawning times); anticipated sensitivity to change in the flow regime, and; any additional relevant information.
- Ecostatus: The condition of the riverine ecosystem will be described in terms of A-F Present Ecological State (PES) categories used to classify the ecological condition of rivers in South Africa. Individual discipline ecoclassification assessments will be provided, in accordance with establish methods, and explained in the relevant specialist sections.

The fish ecology specialist report will include an assessment of the potential impacts of a hydropower station at Batoka Gorge on the fisheries at Lake Kariba will be assessed using existing data, in particular the work that links kapenta stocks with inflow into Lake Kariba (e.g., Karenga and Kolding 1995; Kolding et al. 2003; Kolding and Songore 2003). The assessment will use the flow scenarios generated in Sub-Task 4.

Sub-Task 8: EF Assessment and Scenario Analysis

The relationships between the indicators and flow will be finalized and entered into the DRIFT database. This will take place in workshop setting, which will allow for considerable discussion between the specialists before finalising their flow-response relationships. The DRIFT database will then be run to provide the consequences of flow change for the Zambezi River ecosystem.

The scenario analyses will generate:

- semi-quantitative change in indicators for each scenario of flow change for a pre-set time horizon, e.g., 20 years.

- Qualitative change in river condition.
- Impact on overall river condition for each scenario of flow change for a pre-set time horizon, e.g., 20 years.

In addition to providing EFs to maintain predetermined river conditions, the DRIFT database will be used to assess the implications for the river ecosystem of the flow scenarios based on the operation of Batoka HES Project (see earlier).

It is anticipated that the final EF assessment and outputs will be used to support the overall water resources impact assessment. Together with the limnology studies, and in dialogue with the project design engineers, the results of these analyses will support the subsequent preparation of any associated mitigation options (eg in terms of potential modifications to reservoir design and/or operational conditions) in the final ESIA deliverable due in early 2015.

9.3 BIODIVERSITY

9.3.1 Conservation Issues

- Data will be sourced on the extent and state of protected areas within the project area from the Zambian Wildlife Agency (ZAWA) and the Zimbabwe National Parks and Wildlife Agency (NPWA).

- Consultation with CAMPFIRE personnel and ornithologists are proposed in the faunal components (*Section 9.3.3*), which will provide data of value for assessing the current state of these areas.

9.3.2 Vegetation and Habitats

A draft Area of Influence (AoI) of the project area has been defined, but extends beyond the needs of mapping of vegetation and habitats necessary for this study. A reduced Ecological AoI is therefore proposed that includes the length of the river from the Victoria Falls, past the Batoka Gorge HES construction site and to below the end of the Batoka Gorge. The Ecological AoI must also include the habitats on either side of the proposed reservoir extent plus the areas proposed for the transmission lines, construction camps and town development. Data will be sourced on the vegetation and habitats within the Ecological AoI from the United Nations Educational, Scientific and Cultural Organization (UNESCO), Zambian Wildlife Agency (ZAWA) and the Zimbabwe National Parks and Wildlife Agency (NPWA).

Furthermore:

- GIS-based mapping of habitats within the Ecological AoI will be able to identify locations and extent of various vegetation units, based on the classifications used in the 1998 Additional Studies and prevailing

vegetation classifications for the area. This will be assisted by a review of existing information and maps (IUCN SEA 1996, Timberlake *et al* 1993; Vic Falls Master Plan 2002; Available studies on the biodiversity of Kaza TFCA).

- A field assessment of habitats and status of vegetation on the Zambian side of the border will be conducted. The delineation of habitats will use aerial photography followed by field-based ground-truthing to verify the types of habitats and species compositions. This will require fieldwork by a botanist who is competent with the vegetation of the area.

- Field assessment of habitats along the transmission line routes, proposed construction camp and town development sites will be conducted to determine the local sensitivities and the level of impact associated with the proposed development. This will require fieldwork by a botanist who is competent with the vegetation of the area.

- An overview of the levels of transformation of the various habitats will be obtained based on observations in the field and desktop work, and will be used as a means of classifying the habitats as per the IFC Performance Standard guidelines into Modified or Natural habitats and assessing their relative sensitivity. This will require fieldwork, but can be opportunistically conducted while doing other fieldwork.

- Assessment of the updated taxonomy and Red List status of the plant species identified in the study area based on the current IUCN Red List and/or Flora of Zimbabwe classifications. This will be a desktop based exercise.

