

# SCOPING REPORT FOR RAP 2 OF THE BUMBUNA II HYDROPOWER PROJECT, SIERRA LEONE

Prepared For  
**Seli Hydropwer Limited**

Report Prepared by



SRK Consulting (UK) Limited

UK30264

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## SCOPING REPORT FOR RAP 2 OF THE BUMBUNA II HYDROPOWER PROJECT, SIERRA LEONE

### 1 INTRODUCTION

Seli Hydropower Limited (SHPL) is in the process of developing the Bumbuna II Hydropower Project (referred to as “Bumbuna II” or “the project”), located in the Tonkolili and Koinadugu Districts of the Northern Province of Sierra Leone.

Bumbuna II is an important infrastructure project for Sierra Leone and is a key feature of the Government’s Energy Master Plan, whose principal objective is to provide 30 percent of households with electricity by 2030, compared to 13.5 percent in December 2015.

The implementation of the project will cause involuntary resettlement of Project Affected Persons (PAPs). In line with good international industry practice requirements and standards, SHPL is required to develop a Resettlement Action Plan (RAP) to manage and mitigate the adverse impacts imposed upon the PAPs and host communities.

Due to the proposed construction timelines and associated land requirements of the project, the RAP process has been divided into two distinctive phases. This is to ensure that resettlement management measures are implemented prior to the commencement of any construction activities. The two phases comprise:

- Phase I: the Bumbuna Extension and Yiben early construction areas (“RAP 1”); and
- Phase II: the Yiben Reservoir inundation area (“RAP 2”).

SRK Consulting (UK) Ltd (SRK) and CEMMATS, a Sierra Leonean consultancy firm, have been commissioned by SHPL to prepare RAP 1 and RAP 2. A Resettlement Policy Framework (RPF) prepared as part of the Environmental and Social Impact Assessment (ESIA) for the project (ERM, 2016) forms the basis for the development of the RAPs. As a component of the development of the RAPs, stakeholder engagement has been planned and is being implemented, facilitating involvement of all PAPs in the resettlement planning process.

#### 1.1 Scoping report and objectives

This scoping report focusses on Phase II of the project, and the physical and economic displacement from within the proposed 116 km<sup>2</sup> inundation area of the Yiben Reservoir.

It has been updated from the previous issue in July 2017, to reflect upon work undertaken as part of RAP 1 and other studies which have been completed since this time. It has been prepared to inform the planning and development of RAP 2.

The objectives of the scoping exercise for RAP 2 were to:

- Review all available information and studies applicable to the project;
- Gain a spatial understanding of the project area applicable to RAP 2;
- Meet with key stakeholders and initiate project planning and coordination;
- Determine the extent of physical and economic displacement;
- Reflect on RAP 1 and incorporate lessons learned into RAP 2;
- Identify any additional work or studies required to complete the RAP 2; and
- Identify any particular challenges or constraints for RAP 2.

## 1.2 Project overview

The project is located on the upper Seli River within the Northern Province of Sierra Leone, approximately 200 km from the capital Freetown and 50 km from Makeni, the district capital.

Bumbuna II will consist of two main elements:

- **Bumbuna II Extension:** the expansion of the Existing Bumbuna hydropower plant to comprise a power intake structure, a main headrace tunnel, a new powerhouse (consisting of 2 x 41 mega-watt (MW) turbine units, a tailrace channel and a 4MW environmental flow power turbine (located at the Bumbuna I Environmental Flow outlet). A new 225 kV transmission line will be installed connecting the Bumbuna Extension to the West African Power Pool substation close to the Bumbuna Dam. A separate transmission line will be built by the Government of Sierra Leone that will run from Yiben to Port Loko.
- **Yiben Dam:** the construction of a new dam upstream of Bumbuna, close to the settlement of Yiben, to regulate inflow into the Bumbuna reservoir to reduce seasonal variation and increase the power output from the Bumbuna Extension. A new powerhouse at Yiben will further increase capacity by 54 MW.

This will also include a new transmission line extension (approximately 35 km) from the Yiben Dam parallel to the existing Bumbuna reservoir to the existing Dam at Bumbuna.

The RPF originally identified a total of 44 settlements with an approximate population of 5,600 people within the inundation area. These figures were subsequently updated through a rapid household census conducted by SHPL in 2018. This study identified 36 settlements within the inundation area, totalling 633 households and 3,288 people who will be physically impacted. In addition there are several larger towns and villages outside of the inundation area who use the inundation area for livelihood activities. These include Kondembaia, Yara and Diang Sokralla, as shown on Figure 1-1.

## 1.3 Administrative setting

Phase II of the project is situated exclusively in Diang Chiefdom in Koinandugu District. Diang is one of eleven chiefdoms in the District and one of the least populated. The District Officer and Council administrative headquarters for Koinadugu is Kabala. The Diang Chiefdom's administrative headquarters is Kondembaia, which is situated outside of the inundation area.

## 1.4 Project schedule

Construction of the project (specifically the early works areas covered by RAP 1) is expected to start in 2019 with operations due to commence approximately four years after the start date. The commissioning of the Yiben dam is scheduled for mid-2021 and it is anticipated that it will take a further two years to fill the reservoir, before Bumbuna II becomes operational in 2023.

The development and implementation of RAP 2 will need to be aligned with the proposed construction timelines, to ensure affected households and livelihood activities are relocated and restored in a timely manner. In turn, this will limit any impact on both PAPs and the project schedule.

It is anticipated that the development of RAP 2 will take approximately 12 months to complete, with the process commencing at the beginning of March 2019 and concluding at the end of February 2020. A detailed MS Project schedule has been included in Appendix B-1.

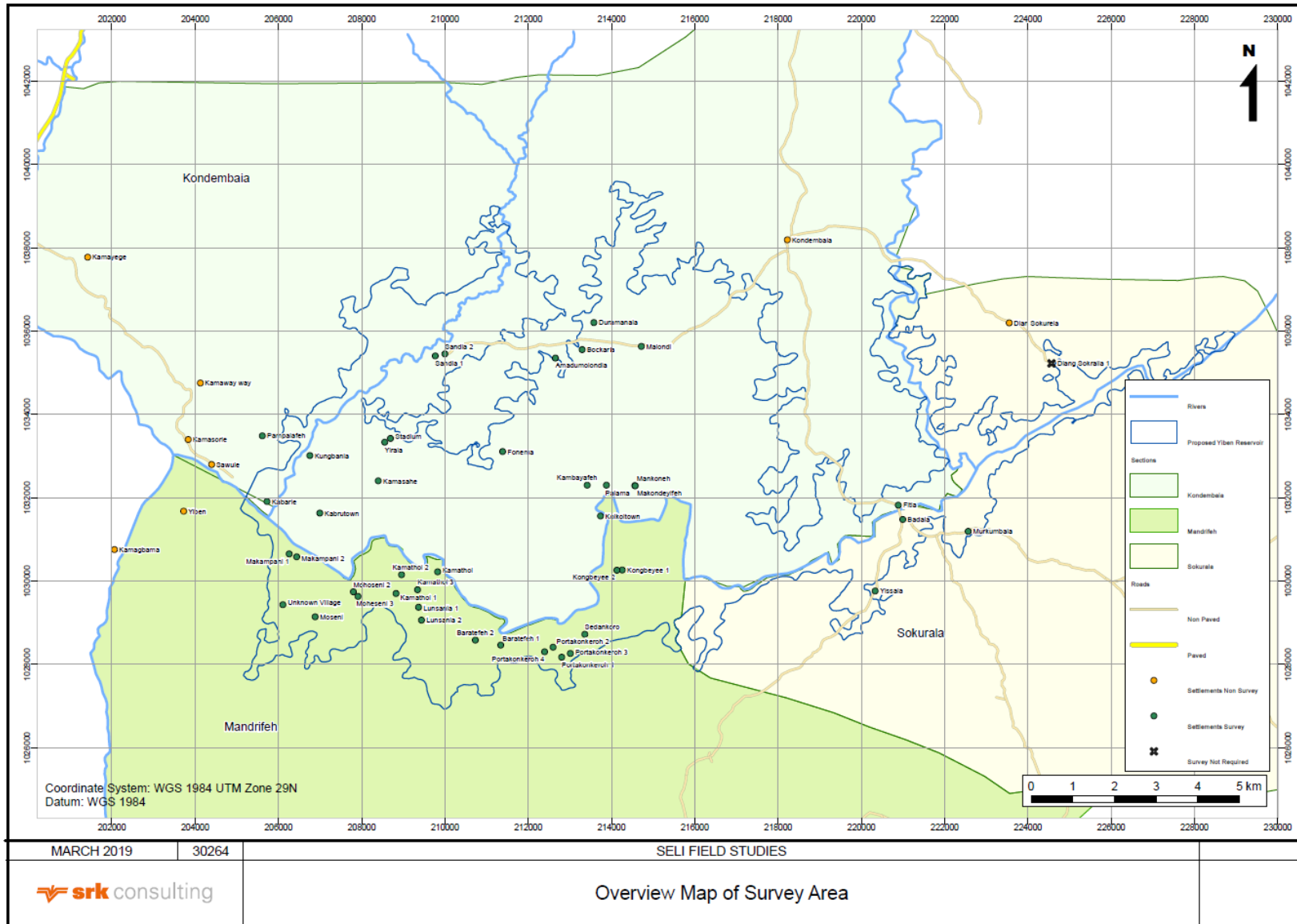


Figure 1-1: Overview of project layout and locality



## **2 SCOPING METHODOLOGY AND ACTIVITIES**

### **2.1 Desktop review**

A comprehensive desktop review of all available documentation and literature has been undertaken. This included the following:

