

# **MURUM Hydroelectric Power Project Resettlement Action Plan**

Final Report

**November, 2011**

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## ACRONYMS

ATC – Agriculture Training Centre  
 AA – Agriculture Assistant  
 ADTEC – Advanced Technology Training Centre  
 AKDC – Asap-Koyan Development Committee  
 AFO – Area Farmers Organisation  
 ATC – Agriculture Training Centre  
 CDA – Community Development Assistant  
 CDC – Community Development Coordinator  
 CKSB – Chemsain Konsultant Sdn. Bhd.  
 DDC – Divisional Development Committee  
 DO – District Office  
 DOA – Department of Agriculture  
 DOH – Department of Health  
 ED – Education Department  
 ETS – Extension and Training System  
 FAMA – Federal Agriculture and Marketing Authority  
 FES – Front-line Extension Staff  
 GoS – Government of Sarawak  
 HRD – Human Resource Development  
 HEEP – Home Economics Extension Programme  
 HEP- Hydroelectricity Project  
 HRD – human resource development  
 IFC PS - International Finance Corporation Performance Standards  
 IKM – Institut Kemahiran MARA  
 JKR – Jabatan Kerja Raya (Public Works Department)  
 KEMAS – Jabatan Kemajuan Masyarakat  
 km kilometre  
 km<sup>2</sup> Square Kilometre  
 l litre  
 LIT – low tapping intensity tapping  
 L&S – Land and Survey Department  
 M Million  
 m metre  
 m<sup>3</sup>/s cubic metres per second  
 m asl Metres above sea level  
 MW Mega Watt  
 MDG - Millennium Development Goals  
 MPDC – Murum Penan Development Committee  
 NGO'S – non-government organisations  
 NREB – Natural Resource and Environment Board

NTPP – non-timber forest products  
PAC – project affected community  
PAH – project affected household  
PPKS – Pusat Pembangunan Kemahiran Sarawak (Sarawak Skills Development Centre)  
PPPOP - Persatuan Perkembangan Pendidikan Orang Peribumi (The Association for the Development Of Education Of Indigenous People)  
PSC – Penan Service Centre  
PVC – Penan Volunteer Corps  
PWD – Public Works Department (Jabatan Kerja Raya)  
REA – Resident Extension Agents  
RISDA – Rubber Industry Smallholder Development Authority  
RO – Resident’s Office  
RRIM – Rubber Research Institute Malaysia  
SAVTI – Sarawak Vocational Training Institute  
SAU’S – Small Agriculture Units  
SCORE – Sarawak Corridor of Renewable Energy  
SEB – Sarawak Energy Berhad  
SEIA – Social and Environmental Impact Assessment  
SFC – Sarawak Forestry Corporation  
SFD – Sarawak Forest Department  
SMD – Sarawak Museum Department  
SMU – Special Murum Unit (in the SPU)  
SPU – State Planning Unit  
UNDRIP - United Nations Declaration for Rights of Indigenous People  
VSDC – Village Security and Development Committee  
WB OP - World Bank Operational Procedures  
WEDA – Women Economic Development in Agriculture  
WEDP – Women’s Economic Development Programme



## DEFINITION OF TERMS

### Contemporary Ethnography

Is the detailed documentation of all Project Affected Persons and their assets through structured interviews, detailed surveys, household enumeration and questionnaires, and map review.

The contemporary ethnography provides:

- A record of the ethnography of the communities;
- A complete inventory of affected households and their assets as a basis for compensation;
- Identifies non-entitled persons; and
- Minimises the impact of a later influx of “outsiders” to the Project area.

The Contemporary Ethnography was also used to prepare a profile of the affected people and to prepare this Resettlement Action Plan. The survey results have been used to:

- Assess income, identify productive activities, and plan for income restoration;
- Develop relocation options, compensation packages and entitlement policies; and
- Develop the social preparation phase for vulnerable groups.

### Compensation

Compensation includes the process of financial or material reimbursement for Project Affected Households (or Persons) who lose partial or absolute value of their assets as a result of the Project. Compensation also includes the valuation and reimbursement in monetary terms or in kind of financial and physical losses as a result of impacts of the Project.

### Household

The Penan family unit or household is referred to as a *lamin*. A *lamin* is theoretically formed upon marriage, but whether the couple remains in the natal household generally depends on practical constraints. Many of the Penan households have grown to a size where they wish to fission, but are unable to do so because of the difficulty involved (i.e. finding the timber and other building materials to add apartments for new *lamin*).

### Ownership

Ownership is recognized through village oral records, history and registration in the household register prepared for the Contemporary Ethnography. In the event of a dispute over ownership, it is up to the Village Headman and the Village Committee, to decide or to resolve any issues relating to customary and traditional ownership and use right over a particular land or assets.

### PAH - Project Affected Households:

Project Affected Households (PAHs) are those persons residing on or in the vicinity of land affected by the Murum HEP, who on account of the execution of the Project, have their:

- (i) standard of living adversely affected; or
- (ii) rights title, or interest in any house, land (including premises, agricultural, and fruit orchards) or any other fixed or movable asset acquired or possessed, temporarily or permanently; or
- (iii) access to productive assets (including forest) adversely affected, temporarily or permanently; or
- (iv) occupation or place of residence or habitat adversely affected, temporarily or permanently.