- Vegetation biomass of each major vegetation type will be estimated based on existing data provided in the 1998 Additional Studies, habitat standards available for north-western Zimbabwe and predetermined species-specific scientific formulae. This work will be primarily desktop based with limited field observations made during the course of associated vegetation studies.

9.3.3 Fauna

Avifauna with Emphasis on Taita Falcons and Rock Pratincole

- Detailed field assessments on the status of Taita Falcons and other raptors in the Batoka Gorge were conducted by the Zimbabwe Falcon Club in collaboration with Birdlife Zimbabwe, and repeating field assessments will not lead to new information, however opportunistic observations will be recorded whenever possible. Local ornithologists associated with Birdlife Zimbabwe and Zimbabwe Falcon Club will instead be requested for the following information at a desktop level:

- The general ecology, current population status and spatial sensitivities of important raptor populations associated with the entire length of the Batoka Gorge and near vicinity;
- Expected impacts on raptor populations resulting from development of the Batoka Gorge HES;
- Proposed mitigation that could practically be implemented to reduce any of the potential impacts;
- Baseline, impact and possible mitigation applicable to Rock Pratincole along the Batoka Gorge.

Current Status of Wildlife

- Specialists with local knowledge of the large mammal fauna in the area should be consulted to update the understanding of the current state in collaboration with the Stakeholder Engagement team.

- The following additional data will be sourced at a desktop level:

  - CAMPFIRE hunting returns, statistics and interviews with professional hunters holding concessions in the project area and vicinity.
  - Recent wildlife surveys conducted by the Victoria Falls Wildlife Trust.
  - Past and current WWF aerial wildlife census data (a survey is due to be conducted in 2014) to assess trends in large herbivore populations in the greater area.
  - Expected species lists of mammals will be developed for the study area based on the Online IUCN Red List of Threatened Species.

- Opportunistic observations of mammals or evidence thereof within the study area should be recorded, but no additional fieldwork time needs to be undertaken.

Other Fauna

- The above-mentioned April Bat migration cannot be assessed due to timing of the study; however available data on bat diversity in the area, potential bat habitats and known roosts above and below the proposed dam wall will be sought from various bat specialists.

- Herpetological studies have been simplistic, but there is no indication to suggest that detailed studies will lead to better assessment of impacts or development of better mitigation measures.

- Desktop data is available from crocodile egg collection sites and will be used to assess trends in crocodile populations along the Batoka Gorge.

- Opportunistic consultation with an expert knowledge of the Batoka Gorge crocodile populations or general herpetology will be sought.

- Expected species lists of amphibians will be generated from the Online IUCN Red List of Threatened Species and will be used for assessing amphibian sensitivity. Available data on reptile distributions is unfortunately inadequate for generating acceptable species lists.

9.3.4 Aquatic Ecology

The aquatic ecology requirements will be addressed through the environmental and social flow assessment, which will supplement the data available in existing reports, such as the extensive fish surveys conducted for the Additional Studies in 1998.

9.4 SOCIAL

9.4.1 Socio-economic Specialist Study

ERM proposes to update the social baseline for the ESIA by the collection and review of more up to date secondary sources supplemented by the collection of primary data through the use of a variety of methods and participants, including focus groups with affected communities and interested parties eg tour operators and interviews with 'key informants' such as traditional authorities, district administrators and teachers, health personnel and conservers of cultural heritage.

In order to prevent duplication of effort and prevent stakeholder fatigue, the social baseline team will coordinate data gathering activities (through the means detailed above) with activities planned as part of the development of the Resettlement Action Plan (RAP) and Resettlement Policy Framework, if at all possible.

Due to the lack of accurate information regarding the exact location of settlements, a ground truthing exercise will be undertaken during field activities using GPS technology so that they can be plotted on maps to be included in the social baseline. The project affected area has been defined to include downstream water users (up to Kariba Dam) and discussions with key stakeholders during the initial stages of the stakeholder engagement programme, along with the groundtruthing exercise detailed above, will seek to refine the project team's understanding of the affected communities.

9.4.2 Elements of a Social Baseline

A social baseline includes the data requirements listed in *Table 9.2*.