- Environmental and Social Impact Assessment and Resettlement Policy Framework for the Bumbuna II Hydroelectric Power Project (ERM, 2016);
- Bumbuna II Phase I Scoping Report (SRK & CEMMATS, 2017);
- Ecosystem Services and Livelihood Assessment (SRK, 2017);
- Bumbuna II RAP 1 Stakeholder Engagement Plan (SRK and CEMMATS, 2017b);
- Biodiversity Action Plan Scoping Report (The Biodiversity Consultancy, 2017);
- The UN FAO 2015 Food Security and Vulnerability Analysis for Sierra Leone (FAO, 2015);
- Report on Rapid Census of Bumbuna II Hydro Electric Power Project Inundation Area (SHPL, 2018); and
- A situational analysis of ASM activity potentially affected by the Seli Hydropower project, Sierra Leone (SRK, 2019).

These documents provided the team with an understanding of the Project site, some of the socio-economic dynamics and potential challenges.

### **2.2 Remote sensing of project area**

Remote sensing and geographic information systems data, particularly aerial imagery, is a key component to the planning and execution of a resettlement process. Prior to the scoping visit (described in Section 2.3), SRK utilised existing aerial imagery, multispectral imagery and Light Detection and Ranging data to establish a clear overview of the Project area, natural resources, infrastructure and the potentially affected settlements.

### **2.3 Scoping visit by RAP team**

A team of six consultants from SRK and CEMMATS participated in a scoping visit from 24<sup>th</sup> to 26<sup>th</sup> June 2017. To maximise the use of time on site, the visit was combined with meetings and workshops for RAP 1 livelihood restoration planning.

The main objective of the visit was to understand the extent of likely physical and economic resettlement, and to clarify any issues identified from the desk top review. Where possible, villages were visited by vehicle, or by foot, trekking through cultivated areas and native forests. The areas visited are illustrated in Figure 2-1.

To enable effective use of time and to avoid duplication of effort, the inundation area was subdivided into different areas, based on village size and accessibility. The scoping visit team worked in groups and focussed on different aspects. For example, physical and economic displacement were considered separately, as were agriculture and artisanal mining, where appropriate.

The scoping visit considered the following areas:

- **Sandia and surrounding villages:** as the settlements near Sandia, between the edge of the inundation area and the proposed dam construction, had been visited previously in relation to the RAP 1 early works, this area was not re-visited at this time.
- **Badala and Yisaia:** these are two of the largest towns affected by the project and were accessible by vehicle. Villages to the south of Yisaia were visited on foot, involving a 13 km trek through cultivated land and native forest.
- **Koikoitown and surrounding villages:** Koikoitown was accessed partially by vehicle and on foot. This included a 8 km trek via a series of artisanal mining sites and temporary settlements.
- **Diang Sokralla:** The villages between Kondembaia and Diang Sokralla 1 and Diang Sokralla 2 were accessible by vehicle.
- **Bafala and Kabrutown:** due to the rains and water levels, these villages could not be safely accessed by vehicle or foot during the visit.

## 2.4 Rapid census of inundation area

SHPL conducted a rapid household census of the inundation area from the 21<sup>st</sup> to 30<sup>th</sup> August 2018, to provide accurate, reliable and timely benchmark data to inform the planning and implementation of RAP 2. The scope of the census was defined by the 320m hydrology elevation benchmark, which was used to delineate and identify affected communities.

The main objective was to gather information on the size, composition and spatial distribution of the population and communities within the inundation area, and to map this within a geographical information system.

For the purpose of data collection, the inundation area was divided into the three Sections of Kondembaia, Sokralla and Mandrifeh. A household questionnaire was used to collect key demographic information, including: the number of households, population/number of dependents within households, gender, age distribution, the number and type of structures present, and the number of communities identified within the inundation area. Data was collected via face to face interviews.

The enumerators comprised on representatives from SHPL, Koindagu District Council, and Statistics Sierra Leone. The enumerators were provided training on the data collection methodology and ethics.

A summary of the key findings of the SHPL rapid census is provided in Section 4.1.2.

## 2.5 RAP 2 workshop

A four-day workshop was held in Freetown in November 2018 to kick-off the RAP 2 process, involving representatives from SHPL, Joule Africa, SRK and CEMMATS. The workshop included a review of lessons learned from RAP 1, and planning in relation to the zoning of the inundation area, logistics, livelihood restoration, and data management for the RAP 2 census and stakeholder engagement.

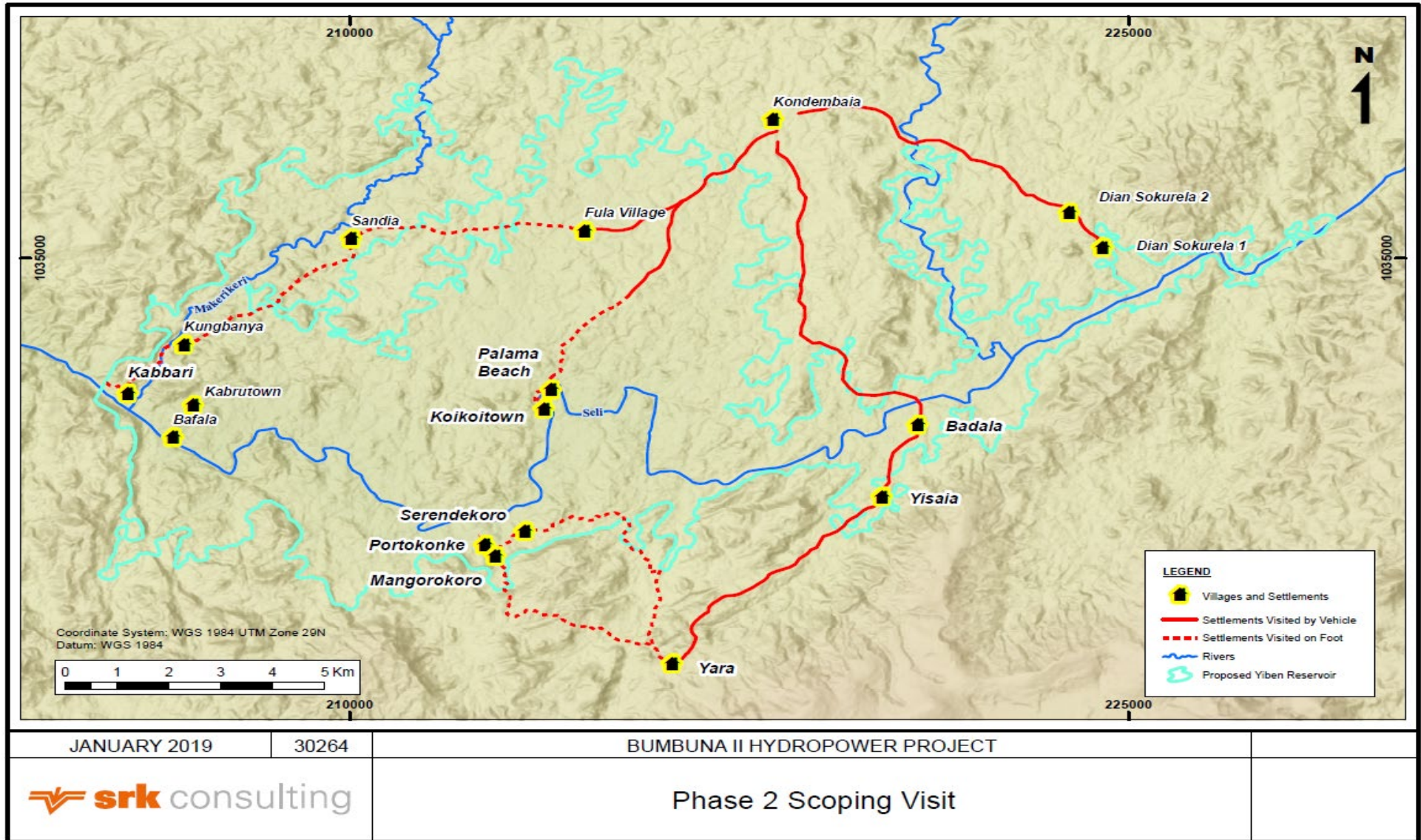


Figure 2-1: Areas visited during Phase II Scoping in June 2017

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### **3 GOVERNANCE AND STAKEHOLDER ENGAGEMENT**

#### **3.1 Governance structures**

During the development of RAP 1, the complexities of local governance structures became apparent. It is important to understand the governance relationships at a regional, district and chiefdom level, as these will impact on the development and implementation of the RAP 2.

