

Estimated Numbers of Physically- and Economically- Displaced Persons and Households

Memorandum for sharing with lenders

TO: PAUL KUNERT, PROJECT DIRECTOR

FROM: DOUG SMITH, E&S ADVISER

DATE: 15 OCTOBER 2020

SUBJECT: PREVIOUS AND CURRENT ESTIMATES OF RESETTLEMENT NUMBERS

Summary

The most definitive figures on resettlement numbers can be summarised as follows:

	Both physically and economically displaced		Only economically displaced	
	HHs	PP	HH	PP
<i>Northern and Southern Early Works (Actual)</i>	46	407	33	191
<i>Reservoir area (Estimates)</i>	520 to 633	2964 to 3288	611 to 787	3483 to 4486
TOTAL (approx.)	566 to 679	3371 to 3695	644 to 820	3674 to 4677

1. Introduction

This memorandum responds to two commitments:

- In the IESC (Independent Environmental and Social Consultants) Environmental and Social Action Plan, to *document any additional design changes, and the difference in estimations from the ESHIA to the SHPL Dec 2018 survey and the 2019 planned field surveys, to have on hand or as part of the RAPs*; and
- In the InfraCo HSES Action Plan, a commitment to *to clearly document changes in the numbers of physically and economically-displaced households and persons since the time of the ESHIA, whether arising from design changes (i.e. in the RAP-1 area) or updated estimations in the reservoir area arising from the SHPL Dec 2018 survey or reservoir planning.*

Estimates of numbers of physically- and economically-displaced households and persons have been made through the following studies and surveys, and are presented according to these studies and surveys in this memorandum:

- Environmental, Social and Health Impact Assessment (ESHIA) conducted by ERM Ltd, finalised in 2017;
- RAP-1, i.e. the Resettlement Action Plan for the Early Works (i.e. infrastructure) areas, prepared by SRK, with the final version delivered in 2018.
- A Scoping Study conducted for RAP-2, i.e. the Resettlement Action Plan for the reservoir area, prepared by SRK, final version delivered in 2018.
- A Census Survey conducted for RAP-2, prepared by the Seli Hydropower team in partnership with the national office of Statistics Sierra Leone, delivered in September 2018.
- Additional analysis by SRK in response to SHPL queries (External Memorandum, July 2018); and
- Adjustments based on early works siting.

The current, as definitive as possible, estimates are provided in the concluding section.

2. ESHIA (ERM 2017)

The methodology for the ESHIA social baseline consisted of team visits to most affected villages, where village profiles (including numbers on demographics) were prepared, and focus group discussions and key informant interviews held. These visits were conducted in March-April

(dry season), and July (wet season) 2016. Maps in the ESHIA and correspondence with ERM indicate that GIS/Satellite imagery was used to identify the presence of settlements.

The impact assessment in the main volume of the ESHIA refers only to the displacement of 1200 households in 52 settlements, and does not specify if they are physically or economically displaced. The Resettlement Framework (Annex I) refers to 7,000 people in 1,200 households that will be both physically and economically displaced, and in the budget, assumes that a total 1,600 households will be economically displaced (i.e. an assumed additional economically-only displaced households).

Annex H – Social, Section H4.3 on physical and economic displacement provides a more detailed breakdown, and maps, as summarised in the table below, concluding that a total of approximately 5,950 individuals from 1,200 households and 52 settlements will be both physically- and economically displaced.

	Households that are both physically and economically displaced		Only economically displaced	Combination of physical and economic displacement (not specified)
	HHs	PP		
<i>Yiben Early Works (i.e. Northern Early Works)</i>	21	156	Not specified	
<i>Bumbuna Extension Early Works (Kamathor 1, 2, and 3) (i.e. Southern Early Works)</i>	49	147	Not specified	
<i>Transmission line: Kakondobie and Kasonkorie</i>				200 individuals within 40 households
<i>Reservoir area</i>	1065 (44 settlements). ESHIA also states that there may be other settlements in remote areas not identified as part of the baseline surveys.	5600	Not specified, though the text states that there may be additional economically-displaced households, and the RFP budget assumes 1600 HHs.	

A table presented in the baseline section of Annex H (Table H2.6) provides a breakdown of the households and individual numbers for the 44 settlements identified in the reservoir area. A further table provides similar data for 39 settlements outside of the reservoir area.

