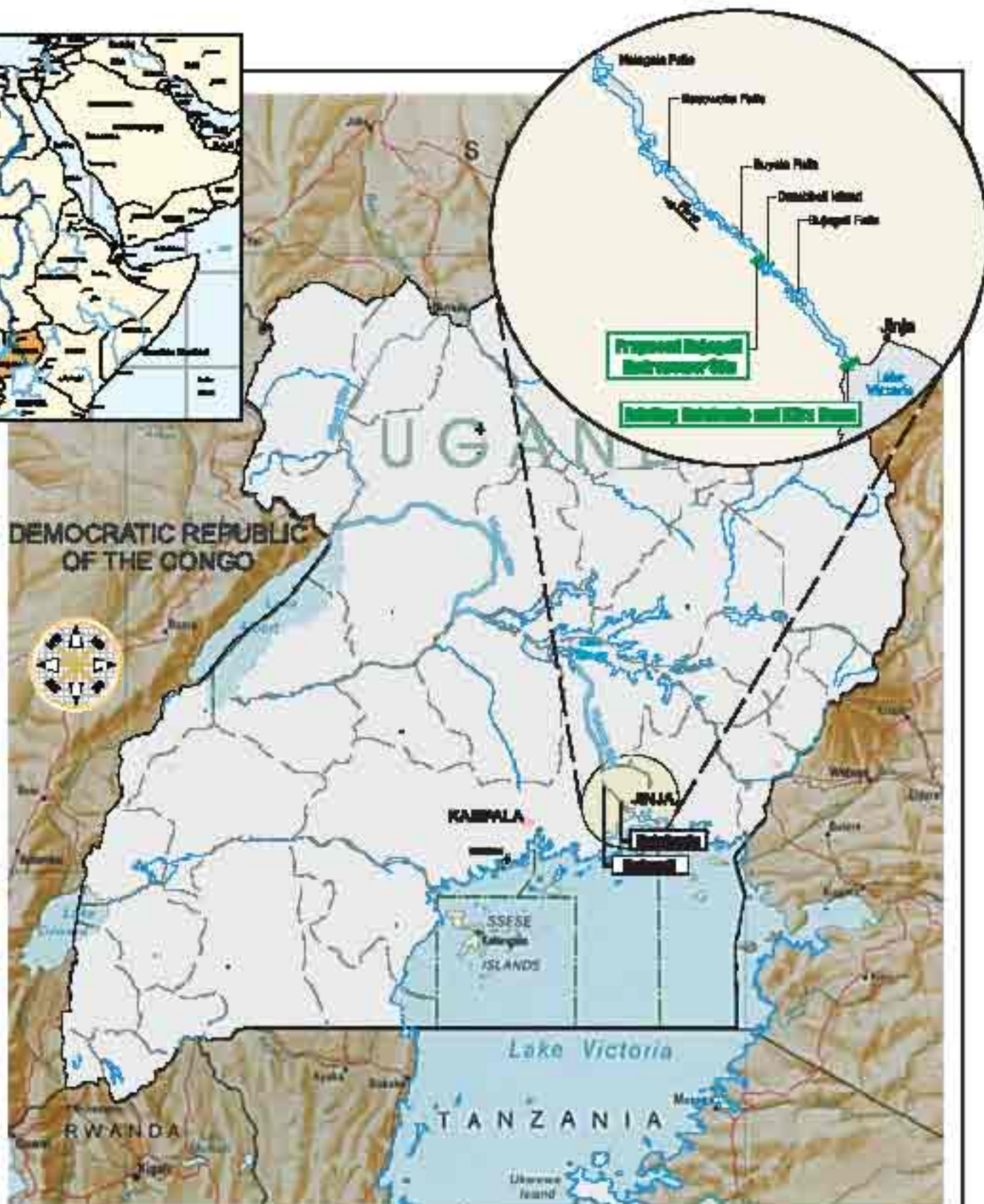




50km

Project Name:
**BILAGALI HYDROPOWER
PROJECT S&A**

Prepared for:
BILAGALI ENERGY LIMITED

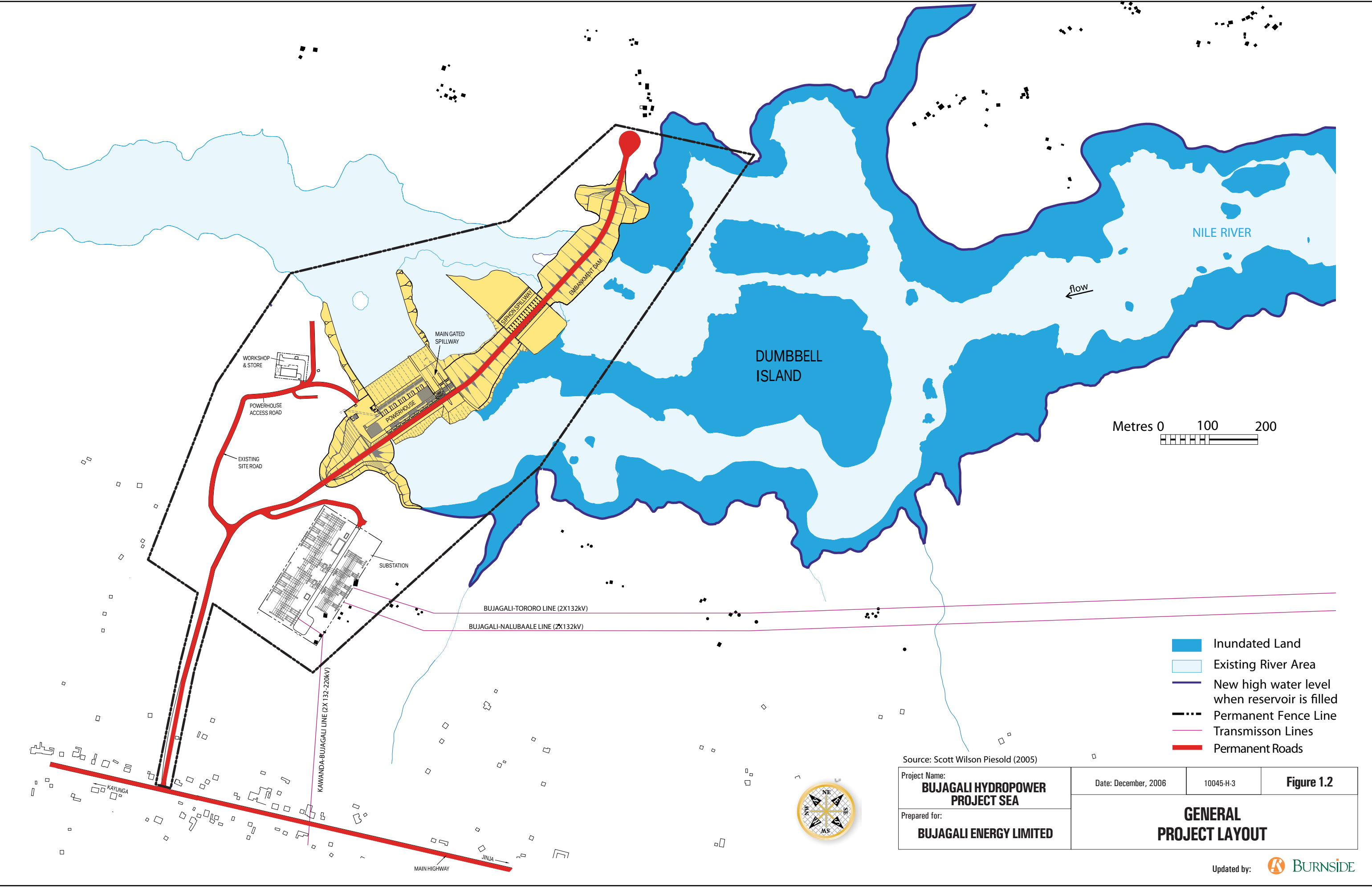
Date: December, 2006

2006/11

Figure 1.1

**LOCATION OF THE
BILAGALI PROJECT**

Prepared by:  **BURNSIDE**

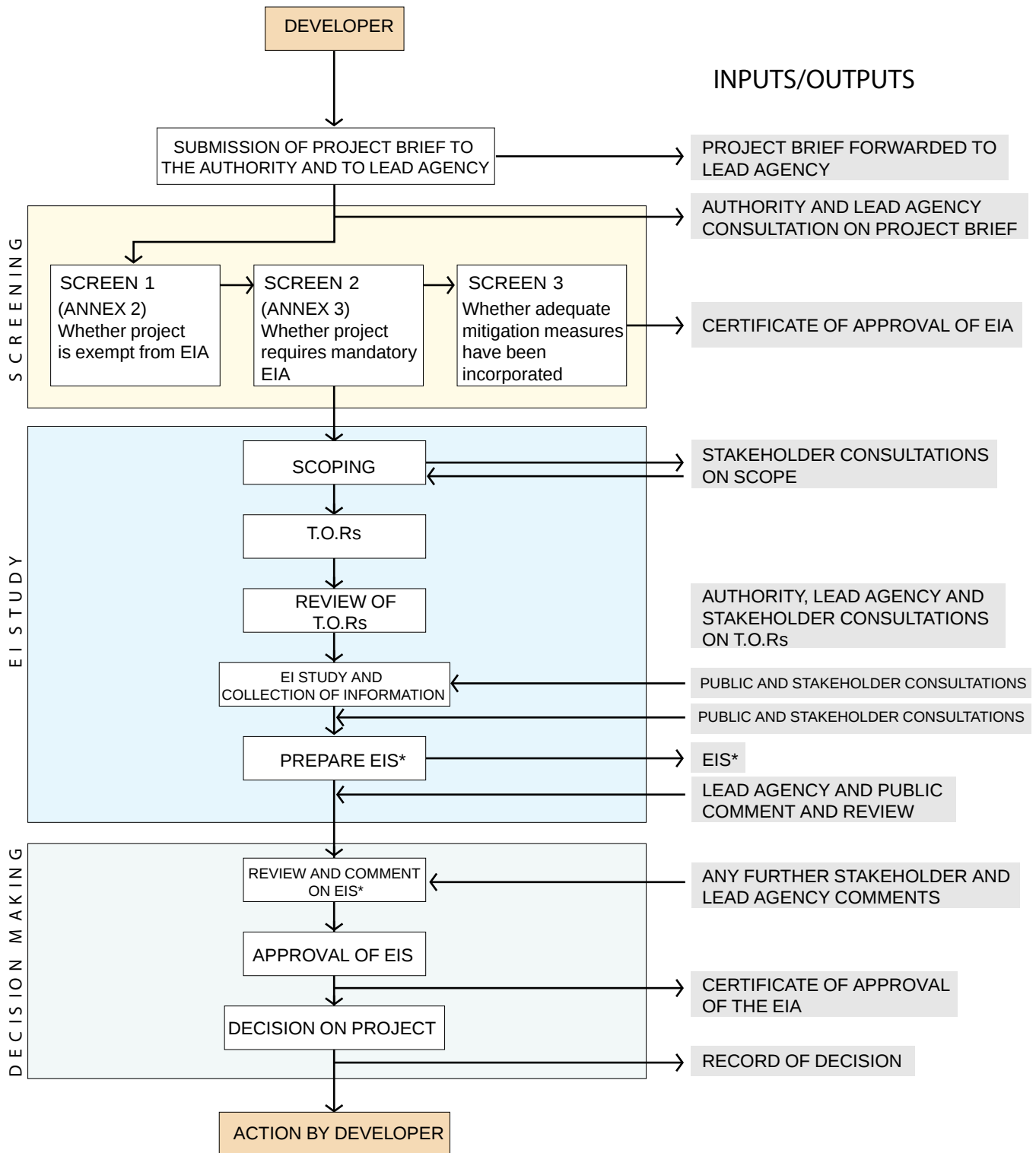


Source: Scott Wilson Piesold (2005)

Project Name:
**BUJAGALI HYDROPOWER
PROJECT SEA**

Prepared for:
BUJAGALI ENERGY LIMITED

Date: December, 2006	10045-H-3	Figure 1.2
GENERAL PROJECT LAYOUT		



* EIS synonymous with SEA Report

Source: Adapted from NEMA (1997)