A number of Acts have been passed in recent decades regarding the setting up of governance structures and defining roles and responsibilities. These include the Chieftaincy Act, 2009 and the amended Local Government Act, 2017. The amended Act provides for the decentralisation and devolution of functions, powers and services to local councils.

The Ministry of Local Government and Rural Development (MLGRD) was established in 2004, with responsibility for implementing decentralisation and other local governance reforms, which include specifying functions to be assigned to local councils, and coordination and implementation of the programme of devolution from central government to local councils.

The Ministry is represented by the Provincial Secretary who in turn is represented at the district level by a District Officer, based in the District administrative headquarter town. The position of District Officer, as the Ministry's principal representative in each District, is to enhance the Ministry's role, in particular the interface with traditional authorities (Chiefdom Councils) and coordination of non-devolved functions of other Ministries at District level.

The Local Councils Association of Sierra Leone (LoCASL) was also formed in July 2004. LoCASL adopted a new constitution in 2011, providing for national and regional executive structures. It has a permanent secretariat to support its membership and implement its strategic priorities. All 19 councils are members of LoCASL, each with voting representation on its General Assembly through the Mayor/ Chairperson, Deputy Mayor/Chairperson and two Councillors (at least one of whom must be female) and the Chief Administrator.

The District Officer and the Chief Administrator of the local District Council are the representatives of the State apparatus to ensure that the national legislative requirements are adhered to.

The District Council has a major stake in all development programmes and collection of licenses and taxes within their localities. It reports to the MLGRD. This means that both the Council and the District Officer are also key stakeholders in the development of livelihood restoration plans and need to be considered throughout the process.

The District Officers are the MLGRDs interface with the Chiefdom Councils and the District Council supervises the performance of the Chiefdom Council.

Whereas both District Council and MLGRD staff are government appointed, Paramount Chiefs are elected for life. There is a hierarchical system of traditional authorities under the Paramount Chief. There is a Chiefdom Speaker who assists and deputizes when the Paramount Chief is absent from the Chiefdom. The Chiefdom is divided into sections comprising a number of villages. Each section is headed by a Section Chief and each village by a Town Chief.

## 3.2 Stakeholder Engagement Plan

A Stakeholder Engagement Plan (SEP) was prepared for RAP 1 (SRK, 2017b) and is subsequently being updated and maintained for RAP 2. The design of the stakeholder engagement process was informed by the legal requirements of Sierra Leone and by good international industry practice.

The SEP will guide stakeholder engagement during resettlement planning, and outline the approach and methods used.

### 3.2.1 Approach to stakeholder engagement

Stakeholder engagement during the resettlement planning phase will be directed towards improving and facilitating decision-making and creating an atmosphere of understanding that actively involves all interested and affected parties (individuals, groups, local directly affected communities, government, civil society, and non-governmental organisations). Transparent and inclusive stakeholder engagement forms the cornerstone of the approach adopted by the RAP team.

Throughout the scoping visit both SRK and CEMMATS have continued to deliver a consistent message to all stakeholders, from affected settlements to district government representatives, and Paramount Chiefs. Maintaining this consistency throughout the RAP 2 process will help to reduce confusion among stakeholders and manage unrealistic expectations.

The key areas where consistency needs to be continuously demonstrated include:

- Project timing;
- Eligibility and entitlements; and
- Recognition of community and government leadership.

### 3.2.2 Stakeholder engagement records

Following from RAP 1, a stakeholder engagement database will be maintained by SHPL, with records of people and institutions consulted and when, minutes and lists of engagements that have been undertaken; letters sent and received; verbal communications and communication materials distributed throughout the resettlement planning process. It will include the evidence of consultation (e.g. meeting minutes), and summarises the concerns and issues raised. The database will also be used to record and track any grievances as part of the grievance mechanism.

## 3.3 Stakeholder engagement during the scoping visit

There was relatively limited stakeholder engagement during the RAP 2 scoping visit, as the visit focused on assessing the likely extent of physical and economic displacement. Key stakeholders were informed of this process, and the following stakeholders were engaged:

- Paramount Chief of Diang;
- Respective Section Chiefs (of Kondembaia, Mandrifeh and Sokurela).
- Town/ Village Chiefs of those locations visited; and
- Inhabitants in the locations visited.

### 3.3.1 Paramount Chiefs

The Paramount Chief, as the lawful custodian of land, is a key stakeholder in the RAP process. As Phase II of the Project is located solely in the Diang Chiefdom, the RAP team observed local protocol and had a meeting with the Diang Paramount Chief and Council prior to visiting or engaging with other stakeholders in the Chiefdom.

The meeting was used to discuss the planned scoping visit as well as logistical arrangements for RAP 1 livelihood restoration planning workshops. These discussions sought to build a positive and constructive relationship with the Paramount Chief and Council, and to establish a precedent for future land negotiations.

In summary, the purpose of the meeting was to:

- Inform the Paramount Chief and Chiefdom Councillors about the planned scoping visit;
- Discuss and seek agreement on the proposed RAP 1 relocation site, situated near Kamayeke; and
- Discuss land acquisition procedures and protocol.

### 3.3.2 Community perceptions and expectations

During the scoping visit several affected settlements and villages were visited (as detailed in Table 3-1). While the RAP team was careful not to raise any expectations, the PAPs and local leadership were seemingly well aware of the project and the potential impacts on them. Table 3-1 summaries the key issues raised during community engagements.

The feedback and response was dominated by a perception that livelihoods and lives would be negatively impacted. For example:

- In Diang Sokralla 2, the RAP team was told by individuals of their partial relocation after the civil war and their fears of further relocation due to the project.
- In Yara, the leaders voiced concerns regarding further restrictions on access to land for cultivation, following restrictions from the demarcation of the Lake Sonfon Conservation Area.

**Table 3-1: Community feedback during the scoping visit**

Stakeholder	Date	Location	Key points raised
Paramount Chief and Council, District Officer	23/6/17	Kondembaia	Paramount Chief raised the point that all relocation and resultant development must occur within the Diang chieftainship.  The Paramount Chief also requested that the District Officer was present at all future meetings.  The notion of one large relocation site was raised by the Paramount Chief.
Village Chief	24/6/17	Badala	No key points, the team was welcomed and given permission to continue with the scoping visit.
Village Chief	24/06/17	Yisaia	No key points, the team was welcomed and given permission to continue with the scoping visit.

Stakeholder	Date	Location	Key points raised
Village Chief	24/06/17	Yara	Concern that they were now going to be caught between two projects (the Lake Sonfon Solar project and the Bumbuna II Project) resulting in reduced agricultural land.
Village Chief	24/06/17	Portakonkeroh	Some concerns were raised over the loss of agricultural land.
Inhabitants	25/06/17	Koikoitown	Some concerns were raised over the impact on artisanal mining, the primary livelihood activity in the area.
Village Chief	25/06/17	Diang Sokralla 1	Concern regarding further relocation following displacement during the civil war.  Concern over the loss of agricultural land and access to artisanal mining sites.  Concern that only a portion of the community would be moved, damaging existing social ties.

### 3.3.3 Observations for continued engagement and decision making

As observed in RAP 1, the community leadership and decision-making structures are male dominated with women having little communal decision-making power and authority. Consequently, the concerns of male heads of households, as well as those in leadership positions, tend to dominate community discussions and decisions.

As a consequence, RAP 2 engagement with stakeholders will endeavour to include and engage women and other vulnerable groups in the exchanges and sharing of information. Separate consultations with women and youth were arranged during RAP 1, and this practice will be continued during RAP 2.

While the affected settlements revealed that they are eager for ongoing information dissemination and inclusion in all RAP 2 activities and decisions, they are also prepared to support certain decisions made by the respective chiefs on their behalf. Ultimately, it is apparent that all decisions related to the settlements reside with the Paramount Chief.

During RAP 1, the Diang Paramount Chief made visible and active efforts to include the views and ideas of those in traditional government and community leadership. For RAP 2, the RAP team will endeavor to build on this relationship to maintain positive and constructive dialogue with the Paramount Chief.

## 4 EXTENT OF PHYSICAL AND ECONOMIC DISPLACEMENT

### 4.1 Physical displacement

A key objective of the scoping exercise was to assess the potential extent of physical displacement within the inundation area, and where possible to verify existing information prior to commencing RAP 2 activities. This included:

- Verifying the type of settlement (temporary or permanent - There are several seasonal (temporary) artisanal mining settlements as well as Fula settlements within the inundation area);
- Verifying the size of settlements;
- Assessing the type of housing (including materials and construction methodologies); and
- Determining the accessibility of various settlements.