Table 9.2 Social Baseline Data Requirements

Requirement	Data Set
Socio-economic & ethnographic study	Qualitative data: National, regional & local context - Institutional structure /

Requirement	Data Set
	governance Ethnicity & religion Health / quality of life Literacy / education Vulnerable groups
Population & household survey	Quantitative data: Demographics / population Household size Income Livelihoods Infrastructure Assets Health
Social economy of area	GDP Poverty levels
Social infrastructure	Access to water Waste facilities Housing Educational facilities Health services Energy & telecommunications
Economic activity in the area (including agriculture, livestock & tourism)	Livelihood activities Land tenure
Cultural-heritage survey	Sacred sites Cemeteries Archaeology

9.4.3 *Methodology*

The proposed activities that form the study plan for the social baseline are detailed below:

Activity 1: Collate and Review Background Information Using Secondary Sources

Secondary data has already been reviewed as part of this Inception Phase. As noted, many of the reports are out of date and it is believed that more recent reports are available which will provide a more accurate view of the social environment in which the Project lies. Information will be collected from the authorities, development agencies, and NGOs etc to provide an update of the social context within the Project area and identify gaps that will need to be filled during primary data gathering.

Secondary data includes:

- Census data (Zambia 2010, Zimbabwe 2012);
- Demographic and Health Survey (Zambia 2013-2014, Zimbabwe 2010-2011)
- District Situational Analysis Reports (Zimbabwe)
- District State of Environment Report for Livingstone (Zambia)
- Development plans;

- Active NGO programmes in the Project area; and
- Research conducted by development agencies and NGOs.

This data will be used to inform the settlements that will be visited as part of the primary data collection as well as the key informant interviews that will be undertaken.

Activity 2: Field Planning

A field planning exercise will be undertaken to facilitate the collection of primary data scheduled for Activity 3. This will include scheduling of activities, logistics planning (including accommodation, transport and printing) and the development of field tools. Protocols will be developed to guide in field data collection such as interview templates, a survey question questionnaire and reporting templates.

Activity 3: In-country Primary Data Collection Across a Selection of Villages in the Project Area.

Primary data will be collected using a variety of methods:

- ***Focus group discussions (FGDs)*:** The team will carry out semi-structured meetings with men and women to gain a good understanding of the socio-economic issues in the local communities and how the project may impact on these. The focus groups will comprise of various representatives from each settlement to include:

  - Vulnerable groups such as those with disabilities and the elderly;
  - Gender issues which is also related to vulnerability;
  - Youth; and
  - Those engaged in a variety of livelihood forms (eg agriculture, livestock, curios, tourism etc).

  Owing to the likely Project impacts on white-water rafting activities, FGDs will also be undertaken with a collection of tour operators who provide such services. Information gathered through these discussions will be used to provide input into the economic cost-benefit analysis.

- ***Key informant interviews (KIIs)*:** These will be conducted with village headmen, teachers, health workers, chiefs, local authorities and various other key informants to gain an understanding of specific areas of interest.

- ***Household surveys*:** Household surveys will be undertaken in a sample number of households (approximately 15%) in villages affected by the Project. Household surveys undertaken for the Resettlement Action Plan (which will include a 100% coverage of all affected households) will supplement these surveys.

A provisional list of FGD's and KII's is provided in *Table 9.3* below. These have been selected based on the initial data review and discussions held with Black Crystal and Kaizen Consulting International during the preliminary site visit.

Table 9.3 Focus Group Discussions and Key Informant Interviews

Type	Reason for Data
Focus Group Discussions	
Women (including youth)	• Understanding of role • Livelihood activities and income generation • Women's issues (health, equality, etc)
Men (including youth)	• Understanding of role • Livelihood activities and income generation • Men's issues (health)
Note: Vulnerable members of the community including those who are elderly or have physical impairment, etc. will be included in these FGDs.	
Commerce and Industry including Tour Operators (eg in Zimbabwe: Shearwater Rafting Company, Wild Horizons , Adventure Zone , Shock Wave, Kanondo, Frontiers and in Zambia: Bundu Adventures, Safari Par Excellence, Mukwa Travel & Tours Zambia, Euma Tours, UAC etc)	• Importance of the gorge to their service offerings, including white water rafting, helicopters tours, boat cruises, etc • Potential for other service offerings • Revenue
Key Informant Interviews	
Tourism representatives (eg Tourism association of Livingstone, Tourism Association of Victoria Falls, Hospitality Association, Ministry of Environment and Tourism etc)	• Number of tourism operators • Importance of the area to their industry • Potential for others service offerings
Health facility / nurses / doctors /women's health (eg community clinics, as well as hospitals in Victoria Falls and Livingstone and traditional healers)	• Life expectancy / mortality rates • Quality of infrastructure • Number of medical staff • Services available • Health issues • Sexual / reproductive health • Use and prevalence of traditional healers and traditional medicine
Chiefs	• Role • Institutional structure • Locations of sacred sites and ceremonial practices • Land distribution
Heads of villages	• Socio-economic context of villages
Bodyego (Zambia) (According to informal conversations with Zambian locals, in Mukuni, Zambia, the Bodyego acts alongside the chief and helps to oversee the allocation land)	• Land distribution