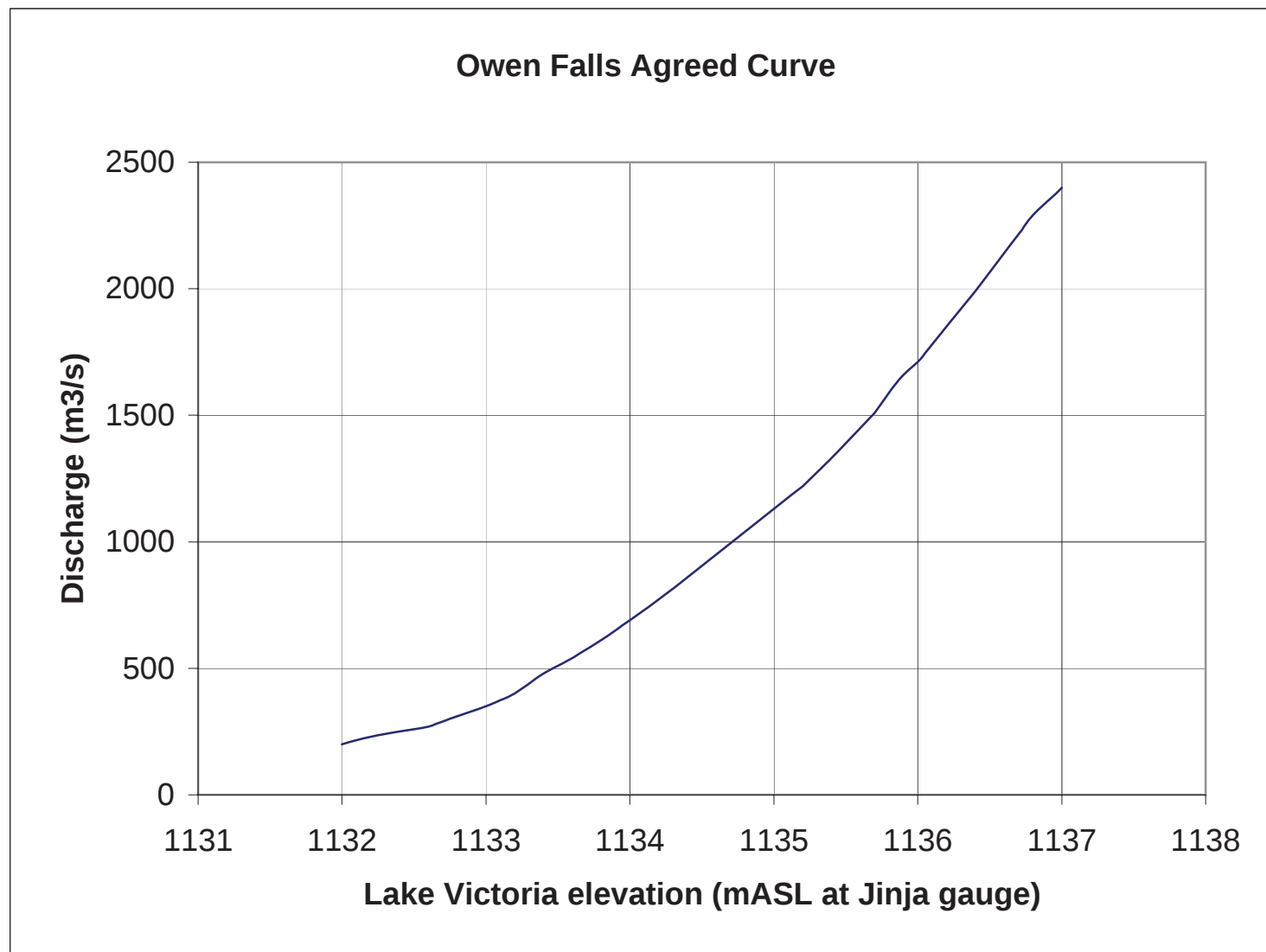
Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-5	Figure 2.1
Prepared for: BUJAGALI ENERGY LIMITED	EIA PROCESS FLOWCHART FOR UGANDA		

Updated by:

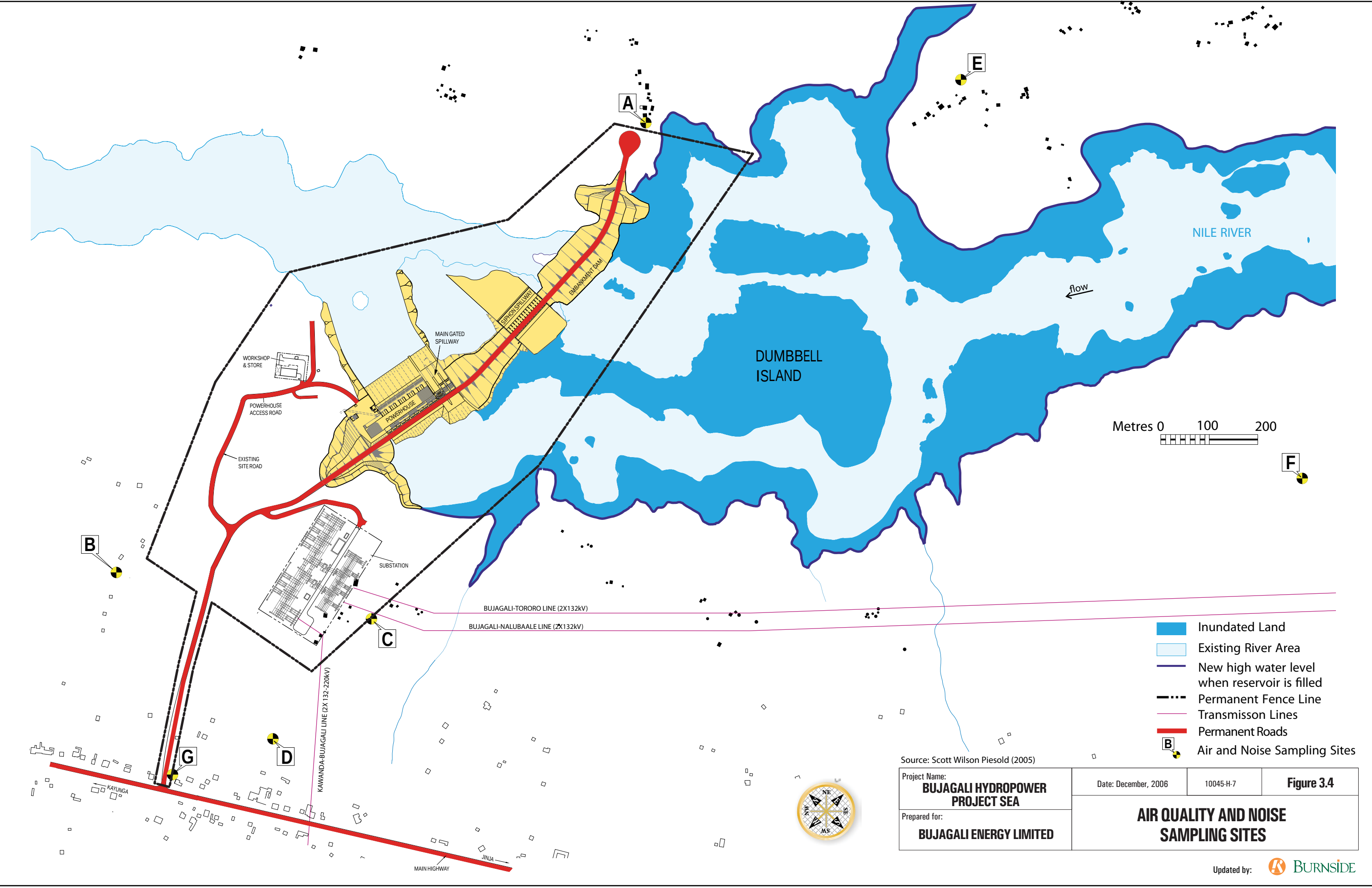


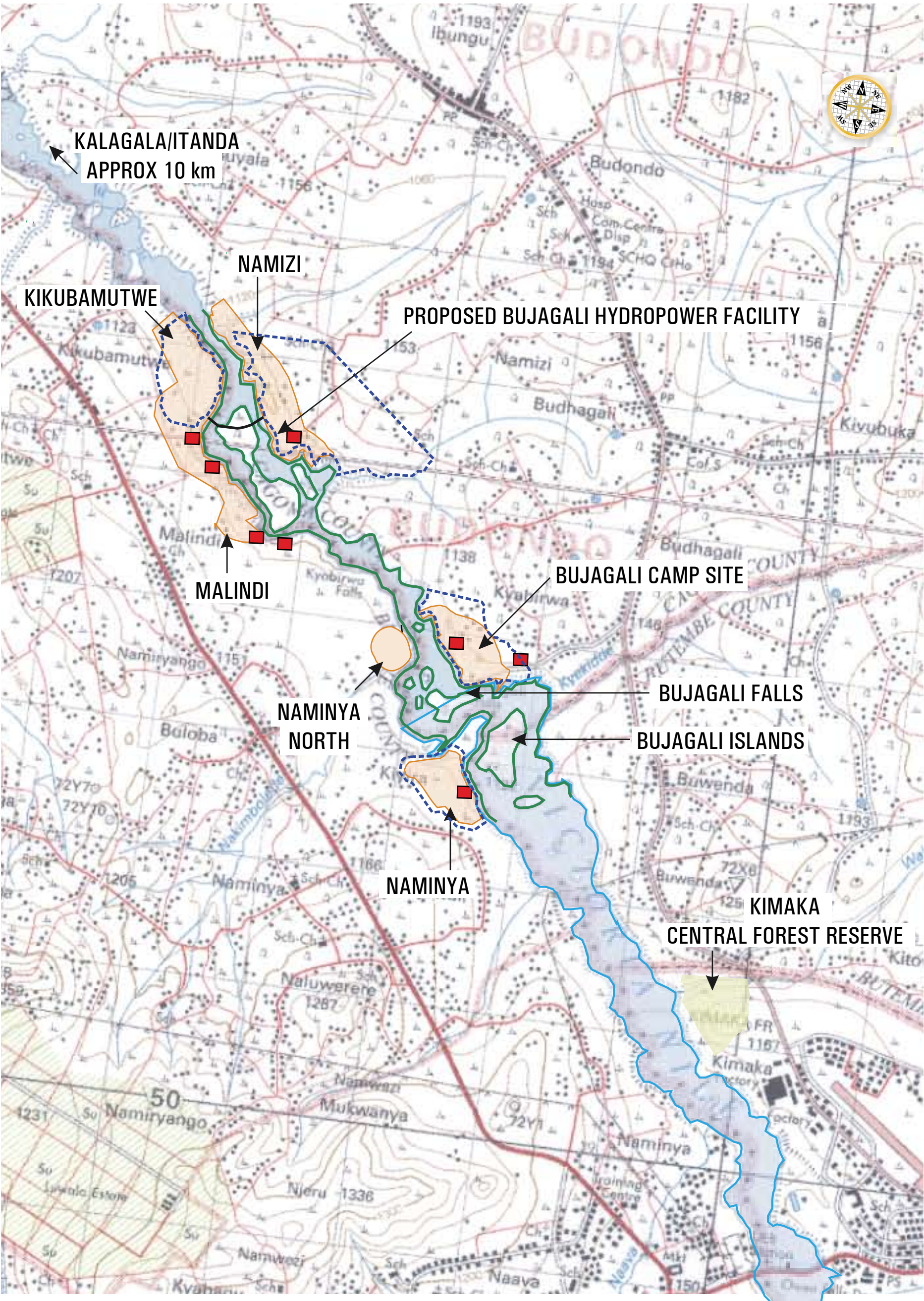


Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-6	Figure 3.1
Prepared for: BUJAGALI ENERGY LIMITED	BUJAGALI FALLS AND THE SURROUNDING LANDSCAPE		



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-58	Figure 3.2
Prepared for: BUJAGALI ENERGY LIMITED	LAKE VICTORIA OUTFLOWS: AGREED CURVE		