#### 4.1.1 Scoping visit findings

The scoping visit in 2017 included visits to both settlements within the inundation area and settlements outside the inundation area which would potentially be affected by economic displacement. These locations are illustrated in Figure 2-1 and included:

- Sandia through Kuwubanya to Sawule;
- Kondembaia through Palama Beach to Koikoitown;
- Kondembaia to Badala through Yisaia to Yara and Portakonkeroh; and
- Kondembaia to Diang Sokralla 1 and 2.

The larger settlements that will potentially be affected by economic displacement are illustrated in Figure 4-1.

Social assessments were initially conducted as part of the ESIA process in 2016 (ERM, 2016). The ESIA estimated there to be 44 settlements within the inundation area, totalling 1,065 households and 5,263 individuals. However, the scoping visit conducted in June 2017 revealed some discrepancies with these estimates. Several of the settlements visited were observed to be significantly smaller than as reported by the ESIA, particularly villages such as Koikoitown which were observed as being small seasonal settlements associated with artisanal mining.

According to the RPF, and verified during the scoping visit, in addition to the settlements that will be physically displaced there are four large settlements situated on the periphery of the inundation area that will be, in part, economically displaced. These settlements were identified as being engaged in agriculture and food production in the wet season, and artisanal mining in the dry season.

The type of impact and size of the respective settlements visited is summarised in Table 4-1 below.



**Table 4-1: Settlements visited during the 2017 scoping site visit**

<b>Location</b>	<b>Estimated No. of Households</b>	<b>Type of Impact</b>
Badala	210	Physical displacement
Yisaia	96	Partial physical and economic displacement
Kondembaia	1 000 +	Partial economic displacement
Diang Sokralla 1	400	Partial economic displacement
Diang Sokralla 2	140	Partial economic displacement
Yara	1 000 +	Partial economic displacement
Sedankoro	1	Physical and economic displacement
Portakonkeroh	10	Physical and economic displacement
Mangorokoro	6	Physical and economic displacement
Koikoitown	5	Physical and economic displacement
Sandia	20	Physical and economic displacement
Kungbania	10	Physical and economic displacement
Kabbari	5	Physical and economic displacement

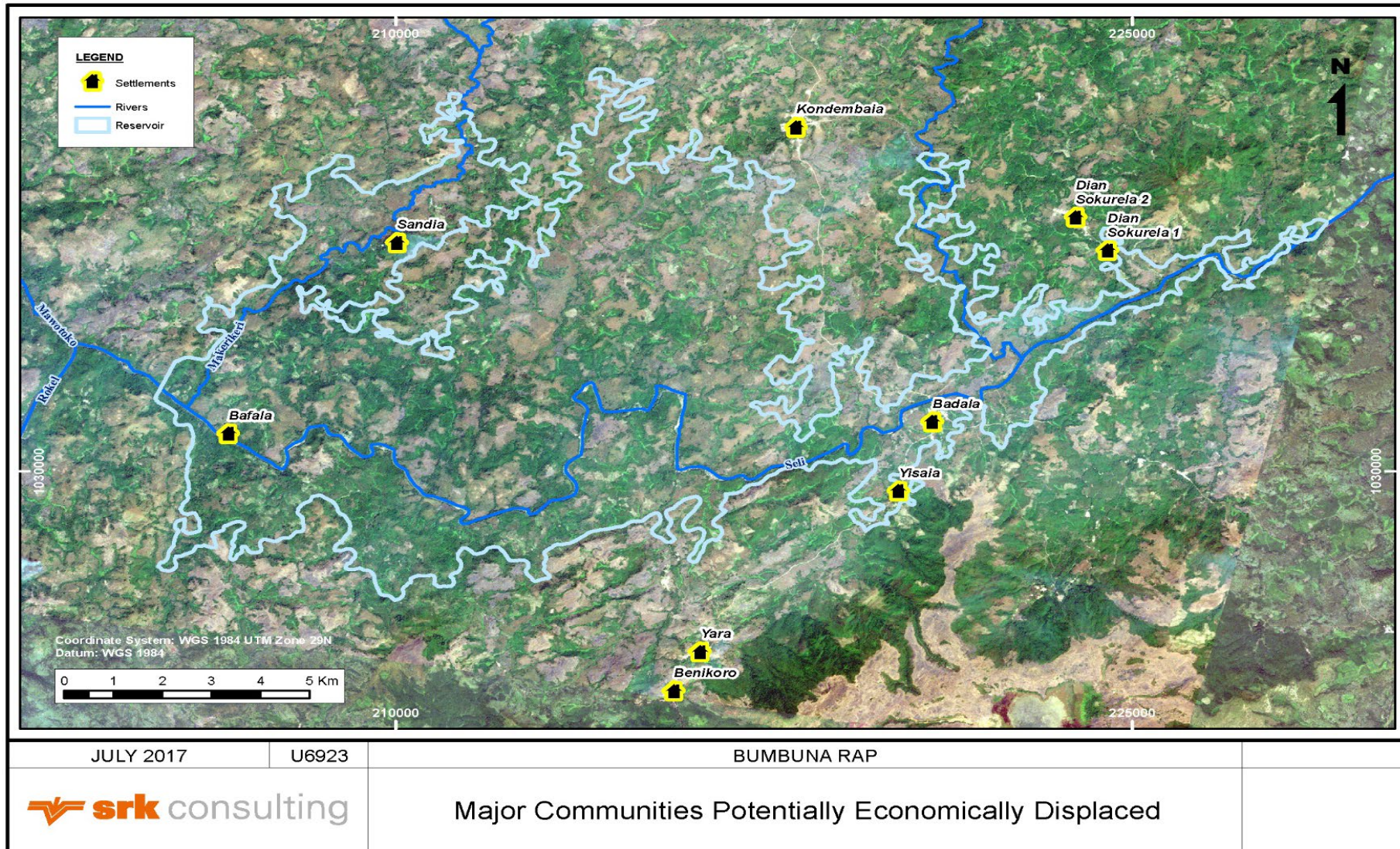


Figure 4-1: Towns and large villages affected by economic displacement

### 4.1.2 Rapid census findings

The rapid census conducted in August 2018 (see Section 2.4) sought to gather updated information on the size, composition and distribution of the population and communities within the inundation area. From the census, there are estimated to be 36 settlements within the inundation area, totalling 633 households and 3,288 people. The size of each respective settlement as identified by the rapid census is summarised in Table 4-2.

From the ESIA numbers, this represents a reduction of 432 households and 1,975 individuals. Comprehensive data collected during the RAP 2 household census will provide further confirmation of this data.

Other pertinent statistics identified by the rapid census include:

- The majority of the population was identified in Sokralla Section (2,196 individuals, representing 66% of the total identified by the census), followed by Kondembaia (616, 19%) and then Mandrifeh (476, 15%);
- The most populated towns/communities were Badala (1,192 individuals), Diang Sokralla 1 (609), Yissaia (392), and Sandia 2 (168);
- The estimated male and female population within the inundation area was 1,545 (47%), and 1,743 (53%), respectively; and
- The median age was of the population was 25 years, with an age distribution as follows:
  - 0-3 years: 390 (12%);
  - 4-17 years: 1,375 (42%);
  - 18-45 years: 1,144 (35%);
  - 46-64 years: 269 (8%); and
  - Over 64 years: 110 (3%).