Type	Reason for Data
Culture Heritage organisations (UNESCO, National Heritage And Conservation Commission, Zambia National Museums and Monuments, The National Museums and Monuments of Zimbabwe, religious leaders) – to be undertaken as part of the heritage specialist study	• Role • Location of cultural heritage sites • Ceremony practices
NGOs (eg WWF, Environment Africa, Green Fund, Friends of Victoria Falls Bird Life Zimbabwe, Intengwe, Corridors of Hope, The Buterfly Tree, NGO coordinating council, etc)	• Active NGO's in the project area • Types of activities
Environment Interest Groups (including Campfire Project, Zimbabwe, Matapulto Hunters, Anti-Poaching Unit, The Zimbabwe Parks & Wildlife Authority, Forestry Commission, etc)	• Role • Environmental management • Park management • Human wildlife conflict
Water authorities (eg Zimbabwe Water Authority, Department of Water Resources and Development Zimbabawe, Department for Water Affairs Zambia, etc)	• Water management • Water quality • Access to water • Developments
Energy authorities eg ZESCO, ZESA, ZPC, Ministry of Energy)	• Energy development and infrastructure
Fisheries authorities (eg fisheries department)	• Role • Extent of fishing activities
District Agriculture Office	• Agricultural activities / land use • Land tenure system
District Development Officer/District Administrator/ District Commissioner	• District level development plans
Councillors	• Local level development plans

Random sampling will be used to conduct the surveys based on a 95% confidence level. The confidence level is based on a calculation that provides a data sample of 95% accuracy. As part of the field planning the number of households to be visited in each settlement will be calculated.

However, in coordination with the resettlement studies, in the villages to be resettled, the team will aim to conduct a 100% sample for monitoring purposes.

Prior to primary data collection, enumerators and those working in the field will be given training of data collection methods and the field tools to be utilised to ensure a consistent approach to data gathering. In addition, ERM will ensure that all team members are aware of the importance of Health and Safety, especially whilst in field, to prevent the occurrence of accidents.

Activity 4: Write up of Social Baseline

Once all secondary and primary data collection has been completed, data will be analysed and will be used to develop a social baseline for the ESIA. This

will form the foundation from which the social impact chapter will be developed.

9.4.4 Health Impact Specialist Study

It is proposed that a health impact assessment is undertaken to understand the health impacts and benefits associated with the Project. The aim of the study will be to understand the local (community level), district, province and where appropriate national level health conditions using the methods outlined in *Section 9.4.3* The assessment will cover access to and quality of health services as well as changes in the disease profile at the provincial, district and local level. The team will then review the project description, health baseline and impacts identified within other strands of the ESIA and other specialist studies as appropriate to determine the potential health impacts and develop mitigation measures.

Based on the information available the key health areas which will be covered include:

- Health services infrastructure and capacity which is reported to be weak, lacking resources and staff;
- Vector-related diseases in particular malaria as the creation of the dam may influence vector densities and therefore the prevalence of malaria. Other vector borne diseases such as arbovirus will also be considered;
- Sexually Transmitted Infections (STIs) including but not exclusive to HIV/AIDS as the presence of an external workforce may influence transmission rates. However, this will need to be considered in light of the existing presence of tourists;
- Communicable diseases such as respiratory infections including TB, cholera etc which may be influenced by the presence of an external workforce as well as changes in access to water, food and sanitation;
- Accidents and injuries – including minor physical injuries through to debilitating injury and/or death and other public safety and health hazards;
- Soil and water borne diseases such as diarrhoeal diseases, helminths etc which are report to occur commonly in the communities; and
- Food and nutrition related issues including dietary changes and malnutrition, as land take may result in loss of agricultural land and therefore access to food.

The following will also be considered:

- exposure to potentially hazardous materials;
- mental health disorders and psychosocial health;
- safety and security; and
- non-communicable diseases.

9.4.5 *Cost-benefit Analysis of the Proposed Batoka HES Project*

It is proposed that an economic analysis is undertaken to develop a better understanding of the economic benefits and losses associated with the proposed Batoka HES Project. This will be undertaken at a desk-top level by an economist, but supported by on-site baseline data collection. Some of these losses will also be included post the ESIA as part of a Resettlement Action Plan (RAP) or Resettlement Policy Framework (RPF).