By definition, these PAHs are entitled to compensation, resettlement and rehabilitation. Eligibility to any applicable compensation and rehabilitation for PAHs is based on: (a) ownership; and (b) use.

### **Replacement Cost**

With regard to land and structures, "Replacement Cost" is defined as follows:

a) For agriculture land: it is the pre-project 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.

b) For residential land: it is the pre-displacement value of land of at least 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.

c) For houses and other structures, it is the cost needed to build a replacement structure with an area and quantity similar to or better than those existing structures, plus the cost of transporting building materials to the construction site, plus the cost of any labour and contractor fees, plus the cost of any registration and transfer taxes. (In determining the replacement cost, depreciation of the asset and the value of salvage materials are not taken into account, nor is the value of benefits to be derived from the Project deducted from the valuation of an affected asset.)

d) Crops, trees and other perennials based on current market value:

1. Compensation for annual crops is equivalent to the production over the last three years multiplied by the market price for agricultural products at the time of the calculation of the compensation; and
2. Compensation for trees includes total investment costs plus production costs from the time of its planting to the expropriation. In case this cost cannot be determined, the compensation will be calculated on the basis of the type, age and productive value.
3. Other assets (i.e. income, cultural, aesthetic) based on replacement cost or cost mitigating measures. For example, compensation for the movement of graves includes all expenditures for exhumation, movement and reconstruction to its original state.

### **Vulnerable People (or Groups)**

Distinct groups of people who might suffer disproportionately or face the risk of being marginalised by the effects of resettlement; and specifically :

- a) Poor families, (i.e. those households falling below the rural poverty index);
- b) Physically handicapped people or people in poor physical health; and

c) Infants, children and women headed households.

## **EXECUTIVE SUMMARY**

### **BACKGROUND**

The Murum Hydroelectric Power Project (HEP) is located on the Murum River, a tributary of the Balui River in Belaga District, Kapit Division in northeastern Sarawak. The reservoir created by the Murum dam will affect over 1,400 persons (353 households) in six Penan and one Kenyah Badeng longhouse settlements. As a result of the impoundment, these communities will need to be resettled in new sites. The Government of Sarawak (GoS) sees the resettlement of the communities as an opportunity to bring development and progress to an area that was previously economically isolated and without basic social and civic amenities. The resettlement will address two major sets of issues:

- Replacement of losses resulting from the HEP; and
- Poverty eradication through livelihood enhancement.

The Resettlement Action Plan (RAP) is the culmination of the Social and Environmental Impact Assessment (SEIA) study carried out in consultation with the local communities. The SEIA complies with international standards for resettlement, including the World Bank Operational Policies (WB OP), the International Finance Corporation Performance Standards (IFC PS) and the United Nations Declaration for Rights of Indigenous People (UNDRIP).

### **PROJECT DESCRIPTION**

Sarawak Energy Berhad (SEB) is the holding company developing the Murum HEP. The 140 m Murum dam will create a reservoir with a surface area of 245 km<sup>2</sup> and a storage capacity of 12 billion m<sup>3</sup> runoff water. The full supply level (FSL) of the reservoir will be elevation level (EL) 540 m above sea level and the dam will have an installed capacity of 944 Mega Watts. Downstream of the dam the Murum River flows into the reservoir created by the Bakun HEP dam.

Access to the dam is via a permanent 66 km road extending from the Km 65 point of the Bintulu-Bakun Road to the Project site. A further 7 km of internal roads provide access between the dam, the powerhouse and intake area.

Electrical energy generated by the project will be transmitted via high voltage transmission lines to a substation near Bintulu, a distance of approximately 150 km. This substation serves as the connection point to the Sarawak Power Transmission Grid.

Sarawak Energy Berhad is the owner of the Murum HEP and as part of their Corporate Social Responsibility (CSR) has a policy for assisting communities. SEB has pledged to assist communities in the state to bring them into the mainstream of development.

### **RESETTLEMENT POLICY FRAMEWORK**

While there is currently no specific resettlement policy in place at either the State or Federal levels, the existing legislation and institutions are deemed sufficient to address the issues and pertinent matters arising from the Murum Dam project. A special unit within the Sarawak State Planning Unit has been formed to coordinate the relevant government agencies involved in the resettlement exercise and ensure implementation conforms to international standards,

One of the key government agencies with over-arching responsibilities is the Ministry of Planning and Resource Management. Any project involving resettlement of communities will ultimately come under the planning guidance of the MPRM or one of the agencies it oversees. The legislation relevant to the resettlement process includes:

- The Sarawak Land Code covers all matters dealing with land in Sarawak. The Department of Land and Survey Sarawak is the authority to enforce and monitor the Land Code and of their nine divisions or branches The Land, Planning, Native valuation and Enforcement Branches have particular relevance to the resettlement.
- Natural Resources and Environmental (Amendment) Ordinance 1993. The Social and Environmental Impact Assessment for the dam project is a requirement of this ordinance and the Natural Resources and Environmental Board (NREB) is the responsible agency.
- Sarawak Forest Ordinance provides for the protection and management of the forests of Sarawak including regulations on the extraction of forest produce, the procedures for establishing communal forests, and the inclusion of community rights to forest access.

### **Land Ownership of Penan communities**

The Penan communities have been resident in the Murum area for generations and have been semi-settled and living in longhouses since the late 1960's. Their territories are defined by the presence of burial sites, former habitation sites, access trails and areas commonly used for gathering forest produce and hunting.