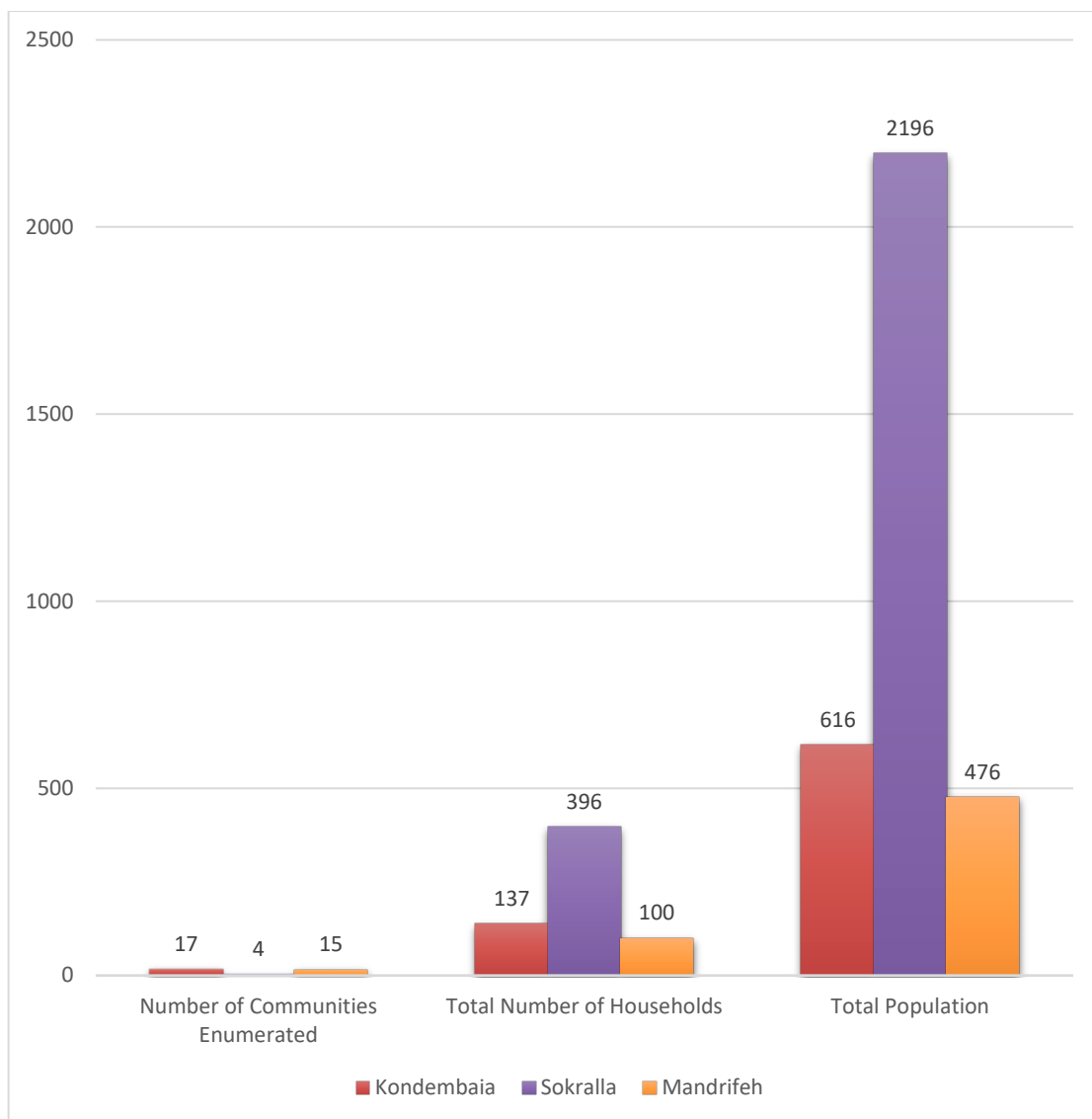
Figure 4-2 illustrates key statistics in terms of populations, households and communities identified by Section.

**Table 4-2: Population distribution from SHPL Rapid Census**

Section	Name	Identified Population		
		Total	Male	Female
Kondembaia	Palama	7	4	3
	Koikoitown	35	16	19
	Kamasahe	43	20	23
	Kabrutown	37	20	17
	Sandia 1	52	23	29
	Sandia 2	168	73	95
	Fonema	21	9	12
	Amadumolondia	14	10	4
	Makondeyifeh	7	4	3
	Kambaiafah	19	8	11
	Duramania	29	13	16

Section	Name	Identified Population		
		Total	Male	Female
	Bockaria	10	5	5
	Kungbania	64	33	31
	Stadium	31	20	11
	Yiraia	8	1	7
	Fitia	4	2	2
	Pampaiafeh	67	24	43
	<b>Kondembaia Total</b>	<b>616</b>	<b>285</b>	<b>331</b>
Mandrifeh	Portakonkeroh 1	16	6	10
	Portakonkeroh 2	60	33	27
	Portakonkeroh 3	40	20	20
	Portakonkeroh 4	13	6	7
	Makampani 1	75	31	44
	Kamathoi 1-4	91	53	38
	Lusenia 1	7	1	6
	Lusenia 2	21	9	12
	Lusenia 3	13	5	8
	Beratafeh 1	23	6	17
	Sedankoro 2	7	3	4
	Sedankoro 1	6	4	2
	Kongbleyee 1	51	28	23
	Maweseneh	17	8	9
	Beratafeh 2	36	18	18
	<b>Mandrifeh Total</b>	<b>476</b>	<b>231</b>	<b>245</b>
Sokralla	Yissaia	392	191	201
	Badala	1,192	545	647
	Murrkumbaia	3	2	1
	Diang Sokralla 1	609	291	318
	<b>Sokralla Total</b>	<b>2,196</b>	<b>1,029</b>	<b>1,167</b>
<b>INUNDATION AREA TOTAL</b>		<b>3,288</b>	<b>1,545</b>	<b>1,743</b>





**Figure 4-2: Key statistics by Section (Source: SHPL, 2018)**

### 4.1.3 Buildings and structures

A comprehensive assessment of all affected structures will be completed during the RAP 2 asset inventory process.

During the scoping visit the buildings and structures observed within the inundation area were predominantly rural housing, constructed using traditional methods of mud, wood and thatching. The larger towns of Badala, Yisaia and Diang Sokralla consisted of more modern structures, made from mud bricks, mortar and corrugated iron roof sheeting. Examples of both styles are shown in Figure 4-3.



**Figure 4-3: Typical structures found within the inundation area**

The rapid census conducted by SHPL provided a more detailed description of the settlement structures present. The census findings indicated:

- The majority of households (62%) within the inundation area are constructed with mud brick walls and corrugated iron sheet roofs;
- Approximately 28% were made of mud and wood walls and thatch roofs;
- Approximately 4% were made of thatch walls and a thatched roof; and
- Approximately 0.80% were constructed of concrete brick walls and corrugated iron sheet roofs.

The larger towns of Badala, Diang Sokralla and Yisaia typically had the better quality structures (mud brick walls and corrugated iron roofs), reflecting the relatively higher economic wellbeing in these locations.

The rapid census indicated that almost all housing units were owned by their occupants, with 90% of households laying claim to outright ownership. However, no legal documents were produced in support of these claims. It is assumed ownership is customary in nature. This will be confirmed during the RAP 2 household census.

A few households reported to occupy their houses for free, and a small proportion reported to be paying tenants. This was most commonly reported in Badala, Diang Sokralla and Yissaia.

#### **4.1.4 Temporary/seasonal settlements**

During the scoping visit numerous temporary settlements were identified within the inundation area. These included single structures used during planting and harvesting periods, and other larger villages understood to be used seasonally by artisanal miners and loggers. Examples of these structures are illustrated in Figure 4-4.



**Figure 4-4: Temporary or seasonal settlements**

The relocation of these villages and structures will be managed through the economic resettlement aspect of RAP 2, however, it should be noted that several of these were recorded in the RPF as being permanently inhabited settlements, which is not considered to be accurate.

#### 4.1.5 Communal infrastructure

While social infrastructure is limited within the inundation area, the towns visited (including Badala, Diang Sokralla and Yisaia) have organised and carefully laid out communal infrastructure, including schools, churches, mosques, community hand-dug wells/ bore holes and markets (see Figure 4-5 for examples in Badala). This infrastructure will therefore need to be relocated. The community buildings in these towns are mostly made of mud-brick, coated with a cement or mud render and roofed with metal. The towns are accessible by a 10-15m wide lateritic road.

The smaller villages and settlements visited had very little communal infrastructure.



**Figure 4-5: Market and community borehole, Badala**



#### 4.1.6 Spatial patterns within the inundation area

During the scoping visit, it became apparent that the distribution and spatial pattern of villages and settlements within the inundation area is closely related to both topographical features, but, more importantly, with links to larger communities.

Typically, a small number of households are understood to have migrated from towns such as Yara, Badala and Kondembaia to more favorable locations for farming, mining and logging activities. This has resulted in the establishment of numerous small ‘satellite’ villages and settlements throughout the area.

It is important to note that these smaller settlements maintain close social ties with the larger towns and localities, through family members and the provision of social services such as schools and clinics. These larger communities, outside of the inundation area, will potentially represent options for resettlement sites.

#### 4.1.7 Accessibility

There is sandy or graded track access to the larger settlements, many of which are not accessible during the rainy season. A large number of the settlements are only accessible by footpaths and locally constructed bridges over the rivers (see Figure 4-6).

West of the Seli River, the road leads to and ends at Sandia, making access to much of the inundation area difficult. The branch road to Koikoitown and Palama was blocked by a fallen tree but there was evidence of vehicular access down to the river.

On the East bank of the Seli, Portakonkeroh and various satellite villages were visited. Access was difficult with very narrow paths across hilly terrain interspersed with river crossings using locally constructed bridges and in some cases tree trunks that traversed the river.



Figure 4-6: Access routes to remote settlements



## 4.2 Livelihoods and land use

The importance of land access in sustaining livelihoods was apparent from the ecosystems services assessment of the early works areas of RAP 1 (SRK, 2017a). This was also reflected during the scoping of the inundation area for RAP 2.