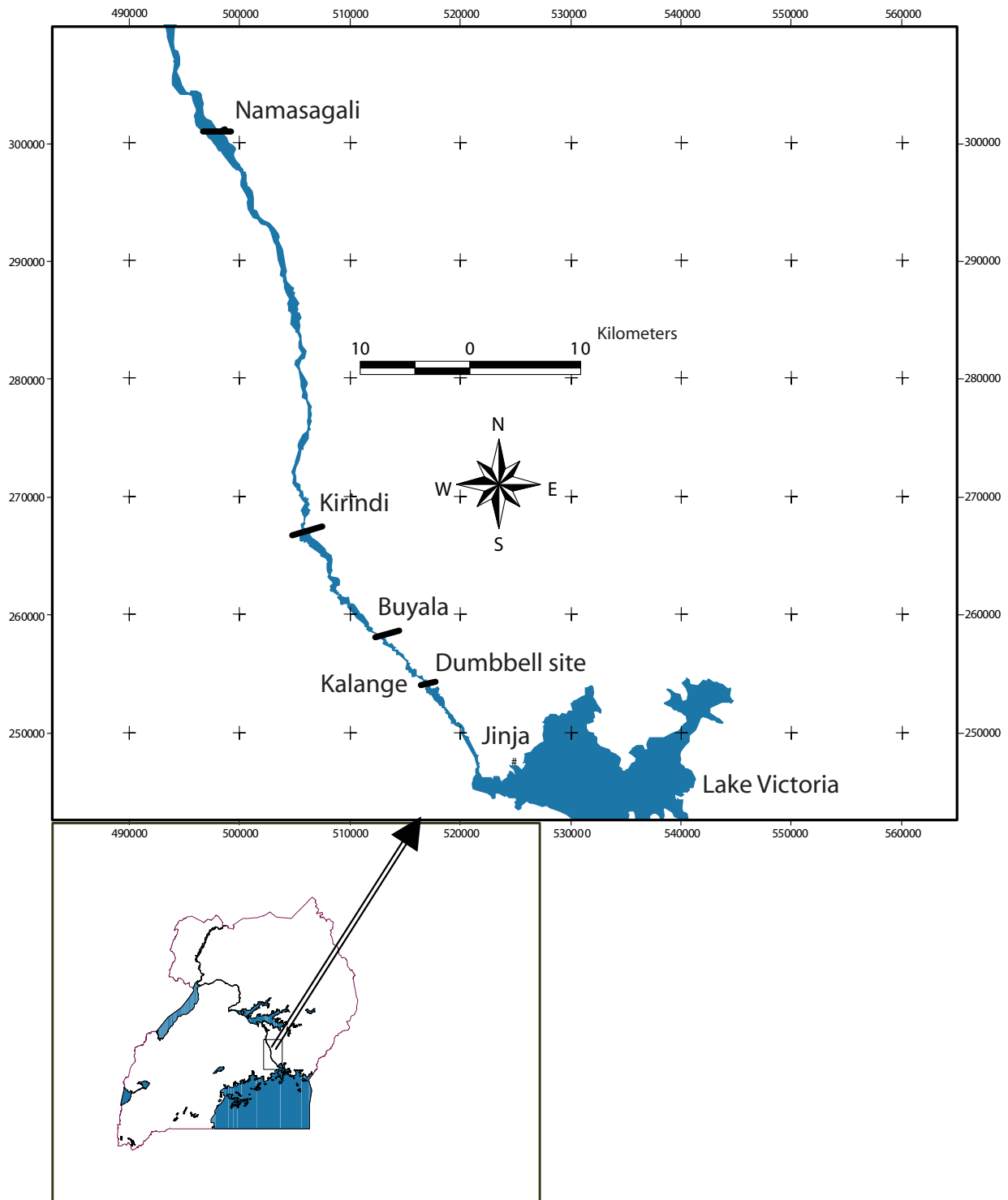
Note Boundaries of the Central Forest Reserves are Approximate

- Vegetation Survey Areas
- Land Bird Survey Areas
- Water Bird Survey Areas
- Disease Vectors Survey Sites (1998)
- Jinja Wildlife Sanctuary "Indicative"
- Forest Reserve
- Dam

SCALE 1:50,000
0 500 1000 M

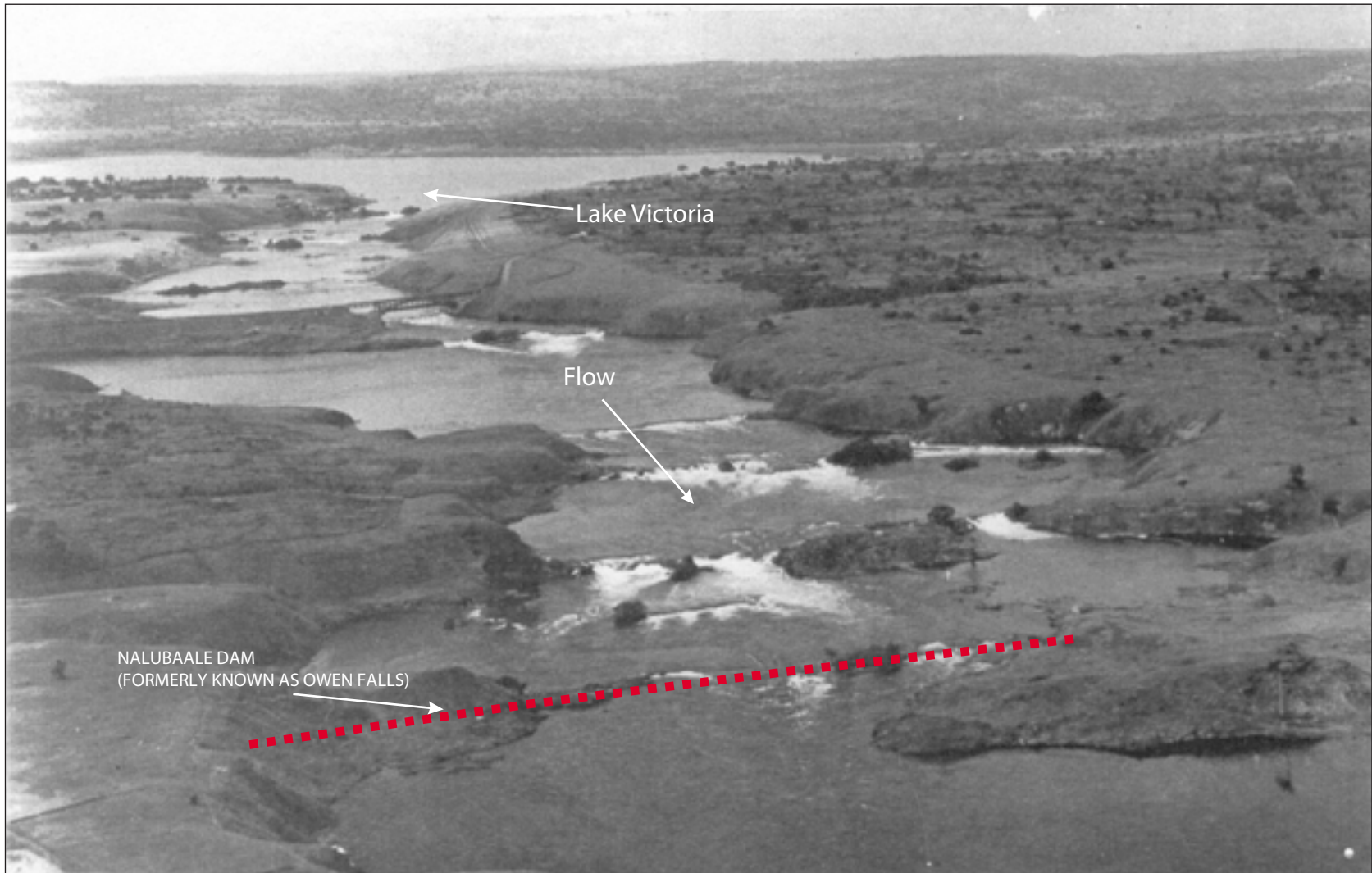
Source: Forest Department (1999); WS Atkins (1999b); GoU (1953)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-8	Figure 3.5
Prepared for: BUJAGALI ENERGY LIMITED	TERRESTRIAL ECOLOGY STUDY SITES		



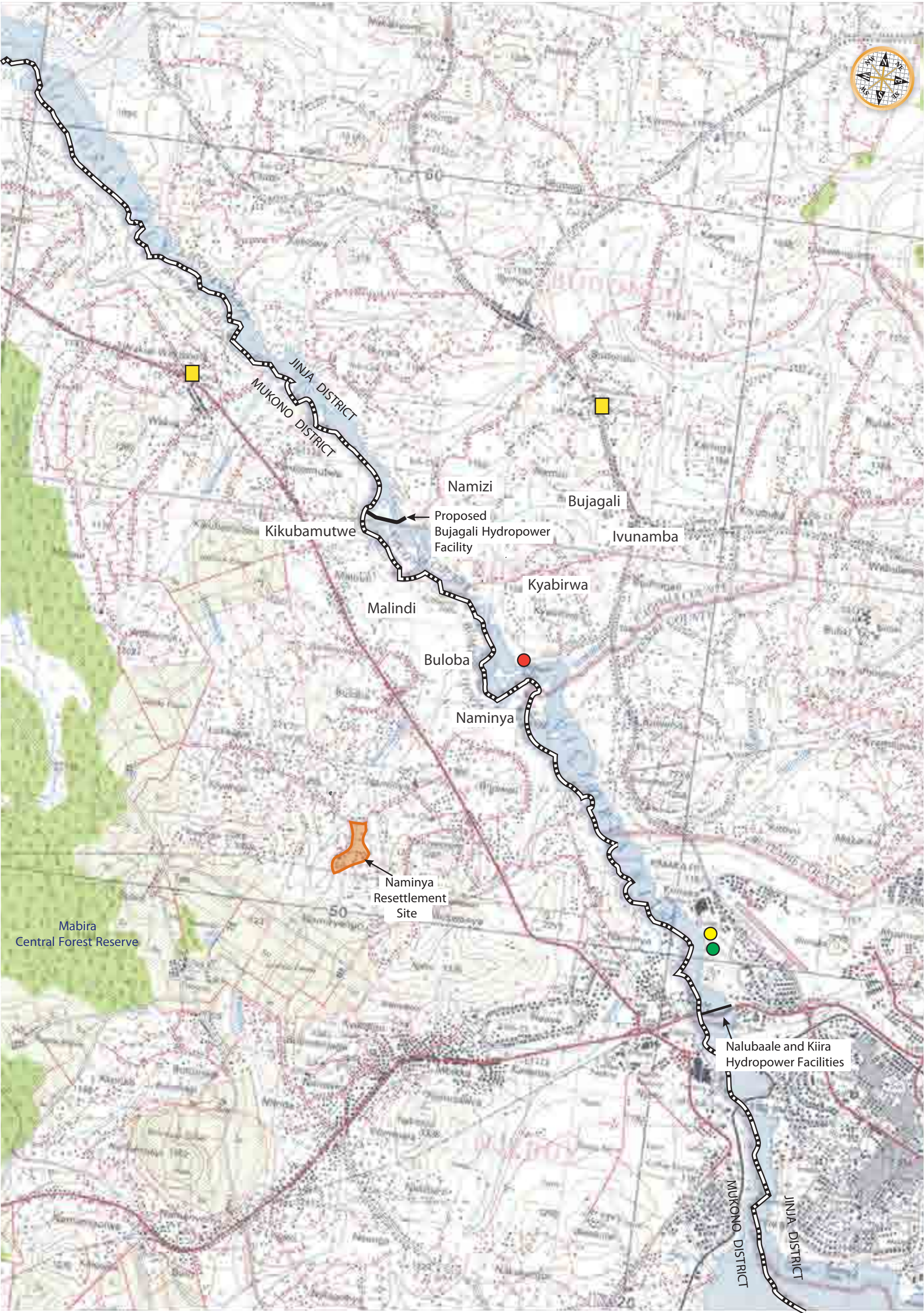
Source: NAFIRRI (2006)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-9	Figure 3.6
Prepared for: BUJAGALI ENERGY LIMITED	AQUATIC FLORA AND FAUNA SURVEY SITES USED IN FIRRI SURVEYS		



Source: Photographer unknown (Estimated Date: Late 1940s)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-10	Figure 3.7
Prepared for: BUJAGALI ENERGY LIMITED	THE SOURCE OF THE RIVER NILE PRIOR TO CONSTRUCTION OF NALUBAALE DAM		