For the Penan, land represents the assurance of their survival and is testimony and witness to their existence. Their territorial domain covers a large area with hunting and gathering trips as far as 10 km from the main settlement as normal. Ownership of land in the territory is based on the principle that the plot belongs to the first person to cultivate that plot – the 'first feller' principle. This also applies to resources such as fruit and sago trees, except instead of felling, the tree is marked to indicate usufruct "ownership". These customary rights to land are generally untitled or undocumented but the land can be passed from one generation to the next in accordance with the local custom and *adat*<sup>1</sup>.

Forest resources are viewed as a community asset with all members having a responsibility to maintain the resources in order to share the benefits and to ensure the resources are preserved for the future.

Under the Sarawak Land Code, the Penan community rights of territory need to be established (and recognized) through means than clearing for agriculture such as:

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<sup>1</sup> Local traditional law

- The planting of fruit trees;
- The occupation or cultivation of the land;
- The use of land for a burial ground or shrine;
- The use of land of any class of rights of way.

### International Commitments

Malaysia is signatory to a number of international commitments including the United Nation Declaration on the Rights of Indigenous People (**UNDRIP**), created to protect the rights and privileges of indigenous people. To meet the International Finance Corporation's requirements under the Equator Principles, the Handbook on Preparing a Resettlement Action Plan (RAP) and The World Bank Operational Manual on Involuntary Resettlement provide the guidelines for preparation of the RAP.

### THE COMMUNITIES

The seven Project Affected Communities (PACs) are located in the river valleys of the Danum and Plieran Rivers, Belaga District of Kapit Division. These communities, their longhouses and the surrounding lands will be inundated by the dam project. In total, 353 households with 1,417 people (as of August 2011) comprised of 335 Penan households with 1,304 Penan and 18 Kenyah Badeng households with 113 Kenyah will be affected.

Community	Households	Population
Long Wat	89	347
Long Malim	54	222
Long Luar	52	198
Long Pelutan / Menapa	42	166
Long Singu	67	258
Long Tangau	31	113
Long Malim (Kenyah Badeng)	18	113
<b>Total</b>	<b>353</b>	<b>1417</b>

Two other Penan settlements (Long Jek and Long Peran) will not be inundated by the MDHEP, but have been affected by the loss of surrounding forest on which they depend for their livelihoods. The total population of these two settlements as of March 2010 was 313 in 83 households.

With the exception of Long Tangau and Long Luar the communities have logging road access providing a link to the Sungai Asap settlement as well as to the main service centre of Bintulu.

All the communities have had longhouse style houses built for them by the logging companies. This style of living is desirable as it **retains the important communal values of sharing and cooperation**. The communities have expressed a desire to have basic modern infrastructure facilities and access

to other nearby social facilities (e.g. schools, clinics, roads, water and electricity).

### **Summary of Socio-Economic Characteristics**

The Murum Penan communities began a shift from hunting-and-gathering to a more settled, agriculture-based way of life approximately 40 years ago. The household economy is a subsistence-based on farming and hunting, fishing and gathering of forest products. There is no cash crop farming (other than opportunistic sales of in-season fruit). The economy hinges on farming and forest-based gathering activities – the former characterised by low farm productivity and the latter by rapidly declining forest resources.

The rate of engagement in wage-earning employment is low with the average wage per family is a meagre RM102 per month. Allowances are received from the timber companies but are not regular and very low (estimated average is about RM54 per month). All families are thus well below the Sarawak official rural poverty line index of RM830 per month. There are four principal sources of cash income:

1. Non-wage activities (sale of forest products or crafts);
2. Wage-earning activities (timber, palm oil and other employment)
3. Allowances from timber companies.
4. Assistance from government

Transition to a more cash-based economy will take time and the forest remains as a “safety net” for survival. Strong community ties are important, providing a form of “social insurance” to survive periods when food is in short supply, hunting and fishing returns are low, and there is no money. The community aspect of Penan life is core to their survival and has been highlighted as an important factor as to why they wish to remain in their respective communities.

### **Agriculture**

Current farm productivity is low with minimal field maintenance and no fertilizer inputs. To provide sufficient land for staple food production and cash crop planting, a household requires at least **14 hectares of land**, with 6 – 8 hectares of land for swidden cultivation and the rest for the other crops. Agriculture extension will be a crucial component of the livelihood restoration for the resettled communities.

The Penan have had little or no experience with livestock farming. As most households do not produce sufficient food to even meet their needs, this situation must be overcome before livestock rearing can be promoted.

### **Education**

None of the Murum communities have access to essential services such as schools, clinics, grocery shops or other service institutions. Travel times to Sungai Asap range from one to five and a half hours along logging roads. The total number of persons who have had some form of formal education system and are deemed literate is 164 persons or 9.5% of the total population. The factors contributing to lack of schooling among the Penan are:

- The distance of their homes from school.
- Dependence logging companies for transport

- The cost of the travel between the school and community
- Students not doing well in class and becoming discouraged.

### **Health Services**

The Sarawak Health Department provides health care services to the Murum area through its Health Clinic at Sungai Asap. The mobile Village Health Team (VHT) and the Flying Doctor Services (FDS) visit each of the longhouses at least once a month. Even though the Sungai Asap government clinic provides free service to the communities, the physical access to this clinic for the Penan is a major constraint. There is no public transport available and the only means of transport is by getting lift from whatever vehicle is available (normally the vehicles of the timber company).