Information that will be gathered to support this cost-benefit analysis will be:

- qualitative and/or quantitative information on the economic contribution from the generation of power, as a result of the proposed hydropower plant;

- the economic impact to users of the river as a result of the proposed hydropower scheme.

- For typical enterprises (river rafting, small scale crop production, small scale livestock grazing, hunting, tourism, forest concessions, etc.) any numbers describing enterprise size and/or turnovers, seasonality, average occupancy rates, and cost structures (capital and operating, particularly employee remuneration or labour days) will be very useful. Also any information of future plans for new activities or growth of existing ones over the next 20 years or so.

It is envisaged that much of this information can be obtained through key informant discussions.

In the case of small-scale farming households, the information on types of enterprise, capital costs, product prices, sales per annum, labour use, other costs, can best be gleaned from focus group meetings. This information will be collected to primarily inform the RAP.

9.5 *RESETTLEMENT*

9.5.1 *Resettlement Action Plan for the Dam Footprint*

The Resettlement Action Plan will be undertaken to meet the requirements of the regulatory authorities of Zambia and Zimbabwe and international good practise (i.e. will meet the requirements of the IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement, the IFC Handbook for *Preparing a Resettlement Action Plan,* the World Bank Involuntary Resettlement Sourcebook, and the operational Policy OP 4.12).

Best Practise Requirements

Resettlement Action Plans (RAPs) are internationally recognised as best-practice vehicles to deal with compensation and mitigation related to physical and economic displacement.

Asset Inventory

The placement of restrictions on people's livelihoods should be avoided if there are likely to be changes to the project design, alternatives and/or any delay to the resettlement process. Given that environmental authorisation is not currently in place i.e. the project is not yet approved, or finance raised for it, the timeframe for resettlement is not currently known. It is therefore proposed that no cut-off date will be put into effect as part of the RAP Process and hence undertaking an asset inventory as part of the scope would be deemed premature.

Consultation and Proposed Structures

As a means of ensuring continuous progress extensive consultation has been allowed for as part of the RAP development. During the first stage of the RAP, key stakeholder groups will be consulted and a strategy developed for consultation during the planning stage of the project. This will be revisited on an ongoing basis. Given that only economic displacement is to be considered and that as per ERM's proposal an estimated 200 households will be impacted on, the option to engage regularly with all affected households rather than representatives exists. It is currently envisaged that the following communication structures will be developed:

- Resettlement Advisory Committee (RAC) – comprising select members from government departments and key community members/representatives that have been extensively exposed to resettlements and/or are representing the affected households and require input into the decisions that are made. This Committee will advise on all matters related to resettlement (including legislative and procedural) and will be integrally involved at all decision-making stages in the project. This Committee will require involvement from both Zimbabwean and Zambian authorities. Possibilities for convening this Group and when their input will be required will be ascertained during the initial stages of the RAP.

- Affected Peoples Forum: It is currently envisaged that an Affected Peoples Forum for all of the affected households will be established. This group will initially comprise community representatives and following the completion of the census and asset inventory will include all members of the affected people group. This body will be consulted with regard to all RAP activities and requested to make decisions with regard to entitlements, host sites and compensation.

- Traditional authorities: Individual consultations will be required per Chiefdom prior to discussions with the affected households and Affected Peoples Forum.

It is envisaged and as detailed in ERM's proposal that host site alternatives will be identified as part of the RAP, however decisions will not yet be taken as part of this process for a preferred site. Further investigations of these sites and consultations with host communities will follow this RAP process.

Activities to be undertaken by ZRA

Excluded from the current scope of work and requiring further attention directly be the ZRA (during RAP Implementation) will be:

- Investigation of host site suitability.
- Engagement of host site communities.
- The development of land acquisition agreements and/or land transfer agreements both for the acquisition of the host site as well as measures to ensure security of tenure for the affected households.
- Securing of the host sites.

Livelihood Restoration

Like-for-like asset replacement may not be possible if there is not sufficient suitable land available for this purpose. For this reason, the implementation of effective livelihood restoration programmes is essential. A livelihood restoration specialist will be brought on to the team to assist in this regard. He will be redefining land use in the project area, interviewing key stakeholders and those involved in livelihood activities including fishing. ERM's input will entail the identification of suitable programmes, the identification of suitable service providers and a drafting of the terms of reference for these services.

Proposed Scope of Work

The RAP tasks are listed in *Table 9.4*.