The remote sensing of the inundation area, as illustrated in Figure 4-8, identified a high level of deforestation and burning. The map illustrates the land used for economic purposes near to the towns and larger villages in the inundation area, and the land used by communities such as Kondembaia and Yara, situated outside of the inundation area.

During the scoping visit, it was apparent that land was used for both agriculture and logging. Agriculture is seasonal and subsistence in nature, and understood to comprise a mix of shifting cultivation on the slopes, with between 7 and 11 years of fallow time and use of the flood plains and inland valley swamps. Slash and burn practices are utilised for the growing of crops such as rice, plantain, cassava, yam, and ground nuts. Livestock production is predominantly free-ranging, with most households having poultry, goats and sheep. There was mention of the pastoralist Fulani tribes and their cattle ranging freely within the area, but they were not present during the scoping visit.

During the scoping visit, mixed cropping was widely evident (see Figure 4-7). This is in line with a Comprehensive Food Security and Vulnerability Analysis conducted in 2015 (FAO 2015) which identified Diang Chieftdom as having one of the lowest levels of food insecurity in the country, with less than 1% of the population defining access to land for cultivation as an issue.



**Figure 4-7: Shifting cultivation and mixed cropping**



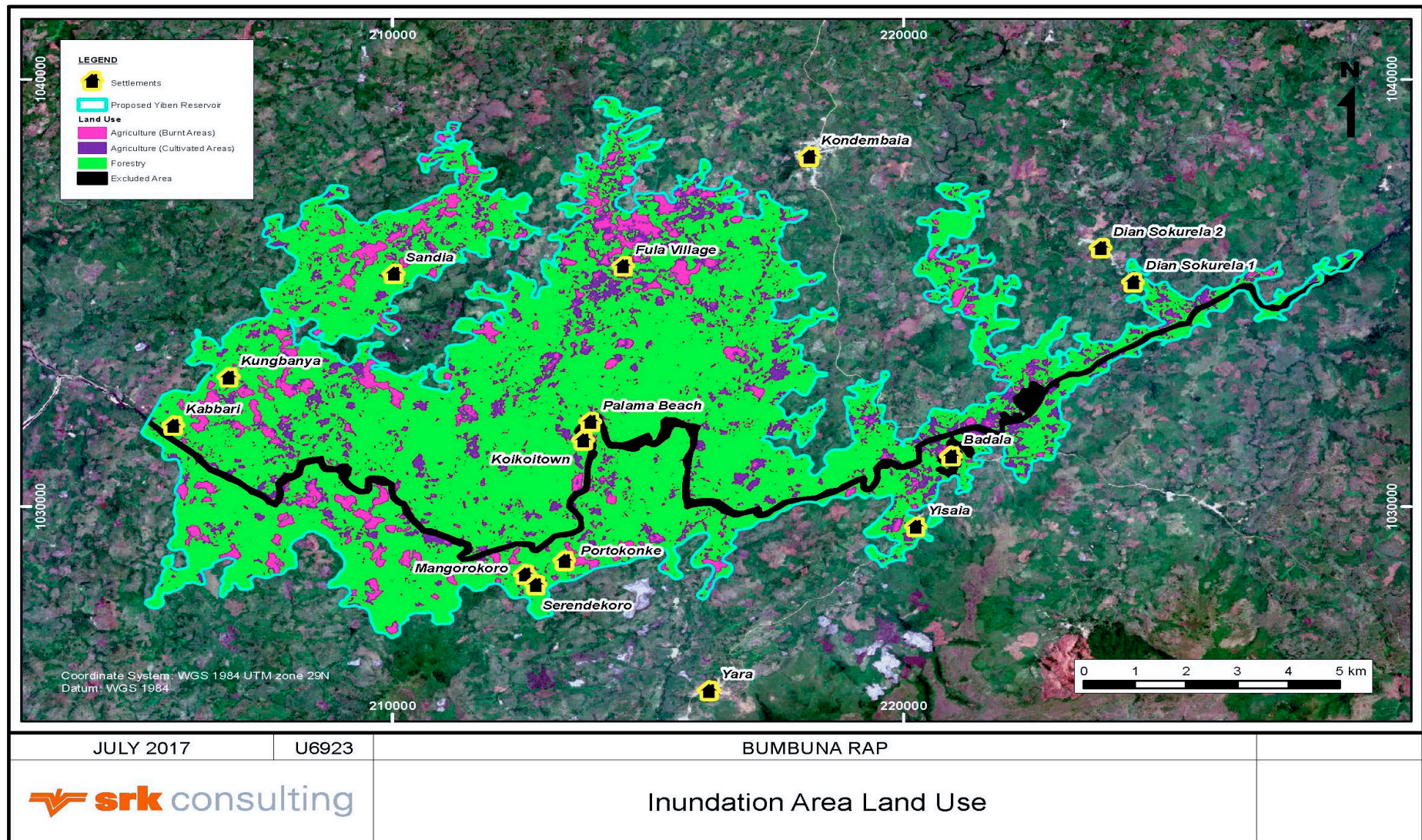


Figure 4-8: Remote sensing of land use in the inundation area



### 4.3 Artisanal mining activity

During the development RAP 1, the importance of artisanal and small scale mining (ASM) activity to the local economy was acknowledged as an important but largely unaffected livelihood activity. In Phase II however, ASM of gold in the inundation area is regarded as a primary livelihood activity, particularly during the dry season, and it involves the whole community; men, women, and youth. The inundation area will impact a significant number of ASM activities and will therefore require careful and considered management.

#### 4.3.1 Scoping visit findings

As the scoping visit took place during the rainy season, ASM activity was limited and not widely visible. It was therefore difficult to ascertain the extent of ASM activity in the inundation area.

According to discussions with local guides, all of the towns, villages and settlements depend on ASM for financial income and upon subsistence agriculture for food. Permissions to undertake ASM activities were reported to be granted by District authorities and the Paramount Chief. This implied that not all ASM activity in the area was unlicensed, as previously assumed. There were also reports of small scale operations being run by Chinese or Guinean miners.

Figure 4-9 and Figure 4-10 illustrate typical ASM settings identified within the inundation area.



Figure 4-9: ASM pits near Koikoitown



Figure 4-10: Dredge in Seli River near to Koikoitown

A number of abandoned or unoccupied settlements were visited near Koikoitown and Portakonkeroh, and were understood to be used for seasonal mining. Populations reportedly would exceed 200 inhabitants in the dry season, with inhabitants include migrants from other areas of Sierra Leone and from neighbouring countries.

Following the scoping visit, it was recommended that a greater understanding of ASM activity was required to effectively assess the potential extent of economic displacement in the inundation area.

#### **4.3.2 Analysis of ASM activity in inundation area**

To understand the nature of economic displacement and requirements for livelihood restoration strategies caused by the inundation of the area, a political economic analysis (PEA) and situation analysis of ASM activity was conducted in 2018 (SRK, 2019). This process involved:

- A review of available literature on ASM activity in Sierra Leone and the region;
- PEA of ASM focussing on structure and governance to determine the interest, influence and power of different stakeholder groups. A stakeholder analysis was conducted through a desk top review and the key informant interviews, to understand and identify the main political, economic and social structures, institutions, processes and actors.
- A situation analysis of ASM through a series of group interviews and site observations to assess existing livelihoods, conducted at 17 ASM sites identified along the Seli and Mawaloko Rivers, in and around the inundation area.

ASM activities were analysed with reference to the following five capital asset groups: social, financial, physical, natural and physical.

##### ***Traditional governance***

Parts of Sierra Leone, including the area in which the project is located, have a traditional governance framework that controls the use of land in some provinces. Under this framework, the Paramount Chief is the custodian of the land and must provide permission for any form of mining to take place. In addition, landowners (which can also include the Paramount Chief, Section Chiefs or Town Chiefs), must be given due credence in decision-making processes at regional and national levels. Chiefs often double as land owners and ‘supporters’ and as they control mineral sales there is no transparency relating to mineral pricing and overall costs. There is reportedly significant levels of corruption and bribery with self-imposed taxes prevalent in some areas.

As the custodian of the land, the Paramount Chief has overall power in granting a mining plot. These agreements are rarely documented and so present an additional risk for artisanal miners, who have no official records of their permission to mine. Whilst the miners may regard themselves as engaged in legal ASM activity, the State would regard them as illegal due to the lack of appropriate licences. The Paramount Chief also has the power to start and stop ASM at any site at any time, leaving artisanal miners vulnerable to such decisions.

Key informants also identified that women who undertake artisanal mining are the most vulnerable group in the power relationship. Female artisanal miners, have similar vulnerabilities to their male counterparts, but these are compounded by cultural inequalities that render them with even less power and influence.