### **Description of Impacts and Inventory of Losses**

The impacts of the Murum HEP and the losses can be categorised into three general asset areas: Forest; Farming; and Social and cultural.

<b>Area Impacted</b>	<b>Losses</b>
<b>Forest Area</b>	-Forest resources providing food needs and for materials used in daily living -Protein sources (fish & wildlife) -Wild fruits and sago
<b>Farming Area</b>	-Areas of farm land providing staples -Fruit trees, tended sago groves, and other tended garden areas
<b>Social – Cultural Areas</b>	-Long house assets and buildings -Burial grounds & Cultural heritage areas Road Access to sites

### **Vulnerable Households**

Moving an entire community to a new area will be a traumatic and difficult process requiring adjustment and adaptation to new surroundings and new means of livelihood. There are members within each community who may find difficulty in adjusting and may require additional assistance or guidance.

<b>Community</b>	<b>Households below the Rural Poverty Index</b>	<b>Household heads without IC</b>	<b>Elderly Household Heads (<math>\geq</math> 65 years)</b>	<b>Single heads of household</b>
Long Wat	89	56	4	9
Long Malim	54	25	2	7
Long Luar	52	46	3	1
Long Pelutan	42	35		2



Long Singu	67	52	6	3
Long Tangau	31	22		2
Long Jek	49	27	4	1
Long Peran	34	22		2

## ENTITLEMENTS AND BENEFIT-SHARING

The affected communities entitled to benefits and compensation due to losses resulting from the Murum HEP have been included in the household register prepared when the communities were surveyed during the Contemporary Ethnography study.

An entitlement matrix has been prepared outlining the criteria for entitled households, the compensation and rehabilitation measures and how these address the resettlement demands submitted by the communities to the government through the MPDC. The project affected communities and households are entitled to compensation and livelihood restoration in the following categories:

1. Loss of Land – replacement community and agriculture land and access to areas of forest.
2. Loss of houses and other structures – replacement houses and community structures at the resettlement site
3. Loss of crops and other productive assets – compensation according to Land and Survey assessment and schedule of rates. Assistance to reestablish crops and livelihoods
4. Loss of common resources – Granting of access to areas of forest for collection of produce.
5. Transition assistance – allowances and support during the resettlement process
6. Loss of community cultural features – compensation for items according to the Museum department and support for ceremonies.
7. Loss of community structures – replacement at the resettlement sites and provision of new facilities in the service centre

### Benefit-sharing

Establishing partnership agreements between developers and local communities is recognized as one of the most innovative form of benefit sharing. For the developer, a partnership provides an assurance of the local acceptance of the project, thereby reducing the level of risk and the cost of lengthy feasibility studies and authorization processes. For the local communities, it is recognition of their entitlement to a share of the economic rent generated by the dam as well as of their rights to have a say in the management of local water resources.

## RESETTLEMENT SITE SELECTION AND RELOCATION PLAN

The communities were consulted on their choices for resettlement. The Danum communities of Long Wat, Long Malim and the Long Malim Kenyah Badeng have agreed to be resettled at Sungai Tegulang; and the Plieran

communities of Long Singu, Long Menapa, Long Luar and Long Tanggau have requested to be resettled at Sungai Metalun, Plieran.

The **Tegulang** site occupies an area of 5,710 ha and is located approximately 15 km by logging road from the main access road to the Murum HEP dam. The **Metalun** site is 4,420 ha and will be accessible from the Murum HEP dam by boat (1.5 – 2 hours) across the reservoir. These areas provide sufficient arable land to support the communities and provide for transition into cash crop agriculture for at least the next 10 to 15 years.

The Murum Service Centre will be located adjacent to the reservoir and the Murum HEP dam site and have direct road access to the Tegulang Resettlement Area

The proposed resettlement areas and areas of forest for community access were presented to the government for approval in February 2011.

## LIVELIHOOD RESTORATION

The resettlement is viewed as opportunity to improve the lives of the Penan with the livelihood restoration having the following objectives:

- To eradicate poverty among the affected communities.
- To uplift the standard and quality of life of the affected communities.
- To develop the capacity of the local people to participate in the economic opportunities created by the HEP and SCORE.

The livelihood development goals for the affected communities under the Resettlement Action Plan are:

- Household incomes of affected communities significantly above the poverty line index level.
- Communities are self-supporting with a capacity for sustainable development and responsible for their own socio-economic environment.
- The standard and quality of life on par with other communities in the State.

The livelihood development strategies focus on the following key development areas:

1. Agriculture projects - to improve income and adequate food
2. Forest Access - for non-timber forest products (*NTFP*) for crafts.
3. Agriculture extension and training - for improved farm technologies
4. Home Economics Extension Programme - to improve nutrition and health and quality of life
5. Cottage industry support - for handicrafts, blacksmithing, wood-carving
6. Support to SMEs
7. Farm market support - to enhance marketing and output delivery system.
8. Human resource development (*HRD*) - vocational and skill training programmes.

A number of employment opportunities will be possible in association with the education, health and agriculture extension programmes as well as with

economic activities associated with the Murum HEP. Priority for these opportunities is to be given to members of the resettled communities with training for the jobs a priority.