9.5.2 Resettlement Policy Framework for the Transmission Lines and Access Roads

Given uncertainty regarding the alignment of the transmission lines and access roads on both the Zambian and Zimbabwean sides, it is intended that a Resettlement Policy Framework (RPF) be prepared to guide future resettlement activities. Launching into a comprehensive resettlement planning process before the alignment of these lines is defined could result in the incurrence of unnecessary costs and raised expectations of the households which may not be impacted on. It is proposed that the Resettlement Policy Framework will however also include activities to inform the Engineering Team of opportunities to minimise physical and economic displacement through transmission line alignment.

Table 9.4 Proposed Scope of Work for the RAP for the Batoka Gorge Dam Footprint Area

Stage	Objective	Activities	Deliverables
Scope definition	This input on the Inception Report has been prepared on the basis of information made readily available to the project team to date as well as site observations. There is a need to expand on the project team's understanding of the project footprint and specifically the location of the dam associated infrastructure. This will require more detailed discussion with the engineering team.	• Further discussions with ZRA and the Engineering Team at the Inception Phase Meeting • Hold discussions with key stakeholders including traditional authorities, District and Local authorities. This task will be undertaken with the stakeholder engagement team • Identification of likely affected people through the review of aerial photography/satellite imagery, discussions with key stakeholders and further site orientation	• Updated scope of work • Minutes from key stakeholder discussions • Proposed stakeholder engagement strategy (to be developed in consultation with the stakeholder engagement team to avoid over-consultation) • Stakeholder database that will be expanded on for the duration of the project
Grievance mechanism development	A suitable grievance mechanism needs to be in place from the commencement of the RAP process so that concerns can be appropriately addressed and recorded. During initial consultations, all stakeholders need to be informed of the grievance reporting process.	• Develop grievance mechanism • Client review • Ensure adequate resources in place for the management of the process	• Grievance mechanism

Mobilisation of engagement forums and team members	There is a need to establish and hold inaugural meetings with the engagement forums for the project. These are to include a Resettlement Advisory Committee and Affected Peoples Forum. The establishment of these bodies will facilitate effective communication and agreement throughout the RAP process.
	
	In addition, it will be necessary to confirm availability of project team resources and source fieldworkers (if this is required)
		• Establish the following Committees/hold inaugural meetings and define and agree roles:
		  ○ Affected Peoples Forum
		  ○ Resettlement Advisory Committee: comprising government officials and other stakeholders previously exposed to resettlement processes in Zimbabwe and Zambia and able to advise in this regard
		• The Affected Peoples Forum will initially comprise community representatives and will be expanded following the census and asset inventory to either include all economically displaced households and/or representatives thereof
			Minutes from inaugural meetings
			Terms of Reference for each member of committees

Stage	Objective	Activities	Deliverables
		• Host community consultation structures can also only be identified once a preferred host site has been identified (if appropriate) • Prepare and agree initial database and GIS specifications • Identify and secure field team	
Census	The primary objective of the census is to ensure that all affected people are identified and their assets to be lost quantified. The identification of the households that are to lose assets as a result of the proposed project will require a registration process in the presence of the community representatives. This process will be widely advertised amongst the affected communities. A questionnaire will be prepared by the project team for the gathering of household information. Fieldworkers will be appropriately trained for the administration of the questionnaire and supervision by the RAP team provided. It is envisaged that the socio-economic fieldwork can be undertaken concurrently. The census will need to be introduced to all stakeholders before it commences. Traditional leadership meetings will also be required.	• Hold meetings with traditional leadership in preparation for the registration and verification process • Prepare questionnaires for the collection of socio-economic data and asset verification • Prepare materials to notify the communities of the registration process • Release notification material • Hold the registration process • Train fieldworkers and supervise throughout the fieldwork	• Minutes from meetings with traditional leadership • Questionnaires • Notification material • Training manuals
Development of the census database	Develop a database for the recording of all collected data. Link this to a GIS system.	• Create a database of all affected people • Link this to a GIS package so that information can also be visually represented	• Database and GIS files

Cut-off date implementation	A cut-off date needs to be communicated and implemented immediately following the verification process so as to minimise opportunistic behaviour. This will be a cut-off date for eligibility only, not assets or livelihoods.	• Broadly communicate the cut-off date as follows:
		  ○ Traditional leadership (with meetings detailed above)
		  ○ Affected peoples Forums (with
			• Minutes from meetings
			• Material prepared for the notification of the cut-off date