Subsequent correspondence with ERM (see attached email, April 2018) concerned whether to include the settlement of Dian Sokralla 1 in the totals: maps in the ESHIA Annex H clearly show Dian Sokurela 1 outside of the reservoir area; but Table H2.6 included 400 households (of 2000 persons) from Dian Sokralla 1, resulting in a total of 1065 households. ERM re-counted the number of structures in Dian Sokralla 1 as 54 only. Including Dian Sokralla 1 but correcting the number would result in a total of 719 households, consisting of 3780 persons.

3. RAP-1 (SRK 2018)

RAP-1 is based on detailed household surveys conducted in March to May 2018 for the Early Works Areas. A total of 56 project-affected households in five communities were surveyed, providing actual figures (not estimates) in the Early Works Areas, as follows (Table 4.1 in the RAP-1 document):

	Both physically and economically displaced	
	HHs	PP
<i>Northern Early Works*</i>		
<i>Kamawayway (Quarry site)</i>	14	40
<i>Kamasorie</i>	6	88
<i>Sawule 1 and Sawule 2</i>	12	40
<i>Total</i>	32	168
<i>Southern Early Works</i>		
<i>Kamathor</i>	24	227
<i>Total for both Northern and Southern</i>	56	395

Although not cited in the RAP-1 document, plots of farmland in the Southern Early Works Area that are farmed by households who reside outside of the area were surveyed during RAP planning. There are 33 of these households, and they consist of 191 persons.

*Kamasorie, Sawule 1 and Sawule 2 lie within or in very close proximity to the construction site (camp, and concrete batching plant respectively). A further settlement, Kamaninki, consisting of 2 households is situated adjacent to the existing road (which in this location will be upgraded into the access road) but it is not so close to the road as to warrant relocation. In addition, 10 households residing in the host community of Kamayege will be eligible for replacement housing, to ensure community cohesion with the resettled households, which means the total of houses to be constructed will be 42. (footnote on page 90 of RAP-1, Table 6-2 'Entitlements Matrix').

4. RAP-2 Scoping (SRK 2017)

SRK were commissioned to undertake scoping of RAP-2 preparation. They completed a scoping visit in June 2017, visiting 13 settlements (comprised of 8 entirely within the reservoir area, 1 partially within the reservoir area, and 4 outside of the reservoir area). Prior to the scoping visit, SRK utilised existing aerial imagery, multispectral imagery and Light Detection and Ranging data to establish a clear overview of the Project area, including potentially-affected settlements.

The report presents a table of estimated numbers of households residing in each of the settlements visited during the scoping visit. As these are not all of the affected settlements, it does not present the total number of physically- and economically-displaced households or persons.

The scoping report states that 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 (Page 12, Section 4.1.1 Scoping Visit Findings).

The final version of the scoping report also presents the findings of the Census Survey.

5. Census Survey (SHPL and Statistics Sierra Leone, 2018)

SHPL conducted a household census of the reservoir area from the 21st to 30th August 2018. This found that a total of 633 households consisting of 3288 persons will be physically-displaced.

Section	Number of Communities Enumerated	Total Number of Households (all Physically Displaced)	Total Population
Kondembaia	17	137	616
Sokralla	4	396	2,196
Mandrifeh	15	100	476
TOTAL	36	633	3,288

The following table compares the numbers of households found in the Census survey with those estimated in the ERM ESHIA:

- Twenty settlements surveyed in the Census survey correspond to 20 settlements identified in the ESHIA.
- The Census Survey found a further 10 settlements (55 households) that were not listed by ERM (shown in blue below)
- ERM listed a further 24 settlements (131 households) that were not surveyed in the Census Survey (shown in red below).

The difference in the total is due to this difference in the number of settlements, differences in the number of households in some settlements (e.g. Koikoitown), and the large ERM/ESHIA over-estimate of households in Dian Sokralla 1.

As discussed in the SRK Scoping Report, the additional settlements and households identified by ERM are likely to be small seasonal camps of artisanal miners whose permanent residence is outside of the area. This may mean that they are not physically-displaced, but they are still economically-displaced. RAP-2 will include entitlements for these persons, i.e. compensation for economic displacement.