### Summary of findings

A total of 220 people were identified at the 17 locations surveyed, of which 150 were actively engaged in ASM at the time. The number of people engaged in ASM varied from three to 20 individuals, with larger numbers at sites associated with Sandia, Yara and Diang Sokralla. Women and children are engaged in ASM activities within the area. In some cases, this includes children under the age of 10 and a greater number aged from 10 to 15 years.

Six of the groups reported to mine in the current location and do not mine elsewhere. Of the remaining groups, seven reported to mine in other locations in Diang, two migrate between different sites in the Northern Province, and two migrate between different sites in Sierra Leone. This gives a broad indication of the permanency of ASM activities and indicates that a significant proportion of artisanal miners are seasonal and/or transient.

The inferred permanency of ASM activities also broadly correlated with an increasing number of inhabited dwellings and structures identified. The study indicated that whilst some artisanal miners are already willing and able to travel to other sites, other groups might be more reluctant, and find it more difficult, to move elsewhere.

Across Sierra Leone rural people are the most vulnerable and the most food insecure. Seeing as most of the artisanal miners in the inundation area are rural and engage in ASM activity as part of their portfolio of livelihood activities, they can be regarded as vulnerable. This is particularly the case for individual ASM workers or those in ad-hoc groups, who have no safety net or security through being part of a more formal or regulated ASM group.

The key findings of the ASM study are summarised in Table 4-3.

**Table 4-3: Key findings of ASM study**

Capital	Key Findings
Social	<ul style="list-style-type: none"> <li>ASM activity is mostly carried out by individuals and ad-hoc / informal groups;</li> <li>The majority of ASM workers are unlicensed and have informal agreements for access to minerals. It is widely understood by miners that the Paramount Chief owns the rights and controls access; and</li> <li>Conflict appears commonplace, particularly between different ASM groups and with local communities and where there are larger and more dense populations.</li> </ul>
Financial	<ul style="list-style-type: none"> <li>Despite being higher than alternative sources, daily income levels from ASM are very low and do not translate to significant purchasing power in relation to everyday goods. This is compounded by a lack of savings and bank accounts;</li> <li>Whilst levels of involvement vary between groups, many ASM workers are engaged in a range of additional livelihood activities, with ASM being part of a livelihood portfolio; and</li> <li>ASM workers residing in the area combine subsistence agriculture with ASM, while migrant workers are engaged in a range of other activities.</li> </ul>
Physical	<ul style="list-style-type: none"> <li>Most ASM activity is conducted using basic equipment with a minority of groups owning water pumps or other mechanised equipment; and</li> <li>Dwellings at the ASM sites are temporary structures inhabited on a seasonal basis, when ASM activity is carried out in the river bed.</li> </ul>
Natural	<ul style="list-style-type: none"> <li>ASM workers are reliant upon a range of locally-sourced natural resources, both directly in relation to ASM and also to support wider livelihoods. Water is a key requirement, and whilst most workers have access to a water source the water quality is likely to vary.</li> </ul>

Capital	Key Findings
Human	<ul style="list-style-type: none"> <li>• Literacy levels are low, and whilst there is interest in gaining new skills and exploring alternative livelihoods, the capacity to do so will be limited by the provision of suitable training and development opportunities;</li> <li>• Most of the people engaged in artisanal mining are also engaged in subsistence farming and other livelihood activities; and</li> <li>• There are significant risks related to health and safety, with large numbers of ASM workers experiencing injury, lost-time and loss of earnings. ASM sites are generally remote, with poor access to the nearest health facilities in the event of medical emergencies.</li> </ul>

### ***Analysis of alternatives***

As part of the study the Diang Chiefdom was assessed for potential relation areas, based on both geological and logistical factors: geological proximity, existing licences, proximity to known occurrences and workings, drainage and infrastructure. A heat map was produced to identify potential suitability of areas, and to identify prospective new areas (PNAs) where areas of high prospectivity overlap with low levels of existing mining activity.

From the analysis of PNAs, four sites were selected as being potentially most suitable and were identified for initial ground truthing in April 2018. A survey team visited the PNAs to conduct an initial appraisal of potential. In some cases there had been an expansion or relocation of activity from the time the satellite imagery was taken, and new ASM activities were identified. This is reflective of the transient and shifting nature of ASM in the inundation area. The presence of sensitive areas for biodiversity represent an additional constraint to the identification of PNAs.

The identification and initial assessment of PNAs indicated that potential sites for the relocation of ASM activities exist within the Chiefdom. Further investigations are required to identify those areas considered most suitable and to investigate the limitations and challenges associated with each.

## 5 APPROACH TO RAP 2

### 5.1 Zoning of inundation area

Due to the scale and accessibility of the inundation area, the area has been split into three sub-areas. These areas are defined by chieftanship boundaries, namely Mandrifeh, Kondembaia and Sokralla. Figure 5-2 provides an overview of these areas. From a logistical and scheduling perspective, this delineation will allow for improved data collection, stakeholder engagement and grievance management.

### 5.2 Establishment of resettlement engagement structures

The establishment of suitable resettlement engagement structures will precede any RAP 2 fieldwork and survey activities. These structures will be used to disseminate important information relating to the survey process and timelines.

The engagement structures will consist of Resettlement Community Associations (RCA) and Resettlement Working Groups (RWG). The RCA's will be developed according to the geographic location of the affected communities, with each RCA then being represented on the overarching RWG.

In Kondembaia there will be five RCAs and one RWG. In Sokralla there will be three RCAs and two RWGs. Badala will have its own RWG, and a number of sub groups representing different community sectors, due to its large size. In Mandrifeh there will be three RCAs and one RWG.

The SEP provides additional information on the structure and mandate of these engagement structures.

### 5.3 Household census and asset inventory

The household census and asset inventory will be conducted with all households impacted by physical and/or economic displacement within or on the periphery of the inundation area. The survey will be conducted by a team of five to ten enumerators, supervised by a lead enumerator and a SHPL representative.

The process will be split into two phases:

- **Phase 1:** Household census and asset inventory: This phase will collect all household demographic data as well as information on all immovable assets such as houses, graves, communal infrastructure and businesses. This phase will be completed from March to May 2019.
- **Phase 2:** Agricultural survey: This phase will collect data on households' agricultural activities and assets. This will include data on the extent of fields, ownership, standing crops and fruit trees. This phase will be completed in the August/September 2019 when crops have been planted.

It is proposed that the process will commence in the Kondembaia section, and then proceed to the Sokralla and Mandrifeh sections.

### 5.3.1 Data Collection, Assurance and Quality Control

All household data will be collected using questionnaires within the SurveyCTO packages, with enumerators using tablets in the field to collect responses. The questionnaires will comprise:

- Household and asset – covering household structures, demographics, livelihoods, ecosystem goods and services, local services, health, and owned assets;
- Asset – covering fields, trees, cultural sites, graves, etc.;
- Business – covering all small and medium businesses within the inundation area such as taverns, tailors, carpenters, blacksmiths etc.
- Communal structures – covering communal assets such as churches, mosques, halls, health centres, water wells, etc.

Each survey will capture standard information including the enumerator and interviewee names, interview dates, the name of the town, village or settlement, and a unique identifier.

At the end of each survey day, the completed surveys will be uploaded to the SurveyCTO server, from which SRK will download for collation and analysis within a Microsoft Access data file (see data flow in Figure 5-1).

Following from experience on RAP 1 and to account for the increased scale of data collection for RAP 2 census, a quality control / assurance process has been developed. This process will ensure that once data is collected into the field and uploaded to the SurveyCTO server, it will be reviewed, validated and authorised.