Some of the employment opportunities include:

- Employment with the construction of resettlement facilities
- Village-based health care workers
- Agriculture extension assistants
- School assistants, supervisors
- Drivers & Boat men
- General school workers, cooks, cleaners, maintenance personnel, matrons
- Clinic attendants, assistant medical personnel,
- Contract workers

## **SOCIAL DEVELOPMENT AND COMMUNITY STRENGTHENING**

The four major areas requiring initial support and guidance and then monitoring to ensure the success of the resettlement are:

- Community Health – to improve nutrition and hygiene
- Education – focusing on pre-school, kindergarten and primary levels for children and adult literacy, remedial classes and vocational training
- Agriculture – agriculture extension will be a key component of the livelihood restoration and is linked with vocational training.
- Employment – there are a number of employment opportunities and these need to be linked with potential candidates. Training needs will have to be identified and addressed.

Liaison personnel from each community will be key players in this process as they will provide the link from the ground to the implementing agencies. A key agency to oversee implementation will be the **Murum Resettlement Unit**, located in the Murum Service Centre. This agency will be the direct link to the communities and the **Community Development Coordinator** will be a key liaison person to oversee all the development programmes and act as an intermediary or coordinator between the communities, the implementing agencies and the government.

Efforts are needed to establish appropriate grassroots institutions especially women groups, youth groups and specific groups for a particular project (e.g. vegetable gardening, sago planting, fruit trees planting projects) in the resettlement area.

## **CONSULTATION, DISCLOSURE AND GRIEVANCE**

### **Preparation of the RAP**

The RAP development process has involved the participation of key members of the study team, Government, Penan community representatives and non-governmental organisations. The core information for preparation of the RAP is based on the findings of the Contemporary Ethnography Report and the

Culture and Heritage Management Plan. This information was gathered through household surveys, group discussions, dialogues and structured interviews as well as the incorporation of information from earlier consultations with the affected communities.

### **Disclosure**

The SEIA, Contemporary Ethnography Study and RAP for the Murum HEP is to be made available to the public in accordance with the IFC's policies. All reports and documents will be presented and discussed with the MPDC to gather their feedback and comments before and publicly disclosing the information. The main documents will be available in key public locations in Sarawak as well as online through the Murum website.

### **Grievance Mechanism**

In consultation with representatives from the affected villages, a mechanism for communicating grievances and issues was proposed and discussed. The representatives of the villages agreed that the Murum Penan Development Committee (MPDC) represented them to the government and endorsed the concept of the grievance mechanism. The Murum SEIA Working Group endorsed the grievance mechanism as a satisfactory method for receiving information from the villages and a means to communicate with the villages. A Community Executive, based in the Murum area was later appointed to deal with the grievance from the communities included in the MPDC.

## **INSTITUTIONAL SETUP**

The key **guiding principles** for the establishment of an effective and efficient institutional framework for implementing the Murum HEP Resettlement Plan is that all agencies involved in the implementation of the Resettlement Plan share the same goal; i.e. poverty alleviation and uplifting the standard and quality of life of the project affected communities.

To oversee and manage the resettlement, a three-tier system is proposed consisting of:

- A policy-making level,
- An inter-agency coordination level, and
- An implementation level with a dedicated ground unit.

The **Murum Resettlement Unit**, is to be staffed with specific community development and development coordination personnel to significantly bolster the implementing function. The unit would be responsible for dealing with matters related to the resettlement programme and projects and would be based at the Murum Service Center. The unit would serve all the resettled communities and would report to the the Deputy Resident who is responsible for development projects.

A **Community Development Coordinator** (CDC) would be responsible for monitoring and coordinating the programmes that contribute to the overall wellbeing of the resettled Penan. Community liaison personnel would provide linkages between the communities and the CDC and provide feedback on how the communities are adjusting to the resettlement. The CDC would play a

critical role as an important linkage for information flow to the Resident's Office and the other line agencies. Having the communities involved in this process (whether through the CDC or the community organisations) will enable their views and concerns to be incorporated.

### **Strengthening Management and Organisation**

Successful resettlement of the communities affected by the Murum HEP will require long-term monitoring of the programmes and projects and the ability to adapt to new and changing situations. The Special Murum Unit (SMU) based in the SPU should be strengthened through the establishment of the **HEP Resettlement Sector**; a permanent fixture in the SPU acting as the secretariat dealing with the management of all aspects of HEP resettlements in the State. To ensure that the HEP Resettlement Sector functions effectively, adequate manpower is required.

### **Community Organisations and Foundation**

The **Murum Penan Development Committee** (MPDC) can continue to play an important role in community development as a conduit of information between the community and the District Office using the established headman setup. The MPDC provides a broader representation of the communities and also provide the scope for communication with other agencies, including non-government agencies.

The **Murum Community Development Foundation** should be established to support implementation of the resettlement programmes and provide alternative means of project funding. Based in the Murum area, this support agency should include the participation of the local communities and have the role of identifying community needs and communicating these to the relevant authority or addressing these needs directly. An important aspect of this would be the ability to raise and receive funding and to implement projects at the ground level. The core activities of the foundation would focus on providing and facilitating community services including:

- Training programmes (in association with the agriculture extension)
- Education – community pre-schools, kindergartens and adult literacy classes
- Transportation – for school children and to and from the clinics
- Community projects – based on the needs identified.
- Micro-financing – for projects in the communities
- Establishing village shops and trading centres

The foundation would require budgets to hire and train local staff and to finance projects, programmes and the purchase of equipment. The foundation can also cooperate with local and foreign volunteer organizations willing to support through funding or capacity building.