No	Settlement (SHPL Census, 2018)	Altitude (masl)*	Number of Households (SHPL Census Figure, 2018)	Settlement (ESHIA, 2016)	Number of Households
1	Badala	318	232	Badala and Badala 2	215
2	Diang Sokralla 1	333	95	Dian Sokurela 1	400
3	Palama	276	2	Palama	5
4	Koikoitown	271	8	Koikoitown	60
5	Kamasah	295	10	Kamasaih	12
6	Kabrutown	288	11	Kabrutown	35

7	Sandia 1 and 2	301/300	43	Sandia	34
8	Fonema	322	4	Fonima	2
9	Amadumolondia 1	321	7	Amadu Malonde and Amadu Malonde Beach	15
10	Makondeyifeh	280	2	Makondefeh-Hassan	2
11	Yissaia	319	68	Yisaia	96
12	Duramanaia	317	9	Drumania	3
13	Portakonkekoroh 1-4	288/281/294/277	29	Portokonkekoro (1-4)	11
14	Kungbania	287	10	Kumgbania	17
15	Stadium	293	8	Stadium	8
16	Yiraia	300	2	Yiraia	3
17	Makampani 1	278	13	Kamakapen 1&2	9
18	Beratafeh 1 and 2	284/287	10	Baraythefe	3
19	Sendakoro 1 and 2	282	3	Serandaykoro	7
20	Kongbeyee 1	279	12	Kongbelefe 1&2	10
21	Fitia	304	1	Fogo 2	3
22	Pampaiafeh	322	15	Bafaia	45
23	Kamatoi	280	22	Balopkuma	4
24	Lunsania 1	285	1	Borolama	1
25	Lunsania 2	290	4	Jewula	1
26	Lunsania 3	n/a	2	Kabbari	5
27	Maweseneh	n/a	4	Kabankoro	3
28	Bockaria	323	1	Kabonka	3
29	Kambayafeh	300	4	Kamatwe 1 & 2	4
30	Murkumbaia	310	1	Koleboroh	9
31				Kumbawulaba	1
32				Makondeh	2
33				Makonefeh	1
34				Malonde	8
35				Mangokokero	3
36				Maskoya	3
37				Moserai-Ya	1
38				Musaia	2
39				Palama Beach	9
40				Samba	1
41				Yidakula	7
42				Woriyambayie	2
	Total No. of Households		633		1,065

* As measured using handheld GPS devices in the field; this has vertical accuracy to +/- 10 m, so 10 m should be subtracted from these figures to indicate the lowest possible actual altitude of the settlement.

6. Additional SRK Analysis

Alternative Full Supply Levels

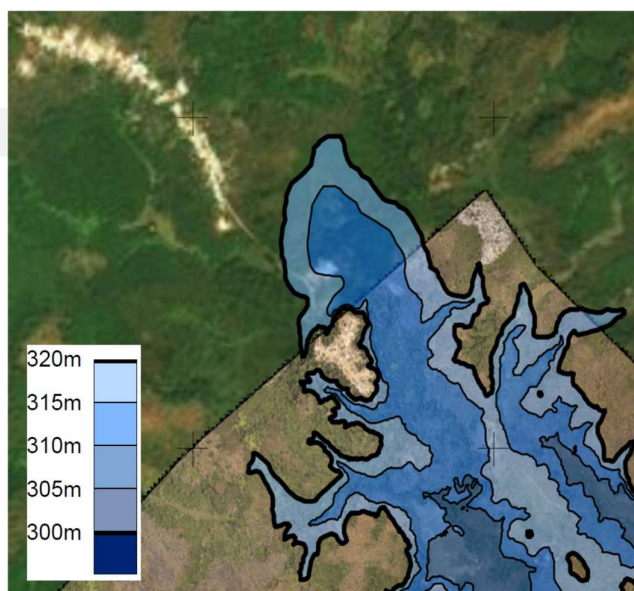
In July 2018, SHPL asked SRK to identify how many households would be physically-displaced for alternative reservoir levels of 320 masl and 300 masl, to complement information on power generation for these options in an analysis of the optimum reservoir level. SRK present a total of 520 households for 320 masl (lower than the Census Survey total of 633, due to the exclusion of settlements such as Dian Sokralla 1). The number of persons is estimated as 2964.

The 300 masl option physically-displaces 137 households: this is significantly lower because some of the upstream settlements (Badala, Dian Sokralla 1, Yisaia) are the largest affected settlements.¹