- 

Resettlement Land
- 

District boundary
- 

Road
- 

Nile High Club
- 

Bujagali Speke Camp and Picnic Site
- 

Jinja Nile Resort
- 

Sub-county Office LC3
- 

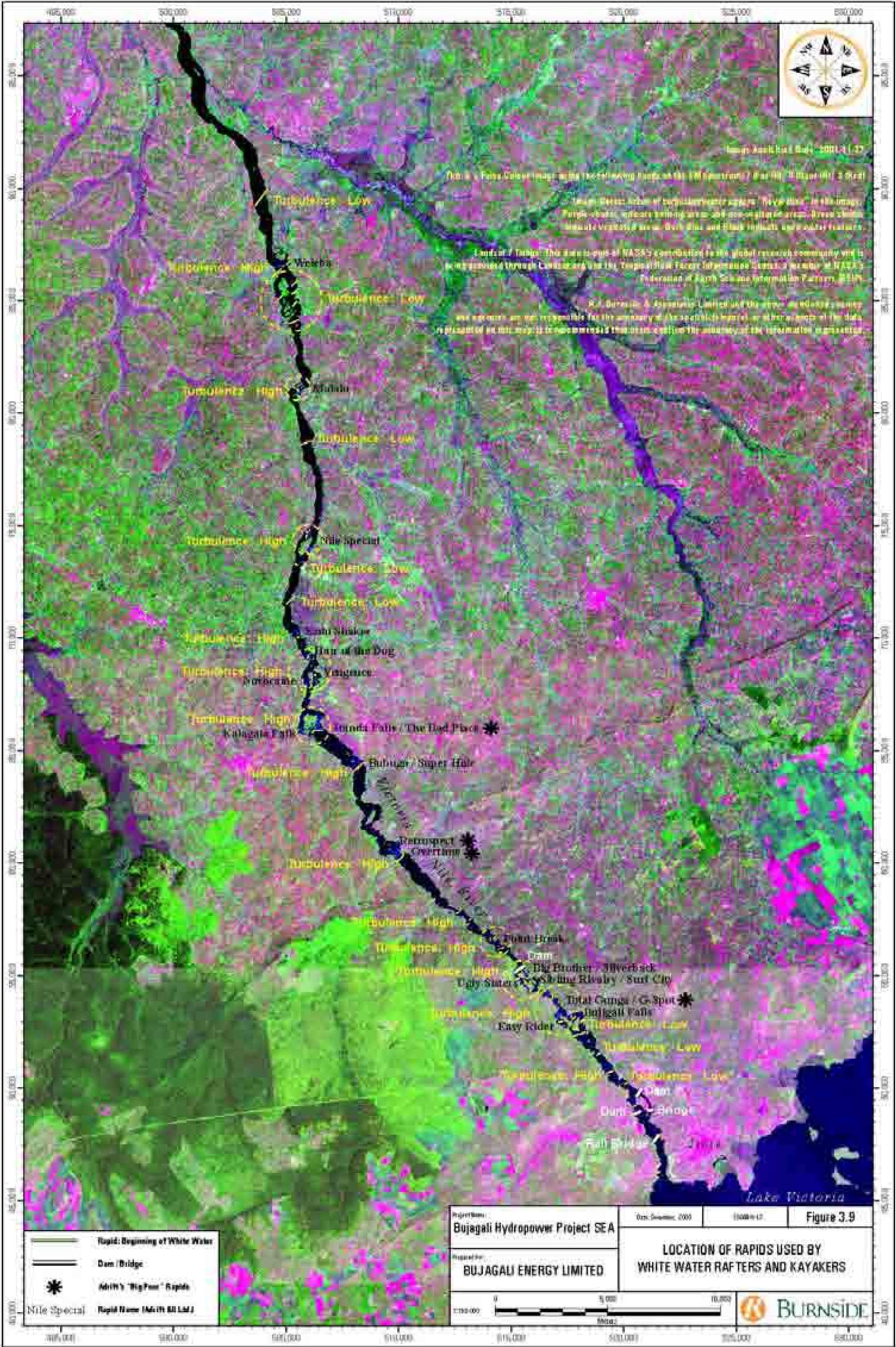
Buloba Project-affected Village

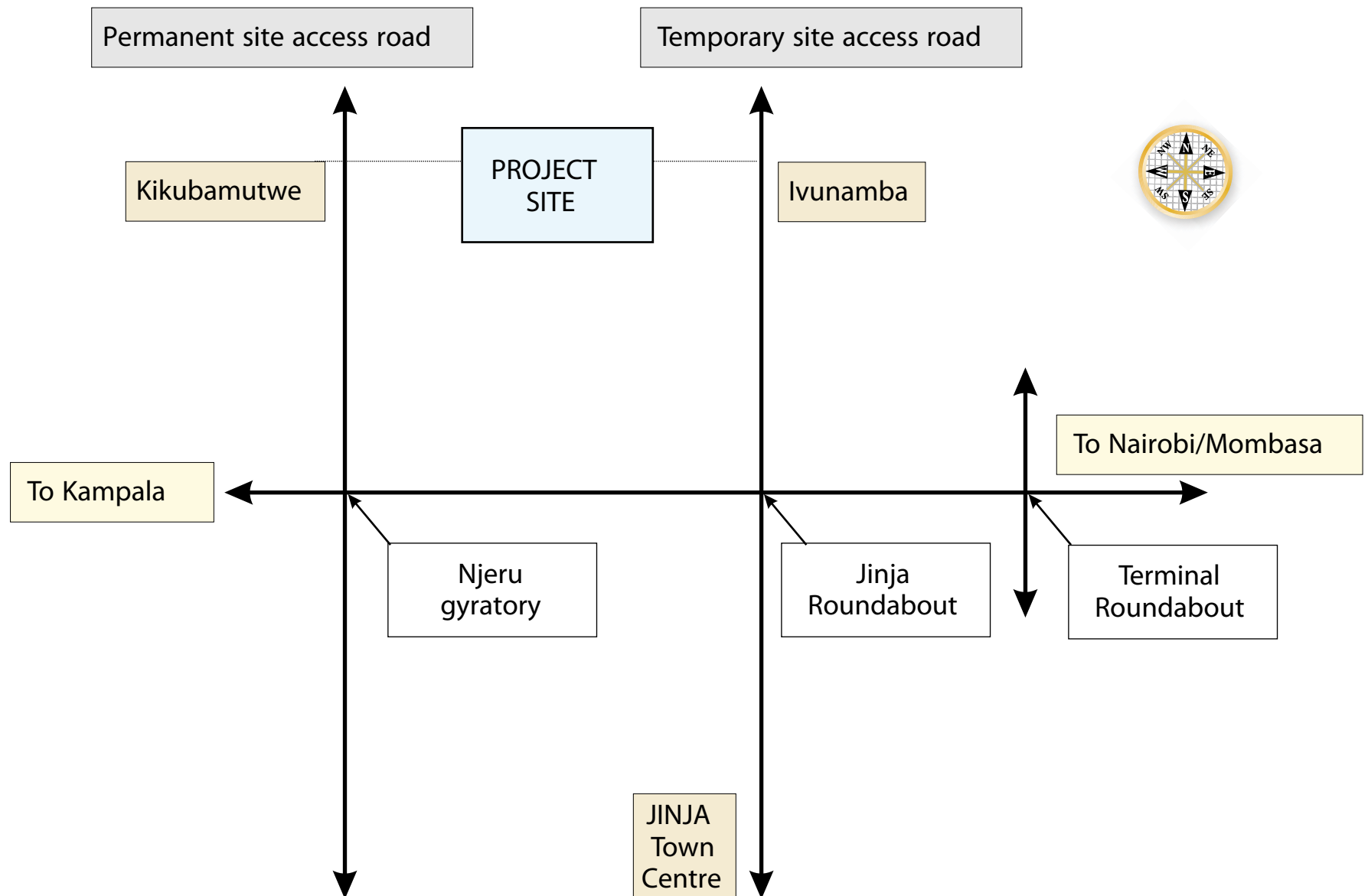
SCALE 1:50,000

0 500 1000 M

Project Name: BUJAGALI HYDROPOWER PROJECT SEA		Date: December, 2006	10045-H-11	Figure 3.8 SOCIO-ECONOMIC FEATURES
Prepared for: BUJAGALI ENERGY LIMITED				

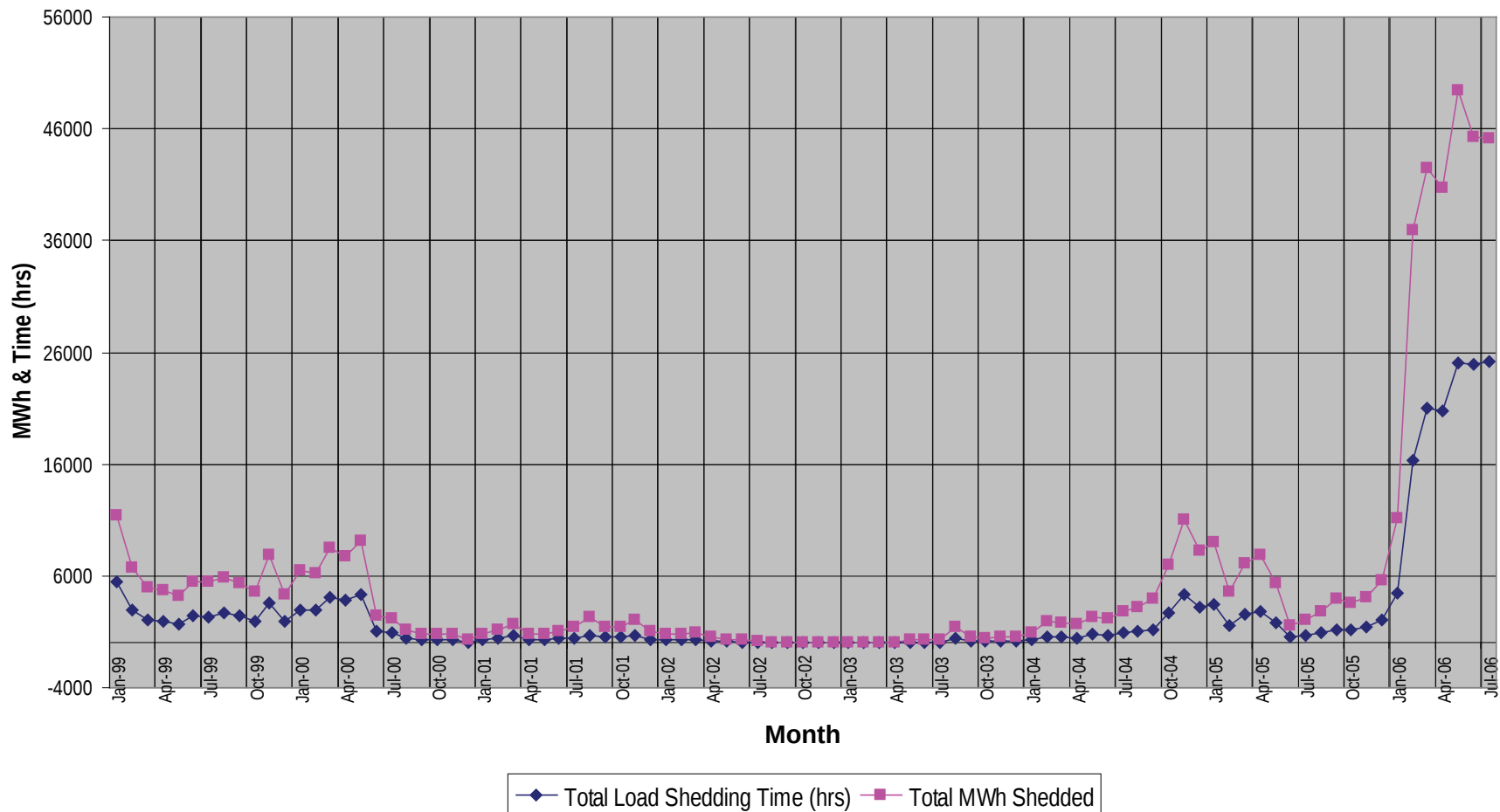
Source: Forest Department 1999, WS Atkins 1999b.



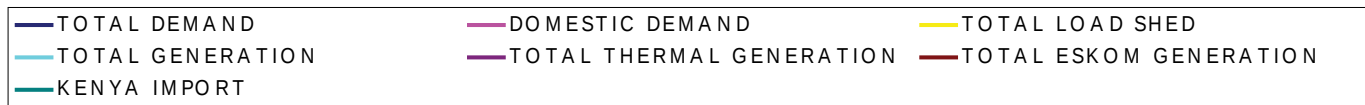
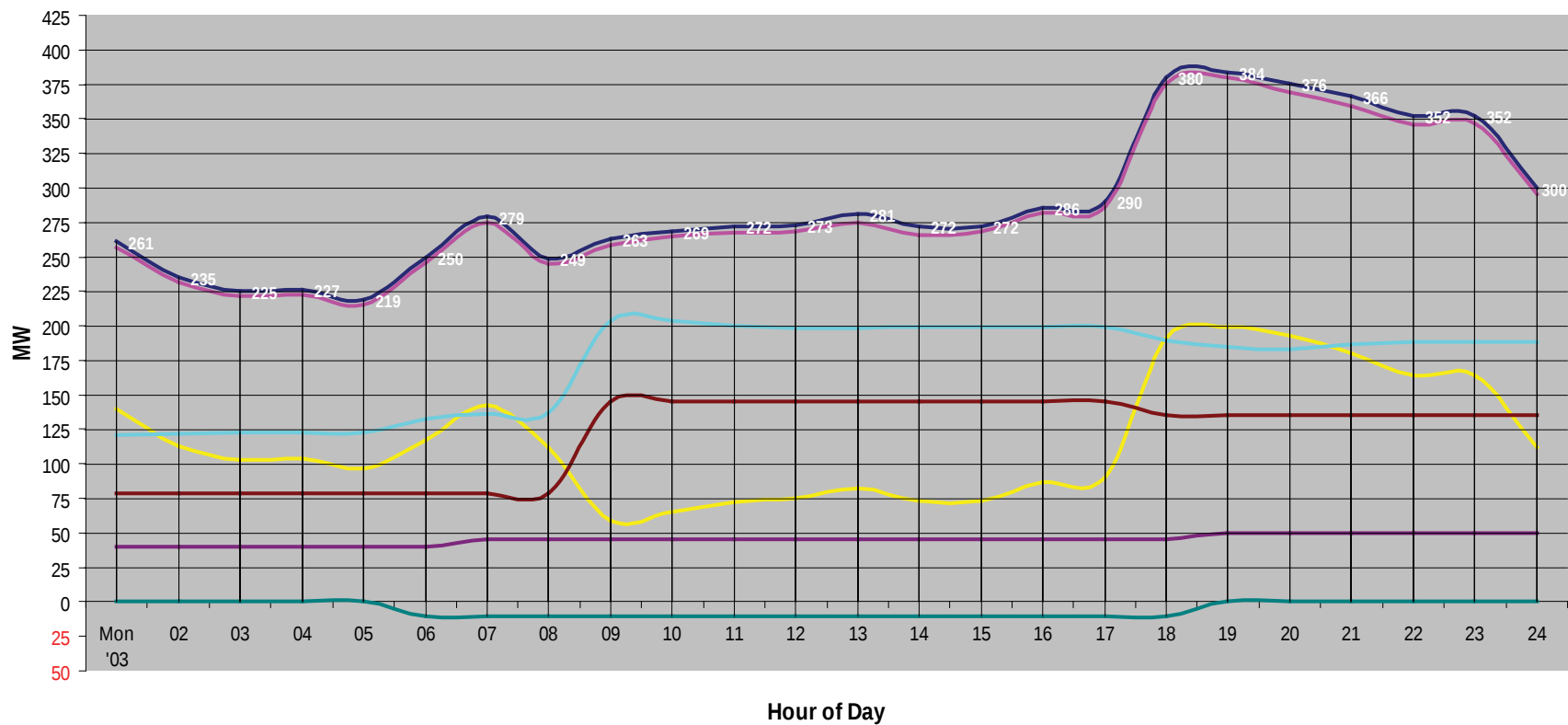