## **MONITORING AND EVALUATION**

**Monitoring** is an internal function focusing on specific situations or difficulties arising during implementation, and of the compliance of implementation with

objectives and methods set out in the RAP. Reporting of the monitoring results is an important step in the process to provide information regarding the effectiveness of programme strategies towards achieving programme goals. This provides a means of correcting implementation methods during the course of resettlement program implementation as required. Monitoring is based on indicators of change relevant to the resettlement process and will be based as much as is possible on participation with affected households and communities. A summary of potential monitoring areas on which indicators will be based is outlined below

<b>Overall social and economic status</b>	Social and economic status of households, and villages Reestablishment of agriculture Actions targeting vulnerable groups Access to employment and business opportunities
<b>Compensation and negotiations</b>	Compensation payments made, timing of such payments Contracts and associated arrangements
<b>Resettlement</b>	Resettlement options finalized Relocation details and arrangements Accommodations at relocation sites (house types, costs, facilities etc) Relocation site development progress (status of construction works, testing and commissioning of housing, schedules etc)
<b>Economic restoration activities and measures</b>	Economic restoration programs implemented Participation in assisted programs Skills enhancement programs and activities Small loans components Economic support programmes
<b>Consultation &amp; disclosure</b>	Perception of resettlement program Satisfaction with compensation and other assistance Information provided to affected households, villages and other stakeholders
<b>Complaints/grievances</b>	Number, type and cause of complaints/grievances Resolution rates and effectiveness of complaints settling

**Evaluation** is an external process focusing on emergent, mid- and long-term impacts of the Project on the welfare of impacted households, communities, environment and local government and capacities. The aim is to provide lessons learnt for amending strategies and implementation in the longer term.

Evaluation will be conducted to:

- (i) Assess the compliance of the implementation of the RAP with objectives and methods set out in this document;
- (ii) Assess the compliance of implementation of the RAP with laws, regulations and safeguard policies;
- (iii) Evaluate the implementation of the RAP to achieve its objectives in particular "to improve or at least maintain the income and living conditions of the affected households after the resettlement process"; and
- (iv) Identify actions to be part of the ongoing monitoring process to improve the positive impacts of the program and to mitigate any possible negative impacts.

Evaluation reports should be publicly released and be available at the Project Information Centre at the Murum Service Centre and other relevant locations.

## RESETTLEMENT COSTS

### Infrastructure Development Budget Estimates

The estimated costs for establishing the infrastructure for the total resettlement scheme over the next 8 to 10 years are approximately **RM 893,839,000**. This includes all land clearing and site preparation, access roads, services, infrastructure and building costs for the two resettlement sites as well as for the the Murum service centre and the Metalun mini-service centre. A summary of the estimated infrastructure development costs is outlined below.

(RM '000s)	Phase I Stage 1	Phase I Stage 2	Phase II	Total
Tegulang	141,296	30,000	1,560	172,856
Metalun	181,080	30,000		211,080
Murum Service		136,800	111,000	247,800
Metalun Service		57,000	50,000	107,000
Supporting Infra	8,321		27,000	35,321
Livelihood restoration		93,575	26,207	119,782
<b>Total</b>	<b>330,697</b>	<b>347,375</b>	<b>215,767</b>	<b>893,839</b>

### Livelihood Restoration and Resettlement Support Costs

The estimated total budgets for the agriculture assistance programmes are outlined below.

Item	Costs (Year one) (RM)	Total Cost (6 years)
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Crop establishment / Agriculture support	9,809,400	22,985,400
Training programs / market support	847,200	3,320,000
Moving allowance / relocation support	1,735,000	1,735,000
Annual transition support until crop production reached	3,539,400	12,242,800
Total Cost	15,211,000	40,283,200
(Total Per household)	(43,835)	(116,090)

## IMPLEMENTATION SCHEDULE

The Murum HEP is due to be completed by May 2012 when impoundment will commence. Given this schedule, the resettlement scheme has to be developed in phases to ensure that essential works can be completed to accommodate the resettled communities by early Year 2012. The development phases and work to be completed in each are outlined below.

Phase	Development needs
<p><b>Phase 1- (a):</b>  <b>(Basic Infrastructure Implementation)</b>  <b>2011-Q1 2013</b></p> <p><b>Proposed implementing agency: SEB</b></p>	<p>In advance of the village relocation, completion of community structures and services including:</p> <ul style="list-style-type: none"> <li>• Housing (one unit per household in designated resettlement sites).</li> <li>• Land clearing, and earthworks of 1 ha per household (for house) and 3 ha per household for home garden plots (fruit trees and vegetables)</li> <li>• Access roads to the villages</li> <li>• Pre-school/place of worship/community hall in the village</li> <li>• Reliable power and potable water supply</li> <li>• Sanitation</li> <li>• Basic community structures including burial ground (Metalun only)</li> </ul>
<p><b>Phase 1 – (b - c)</b>  <b>(Livelihood Restoration &amp; Poverty Eradication) 2011 – 2013</b></p> <p><b>Proposed implementing agency: State Government</b></p>	<p>After relocation, the following community structures and support will be required:</p> <ul style="list-style-type: none"> <li>• Primary schools</li> <li>• The Murum service centre and Metalun mini service centre with: <ul style="list-style-type: none"> <li>○ agriculture centre and extension services</li> <li>○ Home economics and vocational training programmes</li> <li>○ Transitional support as required</li> <li>○ government administrative offices and</li> <li>○ basic infrastructure in the service centres.</li> </ul> </li> </ul>