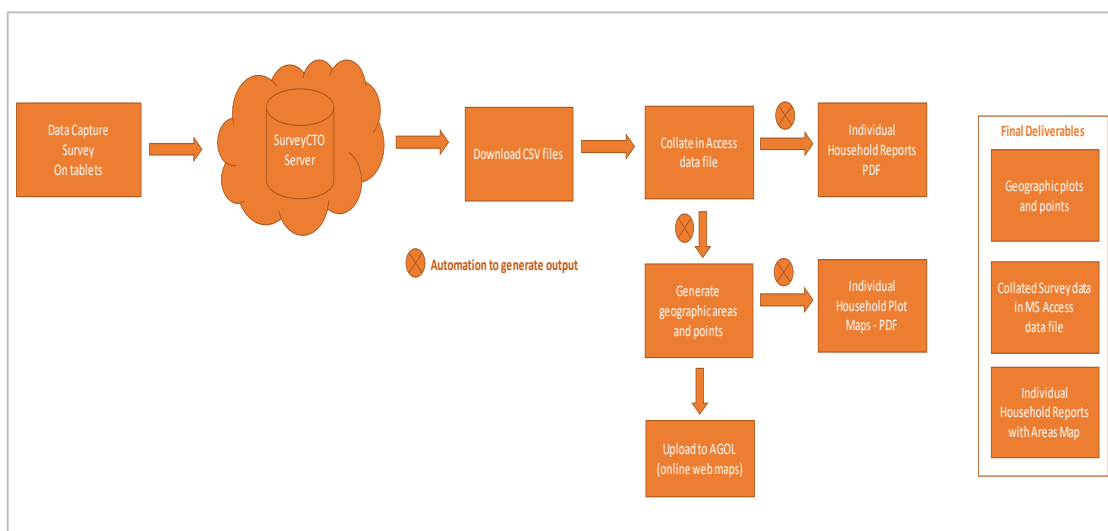


Figure 5-1: Data flow for questionnaire data



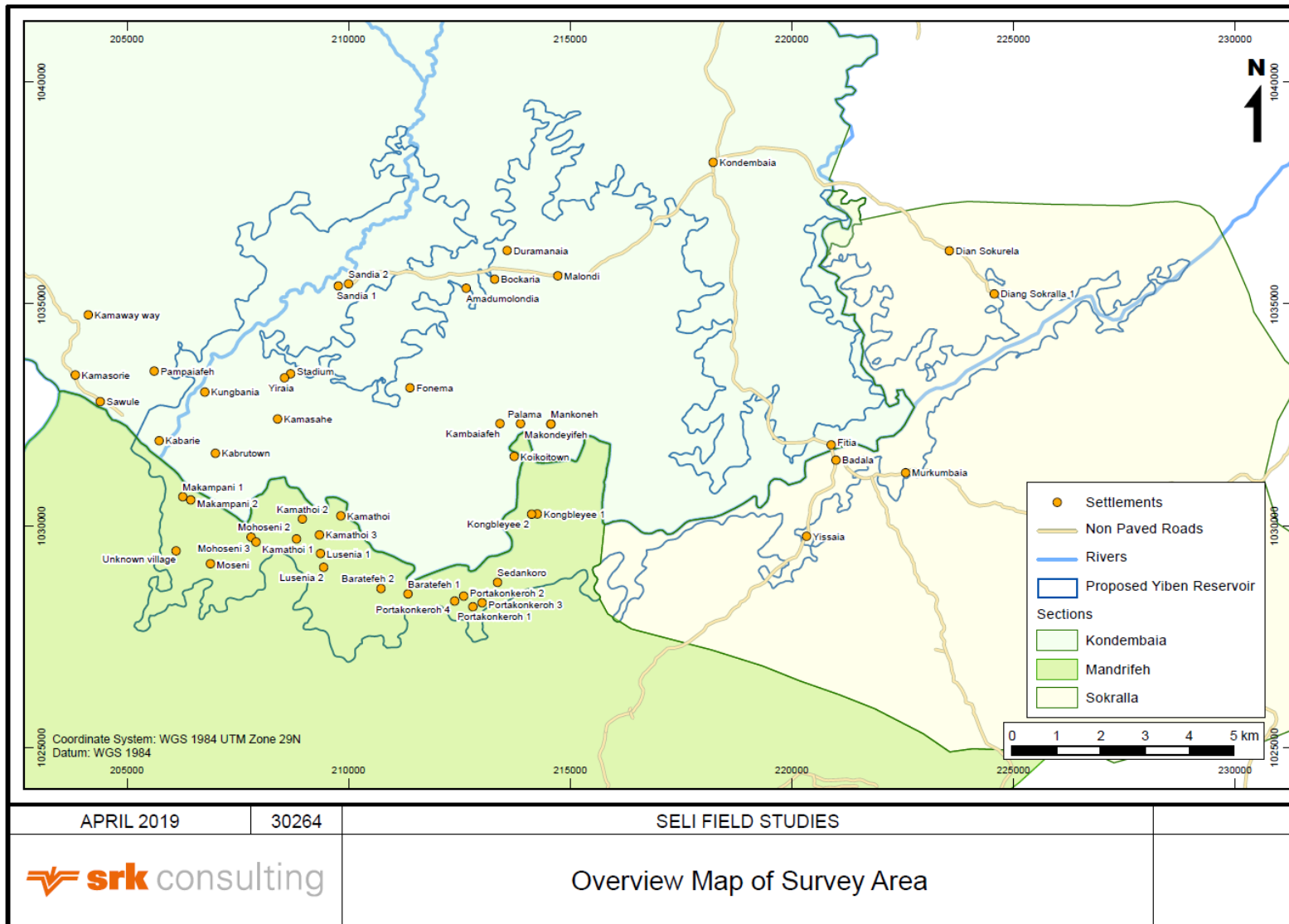


Figure 5-2: Overview of Kondembaia, Sokralla and Mandrifeh sections

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## 5.4 Challenges and recommendations

### 5.4.1 Local governance structures

Appropriate engagement with the multi layers of traditional governance and state administration will endeavour to consider all concerned parties throughout the RAP 2 development process. This will prevent any potential delays resulting from required protocols not being adhered to.

### 5.4.2 Accessibility

Access to some of the more isolated parts of the inundation area during the field survey process will require detailed planning.

The dissemination of information throughout the inundation area will also be a challenge, for example in relation to the management of grievances within agreed and reasonable timescales.

As a consequence, access challenges may result in additional time being required for the field surveys and stakeholder engagement process.

### 5.4.3 Replacement land for livelihoods

Identifying suitable replacement land for agricultural purposes and replacement sites or suitable alternatives to artisanal mining will be a major challenge moving forwards.

The riparian habitat of the Seli and Makerikeri rivers and watershed currently sustain the majority of the livelihood activities. The current practice of shifting cultivation is not sustainable and will become increasingly difficult with reduced availability of land. Furthermore, most of the ASM is alluvial and dependent on river access.

Livelihood restoration will therefore require additional specialist studies regarding improving land capability, and the identification of alternative sites for ASM activity.

### 5.4.4 Project timeline

Due to the difficulty in accessing many areas of the inundation area, it is recommended that the overall Phase II timeline is extended. This is predominantly to accommodate the extended time it will take to complete the census and asset inventory process and allow for a suitable and robust stakeholder engagement process.

Phase 1 of the household survey will commence in March 2019 and be completed prior to the onset of the rainy season which will impede accessibility to some parts of the inundation area. It is anticipated that approximately eight weeks will be required to complete this Phase.

Phase 2 of the survey will commence in August/September 2019 post the rains. This component of the survey will be time consuming due to the nature of the data collection process and distances and accessibility of fields. It is anticipated that this phase will require approximately eight weeks to complete.

In addition to the time required to complete the survey process, additional time may also be required to identify, negotiate and agree on suitable replacement sites and/or host settlements. It is anticipated that there will be several host settlements requiring extensive engagement.

A revised RAP 2 schedule has been developed based on the findings of the scoping site visit and the current Project progression; this is detailed in Appendix **Error! Reference source not**

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#### **5.4.5 Additional studies**

Further to the scoping study, the following recommendations are made in relation to the scope of work associated with RAP 2.

##### ***Agricultural land capability and improvement***

The inundation area presents a riparian habitat and fertile alluvial basin upon which all of the Project affected settlements depend. Loss of access to this land will increase shifting cultivation and associated environmental degradation.

Consequently, it is proposed that a specialist study is undertaken to assess potential production capability of current fallow land and lowland swamp areas outside of the inundation area that could be improved to reduce pressure on land use for food and cash crop production.

This study does not currently form a component of the RAP 2 scope of work.

## 6 RAP 2 BUDGET

Following the RAP 2 workshop in November 2018 and the agreement on the terms of reference, the budget has been reviewed and finalised. A summary of the budget is included in Table 6-1 and the full budget is in Appendix **Error! Reference source not found.**

**Table 6-1: Summary of RAP 2 budget**

<b>PROJECT TASKS</b>	<b>Budget (USD)</b>
Task 1: Project management	235,538
Task 2: Project planning	87,098
Task 3: Stakeholder engagement directly relevant to RAP process	73,136
Task 4: Field studies and associated consultations	352,062
Task 5: Relocation sites	155,388
Task 6: Resettlement measures	130,534
Task 7: Report collation	261,603
<b>Total budget (USD)</b>	<b>1,295,358</b>

This is inclusive on an estimated budget for disbursements of USD 212,377. It is exclusive of any detailed studies and investigations in relation to alternative sites.

**For and on behalf of SRK Consulting (UK) Limited**

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Dr Cathryn MacCallum  
Principal consultant (Social)  
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## Abbreviations

ASM	Artisanal and Smallscale Mining
ESIA	Environmental and Social Impact Assessment
GoSL	Government of Sierra Leone
LoCASL	Local Councils Association of Sierra Leone
MLGRD	Ministry of Local Government and Rural Development
MW	Mega-watt
PAP	Project affected people/s
PEA	Political Economic Analysis
PNA	Prospective New Area
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SEP	Stakeholder Engagement Plan
SHPL	Seli Hydropower Limited
SRK	SRK Consulting

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## **APPENDIX**

### **A REVISED BUDGET**

## **APPENDIX**

### **B REVISED SCHEDULE**