Stage	Objective	Activities	Deliverables
		meetings detailed above) o To the broader project community through advertisements in local papers and flyer distributions via schools and other key community focal points.	
Alternative host site identification	This activity will be appropriate if physical displacement is envisaged and/or land replacement is an option selected as an entitlement for economic displacement. Alternative host site options will need to be identified through consultations with the resettlement structures and the client.	• Host site alternatives to be identified through a process of consultation with: o Traditional authorities o Landowners in the area o Affected Peoples Forum o Advisory Committee	• Minutes from meetings
Entitlement determination	Principles for compensation/replacement land need to be defined and agreed to with all consultation bodies. For this reason an entitlement matrix will be prepared.	• Create an entitlement matrix and populate information on asset categories, categories of displaced people and compensation types • Discuss and agree with all consultation structures including: o Traditional authorities o Advisory Committee o Affected Peoples Forum	• Signed off entitlement matrix • Minutes from meetings
Livelihood restoration planning	Given that entitlements may not result in a like-for-like replacement for assets, it is critical that investigations are undertaken into the improvement and/or securing of livelihoods through a livelihood restoration programme	• Review previous land use baseline definition • Hold discussions with key stakeholders involved in livelihood activities including traditional authorities and fisherman • Research livelihood opportunities on the basis of entitlements • Discuss livelihood restoration options at the forum detailed above and agree thereon • Identify possible livelihood restoration partners and agree roles • Draft terms of reference for the role-players	• Minutes from meetings • Terms of reference for the respective livelihood restoration partners
Define compensation rates	Compensation rates (where monetary	• Set compensation guidelines	• Compensation rates agreed to

Stage	Objective	Activities	Deliverables

	exchanges are required) need to be researched and base units compiled and communicated to all stakeholders.	• Agree compensation rates with relevant structures:
		  ○ Traditional authorities
		  ○ Advisory Committee
		  ○ Affected Peoples Forum
		• Determine asset values on the basis of the guidelines
			• Asset values per individual reflected on the database

Design monitoring and implementation plans	The effectiveness of the resettlement process will need to be monitored to determine if there is a need for any intervention	• Develop a monitoring and implementation plan as part of the RAP. This can be tested in the feedback on the RAP Report (see below).	• Monitoring and implementation plan
RAP Preparation		• Prepare RAP • Client review • Feedback to all stakeholders: • Traditional authorities • Advisory Committee • Affected Peoples Forum • Finalisation of RAP following consultation	• Draft and Final RAP

The RPF will provide a framework for negotiation with relevant stakeholders and will include:

- Baseline socio-economic data (to be developed through the socio-economic study)
- A list of stakeholders and possible affected people (individual household names will not be identified however, but key stakeholders in the communities and those that participate in the stakeholder engagement and socio-economic studies will be included)
- Applicable Zambian and Zimbabwean legislation with regard to resettlement planning and the requirements of the IFC Performance Standards where applicable
- A desk top analysis of assets and/or structures that may be subject to physical and economic displacement
- A framework for the determination of compensation (the entitlement matrix and compensation rates applied for the dam RAP can be utilised here and tested with key stakeholders
- A framework for consultation with stakeholders
- A framework for the resolution of disputes/submission of grievances
- A programme and plan for further resettlement planning.

The scope of work for the RPF tasks is presented in *Table 9.5*. There are several overlaps between activities proposed as part of this process and those of the RAP for the Dam, socio-economic studies and stakeholder engagement. Fieldwork and discussions with key stakeholders will be combined wherever possible to minimise stakeholder fatigue.

Table 9.5 Scope of work for the Resettlement Policy Framework for the Transmission Lines and Access Roads

Stage	Activities	Deliverables
Project area definition and identification of possibly affected people	• Further discussions with ZRA and the Engineering Team at the Inception Phase Meeting • Further socio-economic and stakeholder engagement work required to identify the possibly affected communities in the area and key stakeholders (District/Local/Traditional authorities)	Map indicating project infrastructure and project affected communities

Stage	Activities	Deliverables
Discussions with key stakeholders and refinement of stakeholder database	To be undertaken as part of the stakeholder engagement plan	As per stakeholder engagement plan
Legislative review	To be undertaken as part of the legal review for the ESIA	To be undertaken as part of the legal review for the ESIA
Asset identification	• Review existing imagery and identify structures and extent of fields wherever possible • Groundtruth this as part of the socio-economic study	• Estimated number of structures within the transmission line servitudes • Estimated extent of fields
Development of the compensation framework	• Reflect on entitlement matrix prepared for the dam RAP identifying: o Assets requiring replacement o Land acquisition procedures o Compensation rates o Eligibility o Valuation process o Livelihood restoration • Present the entitlement matrix to key stakeholders and get their comment thereon.	• Compensation framework • Minutes from meetings with key stakeholders
Development of the RAP related stakeholder engagement strategy	• On the basis of discussions held with key stakeholders, the stakeholder engagement process and the outcome of the socio-economic surveys, develop a plan for stakeholder engagement as part of the RAP process going forward	• Proposed stakeholder engagement plan for the transmission line RAPs
Grievance mechanism development	This will be developed as a part of the dam RAP. Will need to be reviewed for appropriateness and discussed with key stakeholders	• Proposed grievance mechanism for the transmission line RAPs
RAP planning and programme phases to be advised on	• Plan for further resettlement planning to be developed and programmed	• Plan and programme for further resettlement planning