<p><b>Phase 2:</b> <b>(Elevation of Living standards) 5 years plan from 2013-2018</b></p> <p><b>Proposed implementing agency: State Government</b></p>	<p>Upgrading of access roads to the service centres, Improvements to the main Murum service centre and Metalun mini service centre including secondary school in Murum service centre, permanent jetty, telecommunication services, commercial units etc.</p> <p>Secondary school at Murum service centre</p>
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### Relocation Schedule

The Murum HEP Dam is slated for completion by the end of 2012 with impoundment and flooding to commence in early of 2013. Key milestones to implement prior to relocation of the communities include:

- (i) Detailed plans and designs for the resettlement scheme completed and approved;
- (ii) Tender document prepared released for tender;
- (iii) Houses for the communities to be resettled at Tegulang and Metalun constructed;
- (iv) Garden plots prepared and rubber estate initiated;
- (v) Murum Resettlement Unit office established in Murum to oversee the resettlement
- (vi) Agriculture office established and ready to implement extension programmes,
- (vii) Basic infrastructure (power, water, sanitation, access roads) established.

# 1 INTRODUCTION

## 1.1 Background

The Murum Hydroelectric Project (HEP) is being constructed to provide electricity for the industries of the Sarawak Corridor of Renewable Energy (SCORE). The Sarawak State Government has indicated that the construction and implementation of projects and developments associated with SCORE are to follow international standards and this includes the construction of the power supply. The main dam structure for the HEP will be built on the Murum River and the resulting reservoir will affect over 1,400 persons (347 households) in six Penan and one Kenyah Badeng longhouse settlements. As a result of the impoundment, these communities will need to be resettled in new sites. To understand the scope of the impacts (and as part of the Social and Environmental Impact Assessment), a study of the contemporary ethnography was initiated to document the culture, economy, priorities and way of life and to gauge the community views and perceptions toward resettlement. This information provides the baseline data to enable the detailed planning required to address the issues related to resettlement. The contemporary ethnography was the first step in the planning process and describes in detail the social, economic and cultural aspects of Penan.

The Government of Sarawak (GoS) sees the resettlement of the communities as an opportunity to bring development and progress to an area that was previously economically isolated and without basic social and civic amenities.

Thus, the overall objective for the Resettlement Action Plan (RAP) is to use the opportunity of resettlement to implement a poverty eradication programme for the Murum Penan. To achieve these objectives, there are two major sets of issues to be addressed:

- Replacement of the equivalent they have lost as a result of the HEP; and
- Poverty eradication – to improve livelihoods, bringing them substantially above the poverty line.

The RAP provides a set of actions to achieve successful voluntary resettlement and is the culmination of Part II of the SEIA study process. The major components of Part II include: the Contemporary ethnography, the Culture and Heritage Management Plan, the Social Impact Assessment, and the Resettlement Action Plan. The affected communities have been consulted and involved throughout the process and have been kept informed regarding the progress through dialogues and meetings held in the communities and at Sungai Asap.

The SEIA process was carried out to comply with international standards for resettlement, including the World Bank Operational Policies (WB OP), the International Finance Corporation Performance Standards (IFC PS) and the United Nations Declaration for Rights of Indigenous People (UNDRIP). Underscoring this, the Millennium Development Goals (MDG) provide the broad framework for the State and Federal programmes and policies for poverty eradication. These goals can be outlined as follows:

- Eradicate poverty and hunger

- Achieve universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Improve overall health standards
- Ensure environmental sustainability (access to clean water & sanitation)
- Develop partnerships for development

## **1.2 Structure of the report**

The RAP specifies the procedures the Government will follow and the actions it will take to resettle and compensate people and communities affected by the Murum HEP. This document has been prepared through consultation with the communities affected by the Murum HEP and with the relevant government agencies involved in the resettlement. The technical details of the RAP have been prepared for the State Government to meet international standards for the resettlement. As such the RAP provides the context for the agreements between the government and the affected communities and provides the details for implementation. As the resettlement agreement involves matters such as provision by Government of public infrastructure and services (e.g. roads, schools, clinics, electricity), a wide range of Government Agencies have been involved in providing input into the RAP.

The RAP has been prepared in consultation with the communities and with public disclosure of the decisions and agreements reached between the government and affected communities and is consistent with the International Finance Corporation (IFC) Handbook on Preparing a Resettlement Action Plan.

## **2 PROJECT DESCRIPTION**

### **2.1 Project Features**

The Murum project will involve the construction of a dam to create a reservoir in order to generate hydro-electric power. This initiative has been identified as part of the Sarawak Energy's least-cost power development plan. The Hydroelectric Project is anticipated to generate an average of 5,680 Gwh of electric energy per year in order to cater, in part, for the projected rise in electricity demands for domestic, commercial and industrial sectors in the State. In particular, the Murum Hydroelectric Power (HEP) Project is aimed at providing a source of renewable energy to power the developments associated with the Sarawak Corridor of Renewable Energy (SCORE).

The Murum Hydroelectric Power Project (HEP) is located on the Murum river, a tributary of the Balui River in Belaga District, Kapit Division, north-eastern Sarawak. The Murum River is formed by the confluence of Plieran and Danum rivers some 8 km upstream of the dam site.