Source: WS Atkins, 1999

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-13	Figure 3.10
Prepared for: BUJAGALI ENERGY LIMITED	SCHEMATIC DIAGRAM OF THE ROAD NETWORK AROUND THE PROJECT SITE		



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-14	Figure 4.1
Prepared for: BUJAGALI ENERGY LIMITED	Load Shedding Trend in Uganda (1999-2006)		



Project Name:
**BUJAGALI HYDROPOWER
PROJECT SEA**

Prepared for:
BUJAGALI ENERGY LIMITED

Date: December, 2006

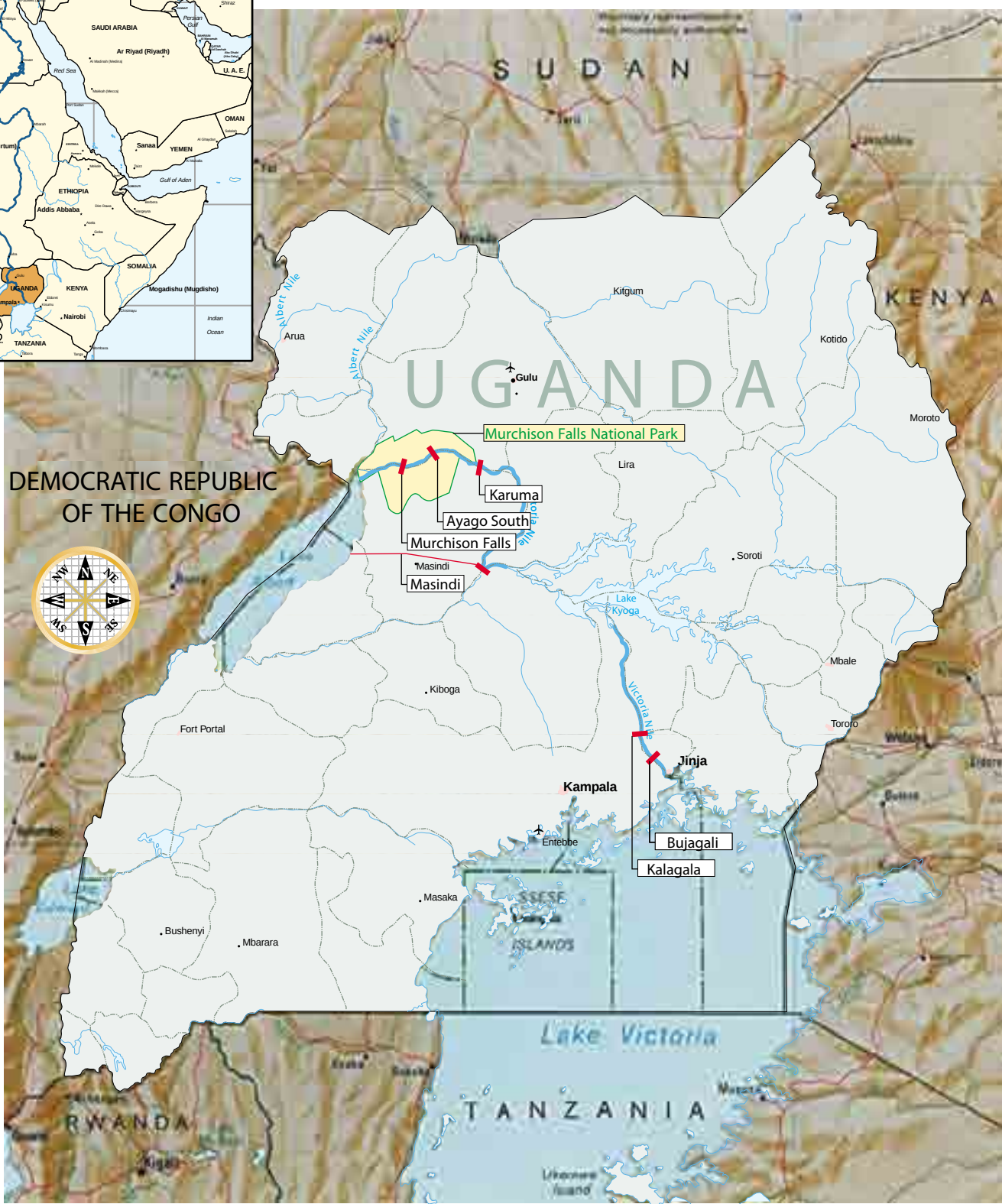
10045-H-15

Figure 4.2

Current Typical Daily Load Curve (2006)

Updated by:





50KM

Project Name:

**BUJAGALI HYDROPOWER
PROJECT SEA**

Prepared for:

BUJAGALI ENERGY LIMITED

Date: December, 2006

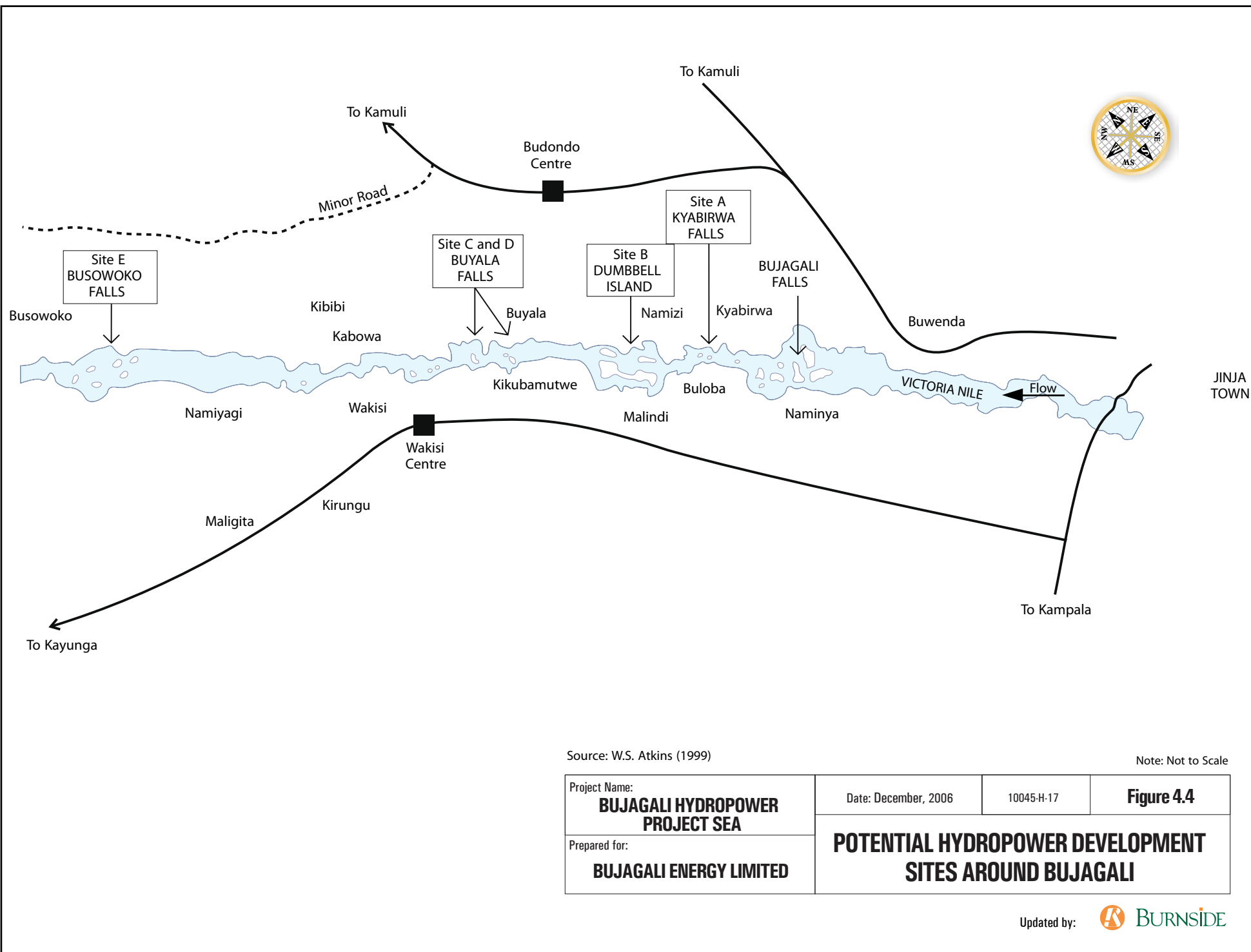
10045-H-16

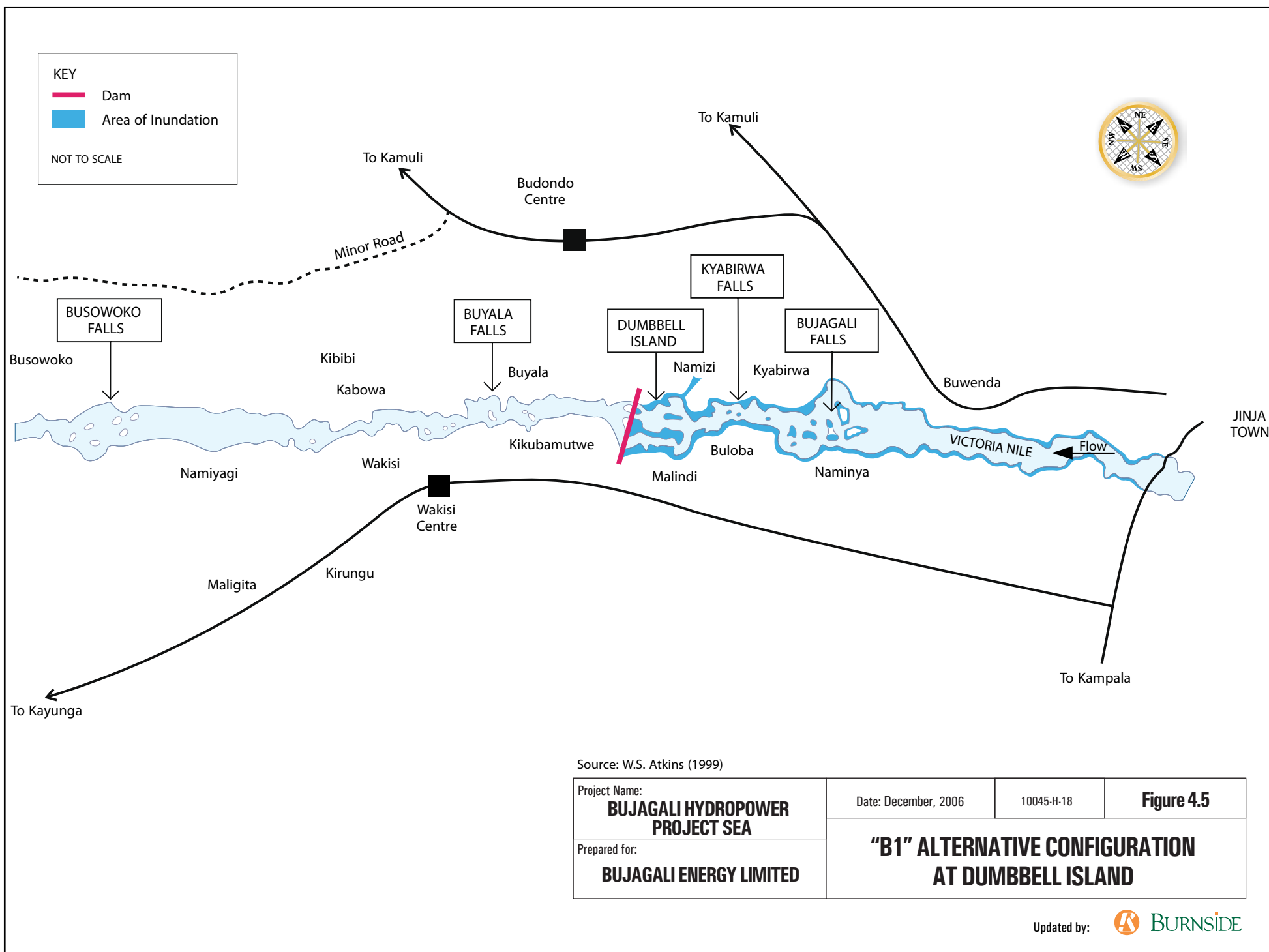
Figure 4.3

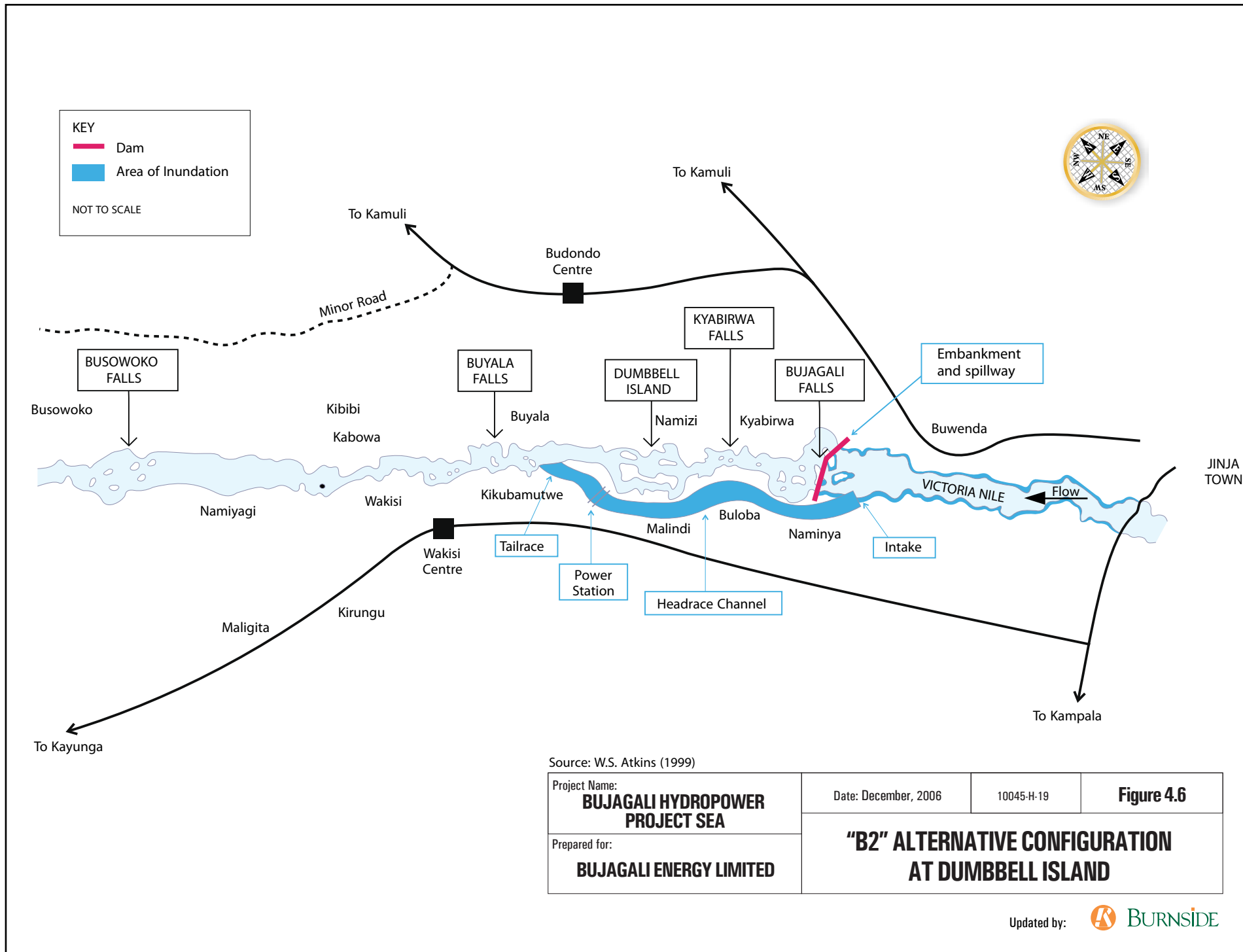
**POTENTIAL HYDROPOWER DEVELOPMENT
SITES ON THE VICTORIA NILE**

Updated by:







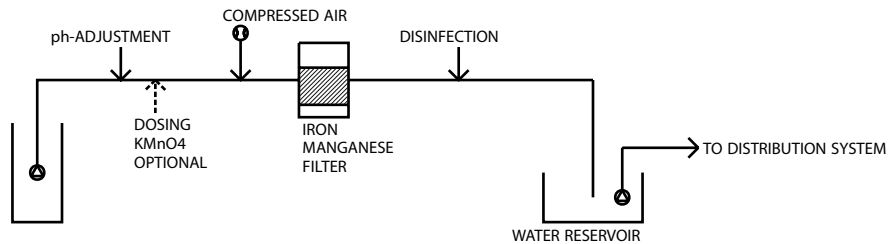




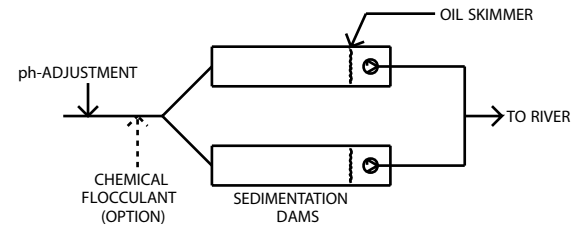
Source: Knight Pielke (2000), Drawing No. 1007_0019

Project Name: BILAGALI HYDROPOWER PROJECT SEA	Date: November, 2000	1000-0-000	Figure E.1
Prepared for: BILAGALI ENERGY LIMITED	PERMANENT & TEMPORARY LAND TAXES (Page 2 of 2)		

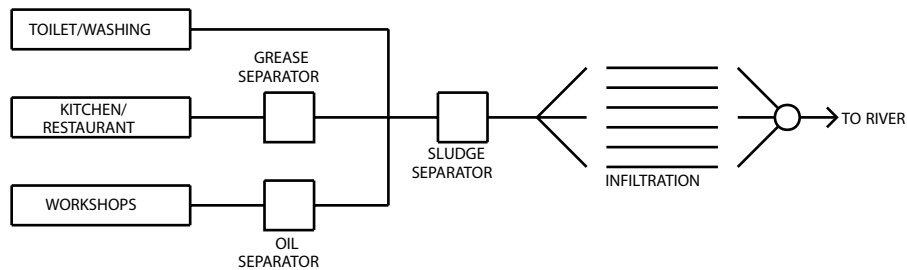
DRINKING WATER



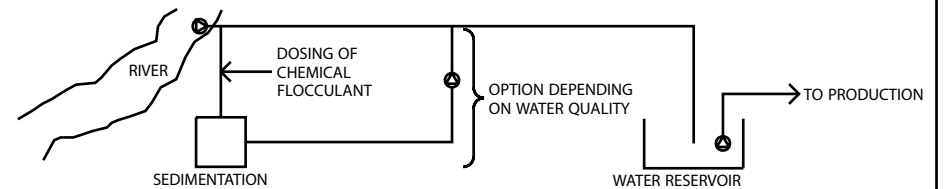
DRAINAGE AND LEAKAGE WATER FROM A CONSTRUCTION SITE



SEWAGE TREATMENT - SITE OFFICE

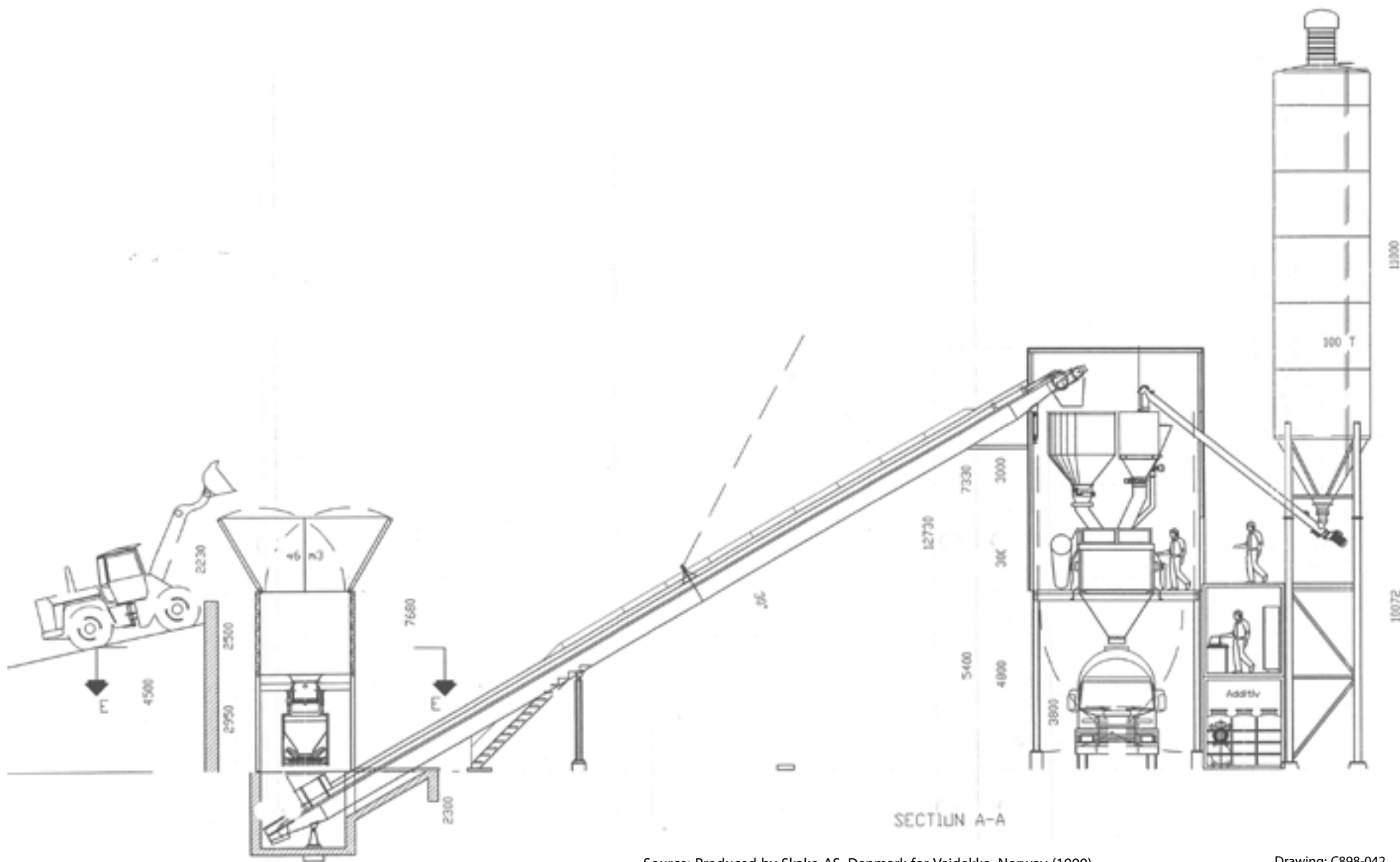


WATER FOR CONCRETE PRODUCTION



Source: AESNP (2001)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-25	Figure 5.2
Prepared for: BUJAGALI ENERGY LIMITED	PRELIMINARY LAYOUT- WATER HANDLING		