9.6 CULTURAL HERITAGE

9.6.1 *Zimbabwean Scope of Work to Address Identified Gaps*

In order to move forward several gaps need to be filled, while some of the information needs to be checked in the field before informed decisions can be offered:

- There is a need to revisit all of the already recorded sites to verify their location and collect additional information on context and content of the sites. This should be easily done as there are 6-figure grid references

available. Photographs of the material present should be taken, as well as the contexts in which it is found.

- There is a need for additional field work to cover several major gaps in the general overview of the extent of the project. In particular, west of the Gorges Lodge and in the gorge around the Moemba Waterfall and Chimamba Rapids. Any additional sites should be recorded.

- Where there are auxiliary projects their actual footprint needs to be investigated thoroughly. They require 100% coverage to ensure that they are clear of any heritage sites. It is important that all of the following are subject to investigation, either as part of the current project, or as specific and separate ESIAs:

    - The townships
    - The dam construction works
    - The quarry sites
    - Any dump sites for both the township and the construction site
    - All upgraded roads
    - All new roads
    - The airstrip. It is of interest that no sites of heritage significance were located in 1998 on the site where the current airstrip was built (visible on the Google Earth image). This needs to be verified as they indicate that coverage in this section of the project was limited to 12%. It is very possible that sites were not located previously;
    - All transmission lines.

    This is particularly important where there are alternative sites which have not been finalised in the technical proposals. By integrating this research at this point it may assist in making decisions as to the best option – it will avoid future conflicts.

- With this information the existing mitigation procedures offered in the 1998 and to a lesser extent 1993 report, should be reviewed. Are the procedures and costs suggested in that report still relevant to the integrity and importance of the sites concerned? Are these sites still threatened by development given changes to the technical proposals?

- A full heritage report, together with maps and photographs as well as mitigation suggestions should be supplied to NMMZ in accordance to the law and the relevant letters of acknowledgement and authorisation must be sought to be held on file. Given the dominance of the Nambya community in the area it is strongly advisable that copies of the report are also lodged at the Nambya Museum in Hwange.

- There is a need to locate and document the sites of intangible cultural significance. This is best achieved in conjunction with the sociologists

working on the project. It is desirable that they include questions on such sites in their interviews. If the people are willing these sites can subsequently be visited and documented. Records of these sites should be lodged with NMMZ as well as at the Nambya Museum in Hwange.

- It would be useful if the Zambian sociology and heritage experts make further investigations with the Tonga communities and leadership north of the River as to any additional information on the site on Chemapato Hill in what is today Zimbabwe (Civil Consult (Pvt) Ltd and Soils Incorporated (Pvt) Ltd, 1998).

- A chance finds procedure will be prepared and included as part of the ESMP.

9.6.2 Zambian Scope of Work to Address Identified Gaps

In order to address the identified gaps, a site field trip will be undertaken in the Project area. This will include interviews with key stakeholders and identifying any sites not yet identified (especially along the transmission lines), as well as updating data on existing sites through visiting sites already identified and verifying their locations. GPS locations and photographs of the material present will be taken, as well as descriptions of the contexts in which it is found. Sites of intangible cultural significance will also be identified. The trip will also encompass a visit to the National Heritage and Conservation Commission and National Museums Board in Lusaka to verify what cultural sites are on record in Zambia.

Data collected will be reviewed and analysed. The existing mitigation procedures noted in the previous studies will be reviewed to assess their validity and will be used to support the development of mitigation measures for the ESIA to be developed as part of the Project.

9.7 STAKEHOLDER ENGAGEMENT

A Stakeholder Engagement Plan (SEP) has been prepared for the Batoka Gorge ESIA with a specific focus on the engagement required during the Scoping Phase of the Study, but also highlighting requirements for the remaining phases. The approaches to be adopted during Scoping will be tested and effectiveness assessed for subsequent stages of engagement.

The draft SEP developed at this stage of the Project is provided in *Annex A*.