The total catchment area is approximately 2,750 square kilometers extending to the border with Kalimantan, Indonesia. With the completion of the dam, a reservoir with an area of about 245 square kilometers (24,500 hectares) will inundate the Murum River Valley extending up the Danum and Plieran River Valleys (Figure 2-1). Six Penan communities and one Kenyah Badeng community are currently resident in the areas that will become the reservoir and they will require relocation.

Additionally, the Penan communities of Long Jek and Long Peran will be indirectly affected by the developments in the region. As these communities are in a separate watershed, they will not be affected by the flooding for the reservoir. However, the changes in land use surrounding the reservoir and the loss of forest resources will have an indirect impact on their incomes.

#### **2.1.1 Project Proponent**

Sarawak Energy Berhad (SEB) is the holding company developing the Murum HEP. SEB is principally involved in the power and electricity sector while its wholly owned subsidiary, Syarikat SESCO Berhad has the right to generate, transmit, distribute and supply electricity throughout the State of Sarawak.

#### **2.1.2 Dam**

The MDHEP Project consists of a 141 m Roller Compacted Concrete (RCC) Dam with a crest spillway incorporated in the dam body, an underground headwater conveyance system of tunnels, surge tanks and vertical shafts and a surface powerhouse with four turbine-generator units located approximately 12 km downstream at the rim of the future Bakun Reservoir. The total catchment of the area up river of the Murum dam is 2,750 km<sup>2</sup> extending to the border with Kalimantan, Indonesia. The MDHEP will create a reservoir with a surface area of 245 km<sup>2</sup> and a storage capacity of 12 billion m<sup>3</sup> runoff water. The full supply level (FSL) of the reservoir will be elevation level (EL) 540 m asl. The details of the main features of the Murum Dam are shown in Table 2-1.

There are no communities in the vicinity of the actual dam site and there are also no communities resident downstream of the dam. Downriver, the Murum River flows into the reservoir created by the Bakun HEP dam.

Table 2-1 Specifications and Details of MDHEP.

Item	Unit	Particulars
<b>Hydrology</b>		
Catchment Area	km <sup>2</sup>	2,750
<b>Reservoir</b>		
Full Supply Level (FSL)	m asl	540
Minimum Operating Level (MOL)	m asl	515
Maximum Flood Level	m asl	547
Reservoir Volume at 540 masl	M m <sup>3</sup>	12,043
Reservoir Area	km <sup>2</sup>	245
Filling Time	Years	1.75
Active Storage Volume (540-515 masl)	M m <sup>3</sup>	5,475
Normal Drawdown	M	20
<b>Dam</b>		
Dam Type		RCC Dam
Dam Height	M	141
Crest Elevation (with top of parapet wall)	m asl m asl	546 547.5
Foundation Elevation	m asl	390
Toe elevation: · upstream (plinth) · downstream	m asl m asl	395 390
Crest length	M	430
Crest width	M	7
Width of dam along riverbed	M	75
Dam slopes · upstream (V:H) · downstream (V:H)		0.15 : 0.00 0.85 : 0.751
<b>Spillways</b>		
Crest Length	M	54
Capacity	m <sup>3</sup> /s	2,160
Design Flood	m <sup>3</sup> /s	2,160
Bottom Outlet		1
<b>Power Station</b>		

Installed Capacity	MW	944 (4 x 236 MW)
Number of Turbines		4
Average Turbine Outputs	m <sup>3</sup> /s	240
Maximum Turbine Outputs	m <sup>3</sup> /s	340
Mean Tailwater Elevation	m asl	224.7
<b>Waterways</b>		
Headrace Tunnels		2
Length	M	1,428/ 1,369
Pressure Shaft Length	M	239.51/ 235.64
Lower Tunnel Length	M	988.7/ 1,045

### **2.1.3 Access roads**

The MDHEP is a diversion type power generation project featuring a high water head. The main dam, the intake and the powerhouse are separated requiring the construction of a network of access roads within the Project site.

A permanent 66 km Public Works Department R3 Standard access road is being built to connect from Km 65 of the Bintulu-Bakun Road to the Project site. This road is scheduled for completion by the time the electromechanical components such as the turbines are ready to be transported.

In the meantime, 6 km of five temporary access roads have been built on the left riverbank of the dam, at elevations ranging from 410 to 546 m. These roads range in width from 6 to 10 m. Eventually the road at the highest elevation (546 m) will be converted into permanent access to the dam crest with the lower roads providing access to the downstream and upstream cofferdams.

A further 7 km of 8 to 10 m width roads provide access to the powerhouse and intake area. These roads will be upgraded and maintained as permanent maintenance roads connecting the intake, the powerhouse and the surge tank.

### **2.1.4 Transmission line**

Electrical energy generated by the project will be transmitted via high voltage transmission lines to a substation near Bintulu, a distance of approximately 150 km. This substation will serve as the connection point to the Sarawak Power Transmission Grid. The alignment of the transmission line has not yet been finalized.

### **2.1.5 Dam office and buildings**

All the buildings supporting the construction of the HEP dam and powerhouse are located adjacent to the main Murum dam site (Figure 2-1). This land is state land that has been alienated to the project proponent for the purpose of the HEP dam. There were no communities living in the vicinity of the project or any claims to land used for the purpose of the dam buildings.

## 2.2 Project Alternative

During the preparation of this SIA, no project alternatives were considered because the construction of MDHEP had already commenced at the time of the report writing.