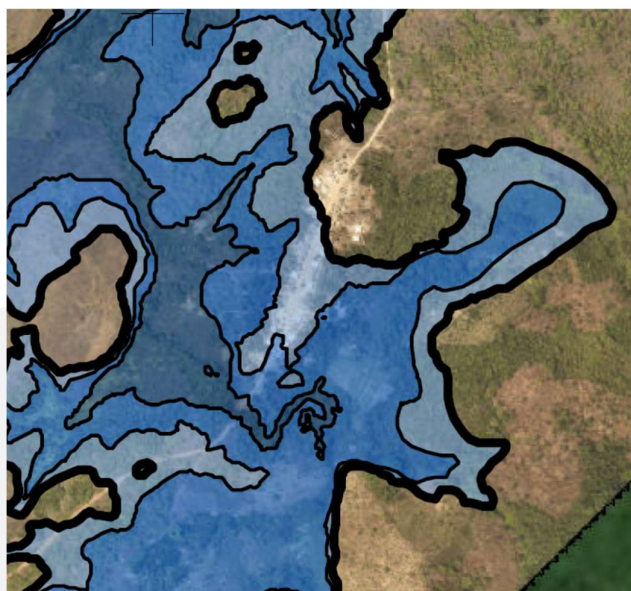
Some settlements, Amadu Malonde and Yisaia specifically, will be partly inundated by the reservoir at full supply level of 320 masl, with the reservoir shoreline cutting across the settlement. Dian Sokralla 1, which is located on an area of higher land, will be almost fully surrounded by water. It is likely that it will be necessary to resettle all inhabitants in these settlements.

Settlements on the edge of the reservoir likely to require full resettlement:

Dian Sokralla 1



Yisaia



Economic displacement

In December 2019, SHPL asked SRK to estimate the number of additional households that are not physically-displaced but will be economically-displaced from the reservoir area. SRK used two methods.

First, an estimate for each settlement, based on their knowledge of the likely number of households engaged in subsistence farming and seasonal artisanal mining in the reservoir area, as follows. This resulted in a total of 611 households, though it would be lower if all of Dian Sokralla 1 and Yisaia are physically relocated.

Settlement	Number of Households
<i>Yisaia</i>	78
<i>Kondembaia</i>	200
<i>Diang Sokralla 1 and 2</i>	121

¹ This figure is very similar to that of 135 households, estimated by Lahmeyer International. As part of the Feasibility Study, Laymeyer International estimated displaced households for full supply levels of 300 masl, 305 masl (150 households), 310 masl (210 households), and 315 masl (297 households). (Table 3 on page 89 and page 92 of the Feasibility Study Volume III Annexes Part B Yiben HEP).

Yara	200
Pampaiafeh	12
Approximate Total (Households)	611

Second, an estimate of the total number of households using land use, based on satellite imagery of land use, from which the number of physically-displaced households (based on the SHPL census survey, 633) is subtracted. This resulted in a total of 787 households.

Land cover in the reservoir area	Hectares
Total Area	11,517
Palm growth	283
Bare land (assumed cleared for agricultural use)	491
Post clear growth	6,547
Total used area (A)	774
Average land use per household (based on SEWA) (B)	0.5448
Total households economically displaced (A / B = C)	1,420
Number of physically displaced households as per SHPL census survey (D)	633
Households economically-displaced only (C minus D)	787

7. Latest Adjustments in Siting

Adjustment to Physical Resettlement Numbers in the Northern EWA

It will not be necessary to re-locate Kamawayway in the Northern Early Works area, if a technically suitable quarry site is found within the reservoir area. Geotechnical surveys are underway, and it is currently expected that Kamawayway will not be relocated.

Adjustment to Physical Resettlement Numbers in Southern EWA

An additional four households (52 people) in Kamathor will be displaced. These were not included in RAP-1, but are now included due to the adjustment in the alignment of the access road through the site.

This results in an adjusted number of households to be physically displaced in the Early Works areas of 46 households (407 persons):

	Both physically and economically displaced	
	HHS	PP
Northern Early Works		
Kamasorie	6	88
Sawule 1 and Sawule 2	12	40
Total*	18	128
Southern Early Works		
Kamathor	28	279
Total for both Northern and Southern	46	407

8. Conclusion

The most definitive figures on resettlement numbers can be summarised as follows:

	Both physically and economically displaced		Only economically displaced	
	HHs	PP	HH	PP
<i>Northern and Southern Early Works (Actual)</i>	46	407	33	191
<i>Reservoir area (Estimates)</i>	520 to 633*	2964 to 3288*	611 to 787	3483 to 4486**
<i>TOTAL (approx.)</i>	566 to 679	3371 to 3695	644 to 820	3674 to 4677

* Range due to inclusion/exclusion of settlements on reservoir edge

** Assuming upper level estimate of 5.7 persons per household found during EHSIA surveys.

Key areas of uncertainty are:

- Inclusion / exclusion of households on the reservoir edge from physical displacement;
- Hydrological and topographical uncertainty, i.e. uncertainty on the exact location to which waters will rise;
- The adoption of a buffer zone or exclusion zone around the reservoir, to account for a backwater effect (i.e. waters higher than the FSL of 320 masl at the reservoir tail), safety, and the management of reservoir water quality; and
- Numbers of people who are economically-displaced only.