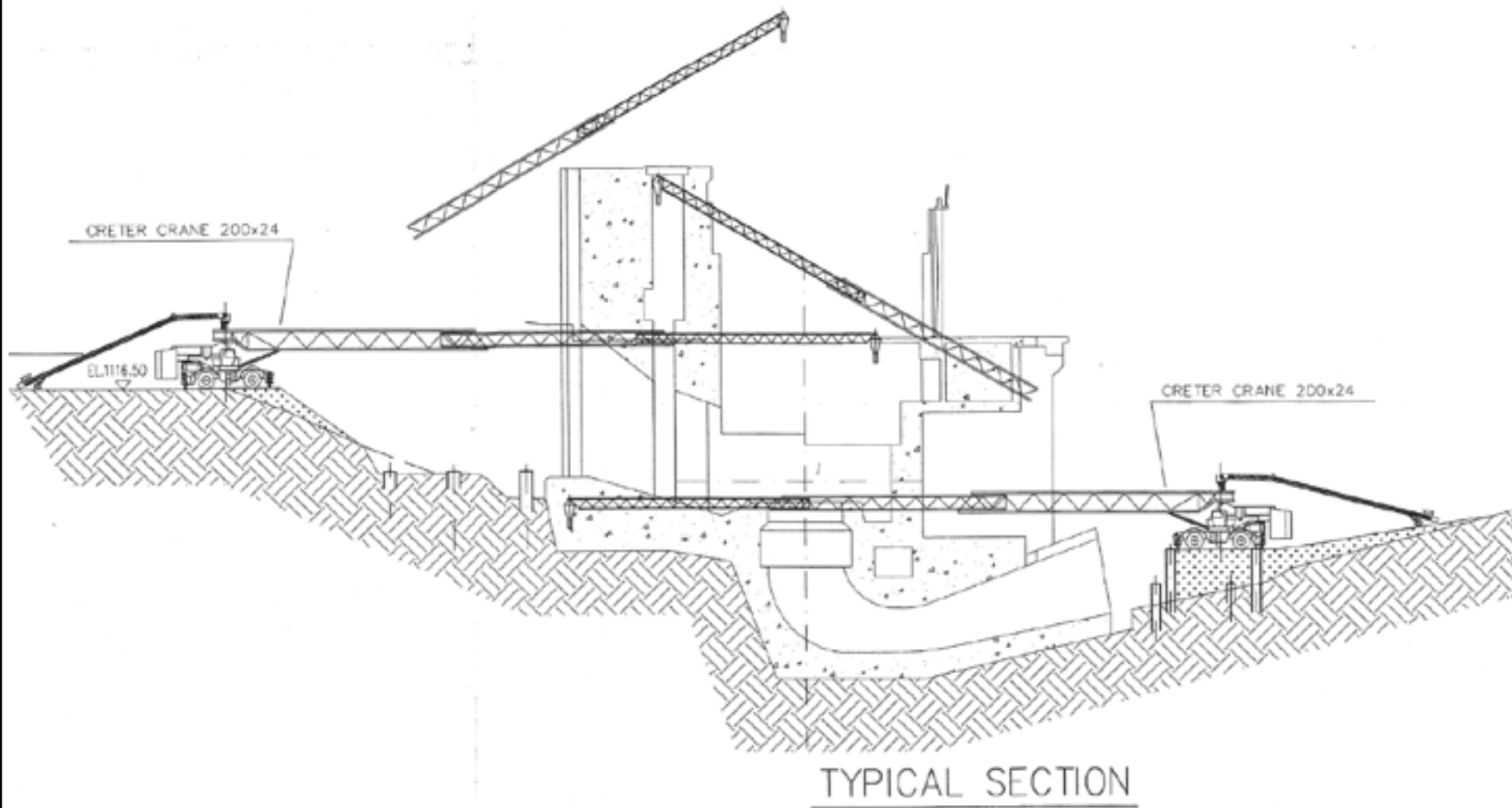


Source: Produced by Skako AS, Denmark for Veidekke, Norway (1999)

Drawing: C898-042

Project Name:	Date: December, 2006	10045-H-29	Figure 5.4
Prepared for:	TYPICAL CONCRETE BATCHING PLANT		
BUJAGALI ENERGY LIMITED			

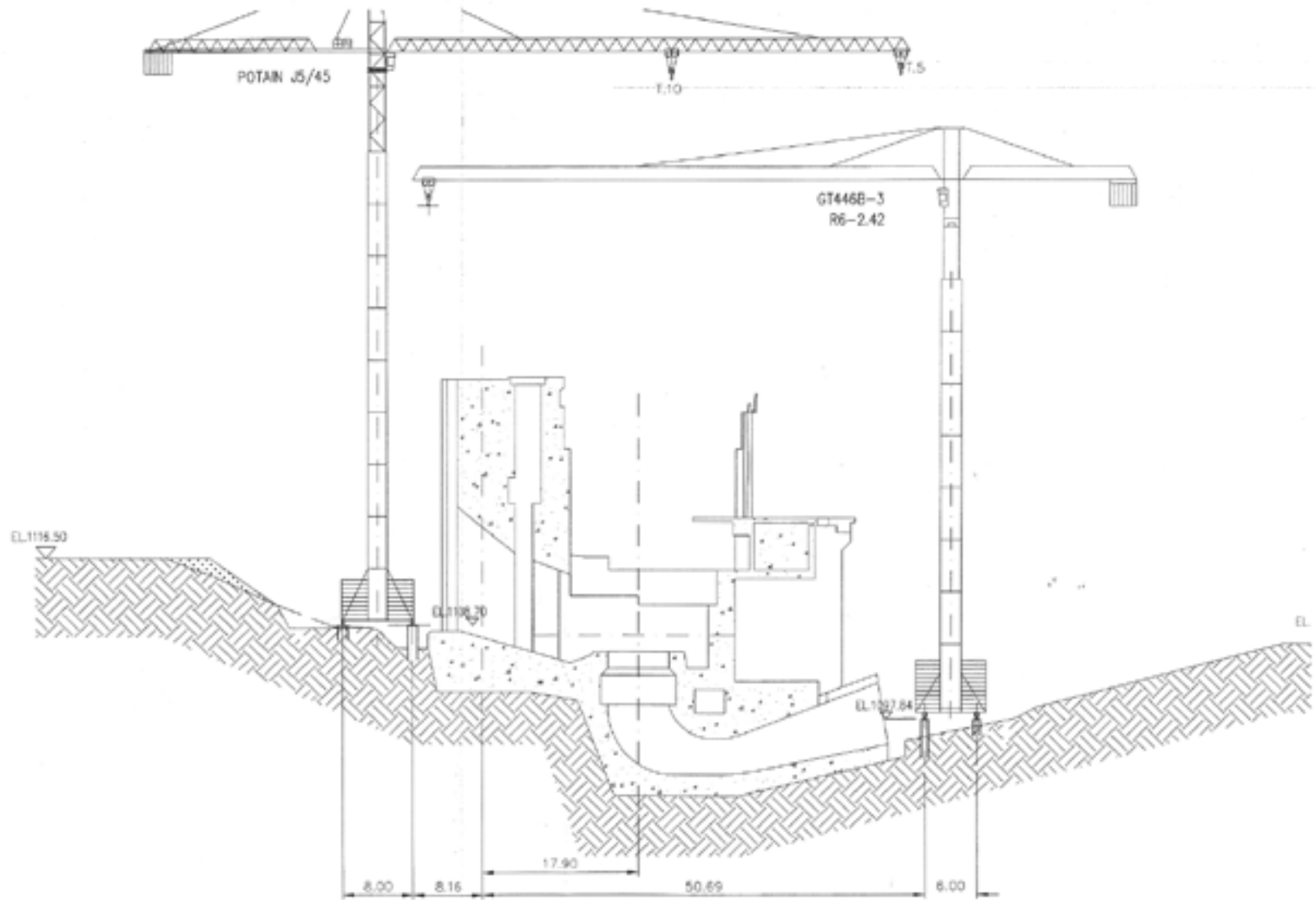
Updated by:  BURNSIDE



Source: Impregilo (1997)

Drawing: R34010

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-35	Figure 5.5
	CRETER CRANE		
Prepared for: BUJAGALI ENERGY LIMITED			



TYPICAL SECTION

Source: Impregilo (1997) Drawing: R34010

Project Name:

**BUJAGALI HYDROPOWER
PROJECT SEA**

Prepared for:

BUJAGALI ENERGY LIMITED

Date: December, 2006

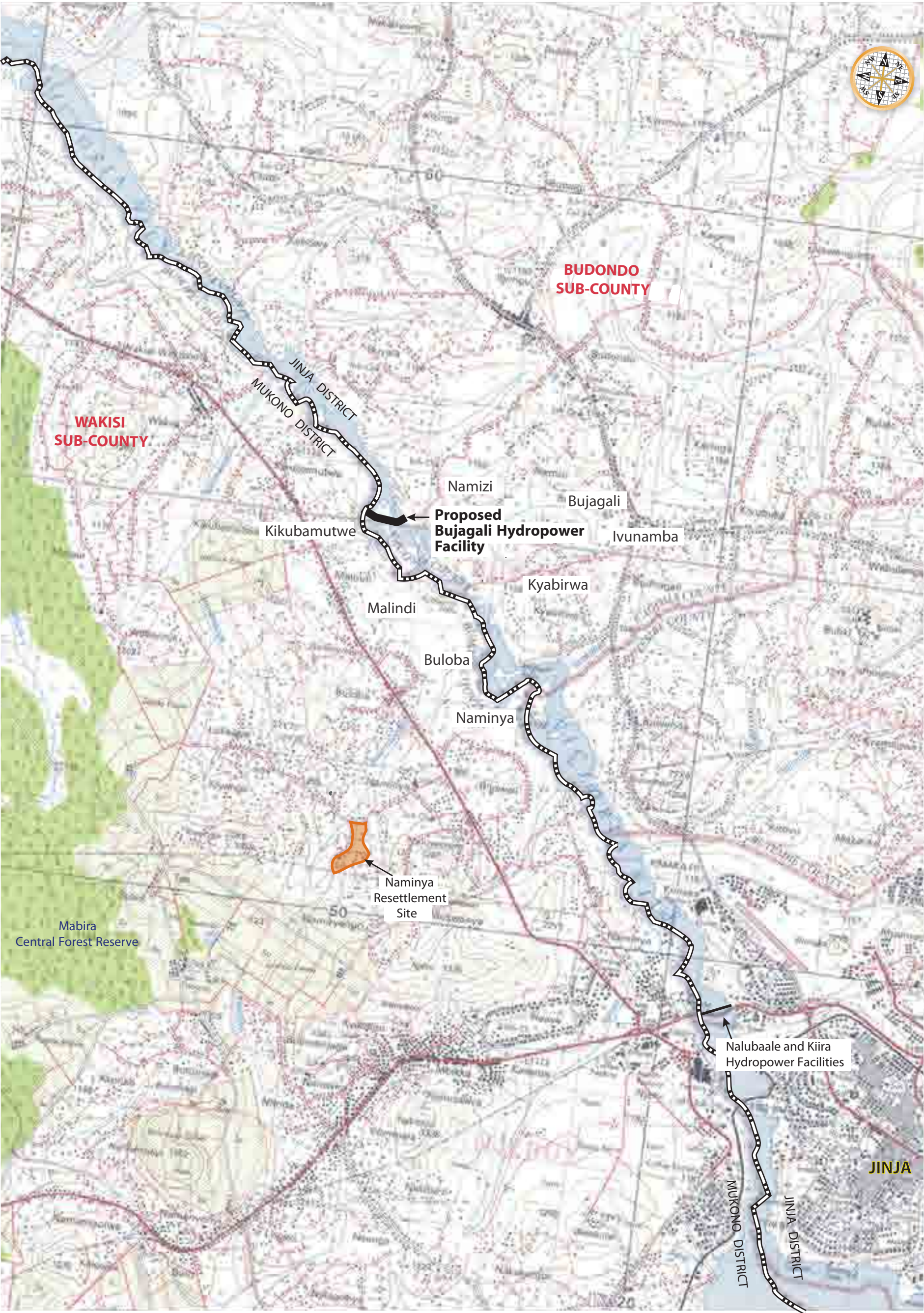
10045-H-36

Figure 5.6

TOWER CRANES

Updated by:

 **BURNSIDE**



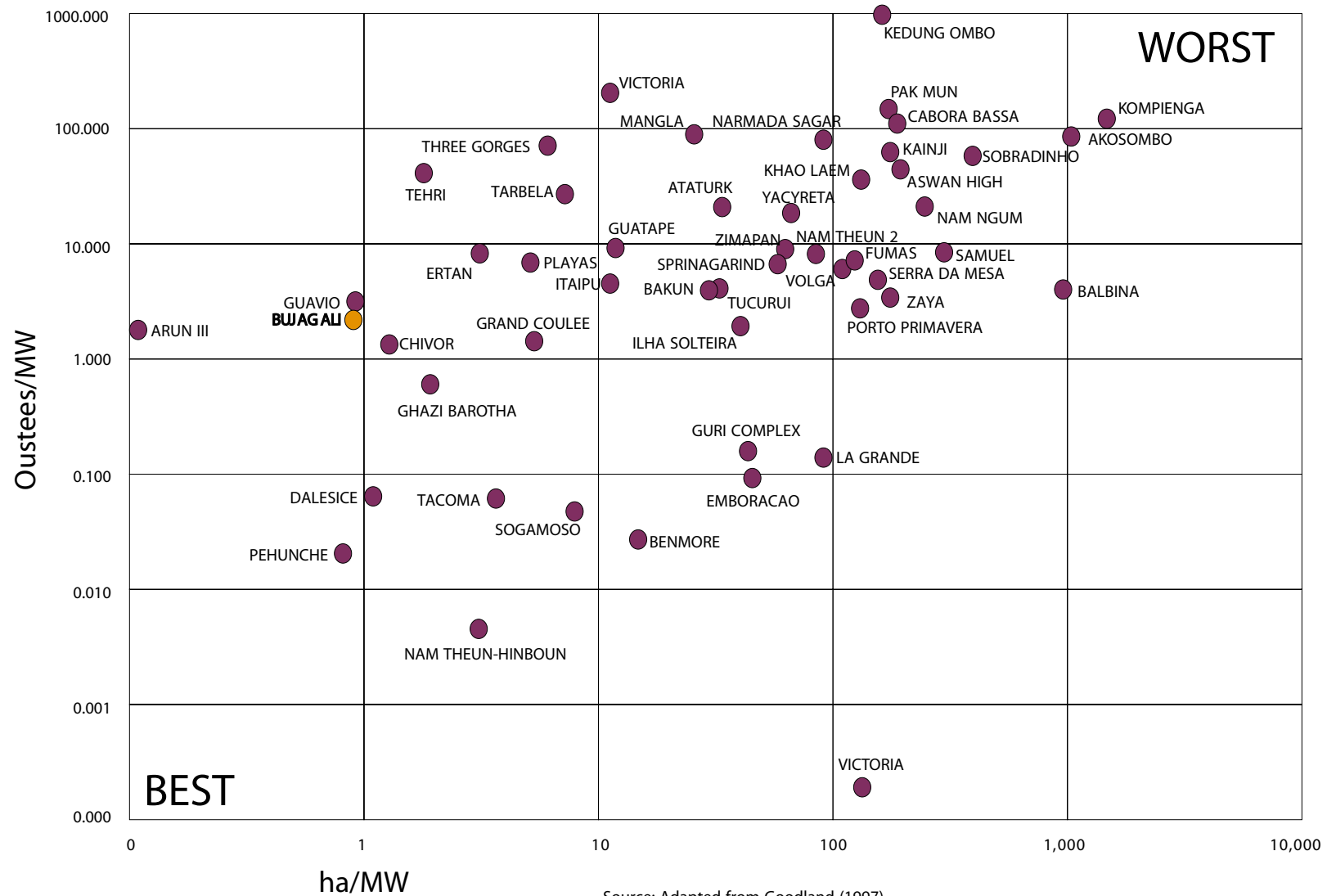
- Resettlement Land
- District boundary
- Road
- Buloba Project-affected Village

SCALE 1:50,000
0 500 1000 M

SUB-COUNTY

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-37	Figure 6.1
Prepared for: BUJAGALI ENERGY LIMITED	LOCATION OF CONSULTED COMMUNITIES		

Source: Forest Department 1999, WS Atkins 1999b.



Source: Adapted from Goodland (1997)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA		Date: December, 2006	10045-H-42	Figure 7.1
Prepared for: BUJAGALI ENERGY LIMITED		HYDROPOWER "EFFICIENCY" RATIO OF BUJAGALI COMPARED TO OTHER LARGE DAMS IN THE WORLD		

TOTALLY AFFECTED PLOTS

SITUATION A-1



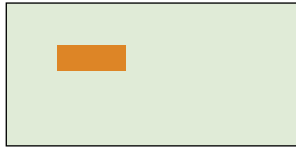
946 HOUSEHOLDS/
6959 INDIVIDUALS

- Land for land compensation, and
- Cash compensation of crops, and
- Resettlement.

Or, If the remaining plots are sustainable:

- Cash compensation of land, and
- Cash compensation of crops.

SITUATION A-2

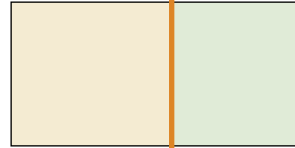


79 HOUSEHOLDS/
511 INDIVIDUALS

- Land for land compensation, and
- Cash compensation of crops, and
- Resettlement.

PARTIALLY AFFECTED PLOTS

SITUATION B-1



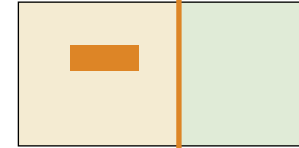
241 HOUSEHOLDS/
1027 INDIVIDUALS

- Land for land compensation, and
- Cash compensation of crops, and
- Resettlement.

Or, If the remaining plots are sustainable:

- Cash compensation of land, and
- Cash compensation of crops.

SITUATION B-2



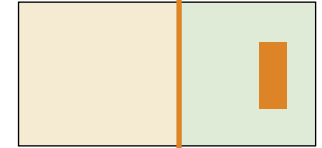
22 HOUSEHOLDS/203 INDIVIDUALS

- Land for land compensation, and
- Cash compensation, and
- Resettlement.

Or, If the remaining plots are sustainable:

- Cash compensation of land, and
- Cash compensation of crops, and
- Cash compensation of building (in Situation B-3 only).

SITUATION B-3



Boundary of land take area



Residential Building



Portion of plot within the land take area



Portion of plot outside the land take area

Project Name:

**BUJAGALI HYDROPOWER
PROJECT SEA**

Date: December, 2006

10045-H-43

Figure 7.2

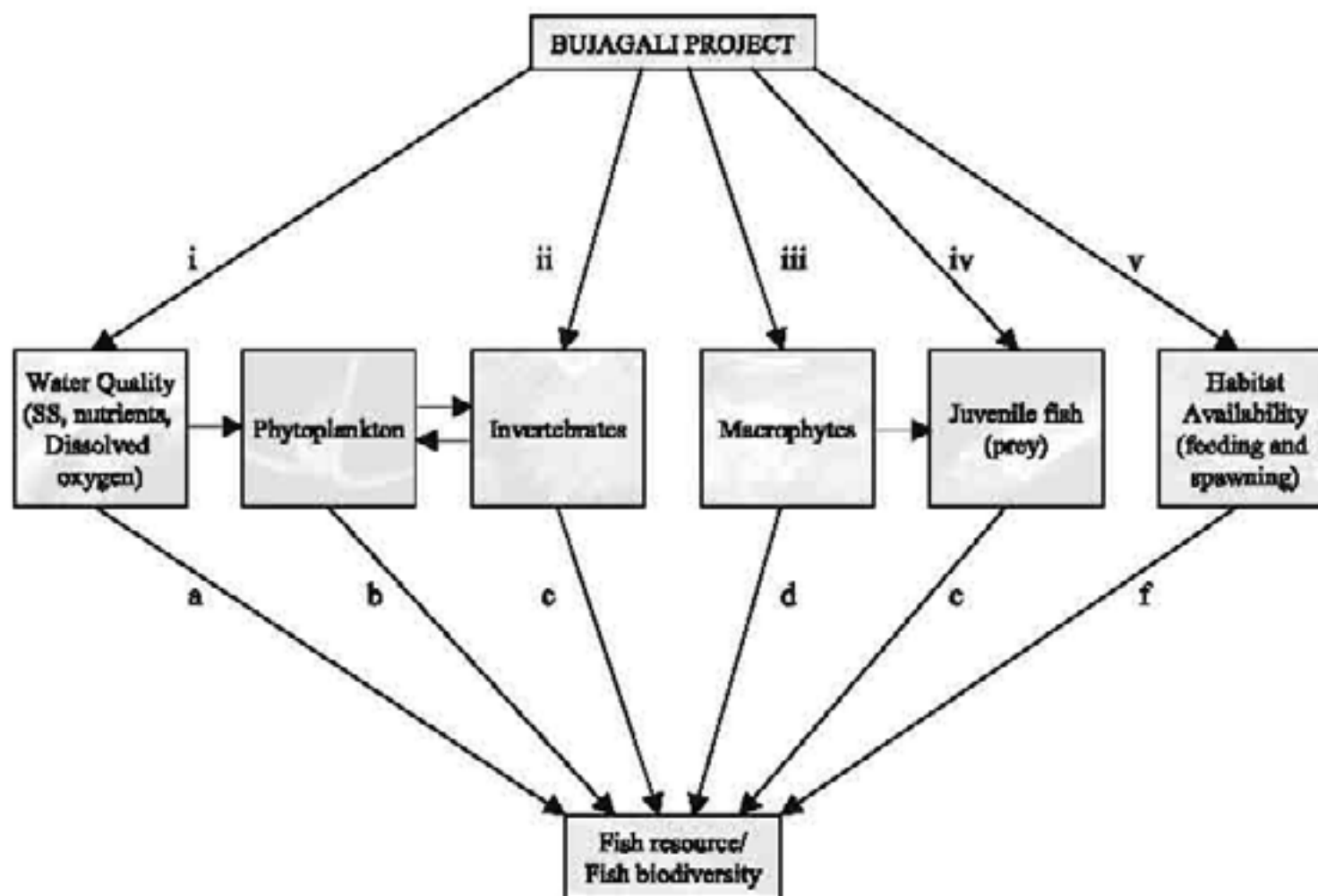
Prepared for:

BUJAGALI ENERGY LIMITED

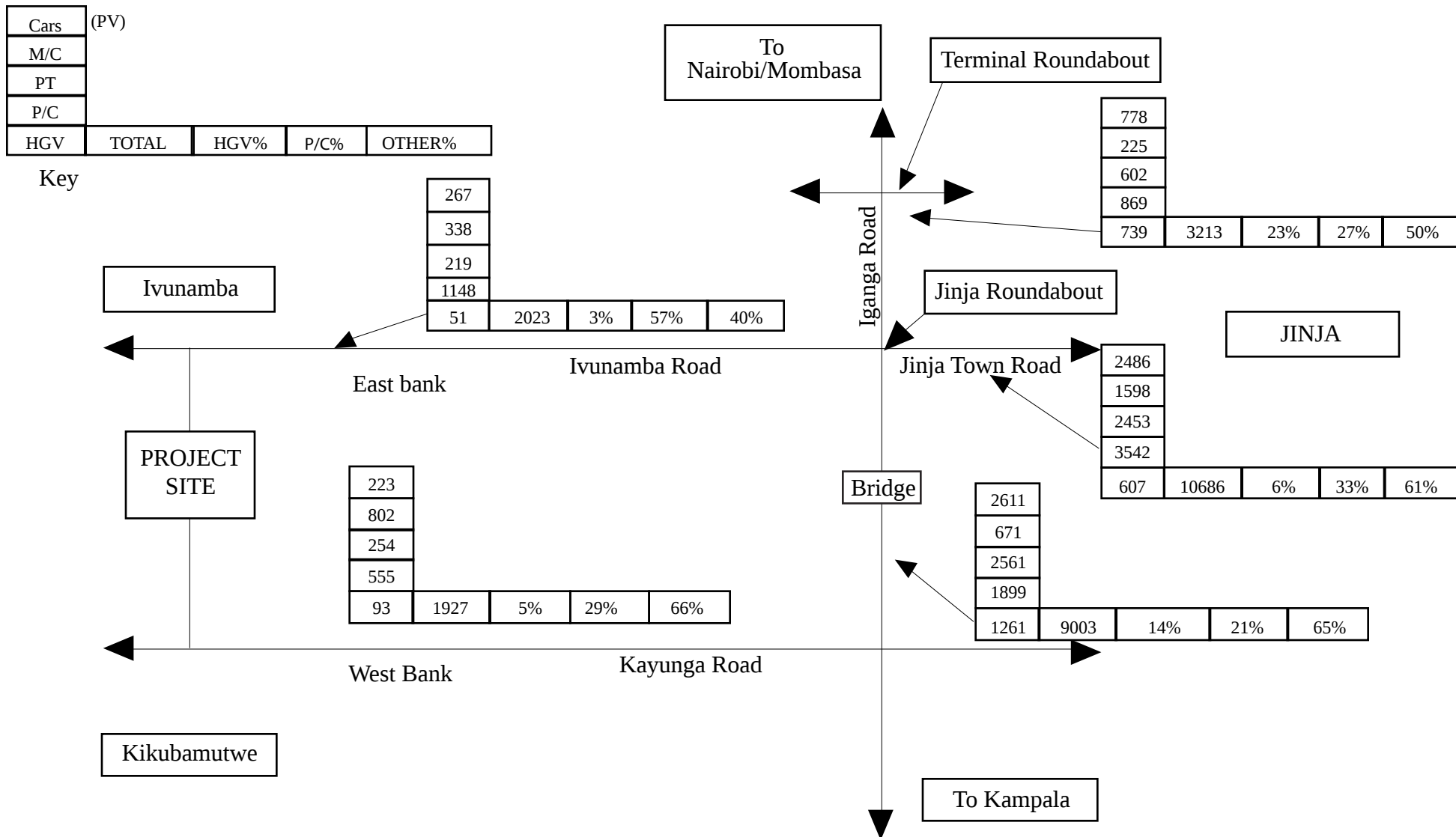
**NUMBERS AND CATEGORIZATION OF
PROJECT-AFFECTED PERSON AND
RESETTLEMENT & COMPENSATION PACKAGES**

Updated by:





Project Name: BUIAGALI HYDROPOWER PROJECT SEA	Date: December, 2008	10046-11-44	Figure 7.3
Prepared for: BUIAGALI ENERGY LIMITED	MECHANISMS BY WHICH BUIAGALI PROJECT CAN AFFECT FISH RESOURCES AND BIODIVERSITY		



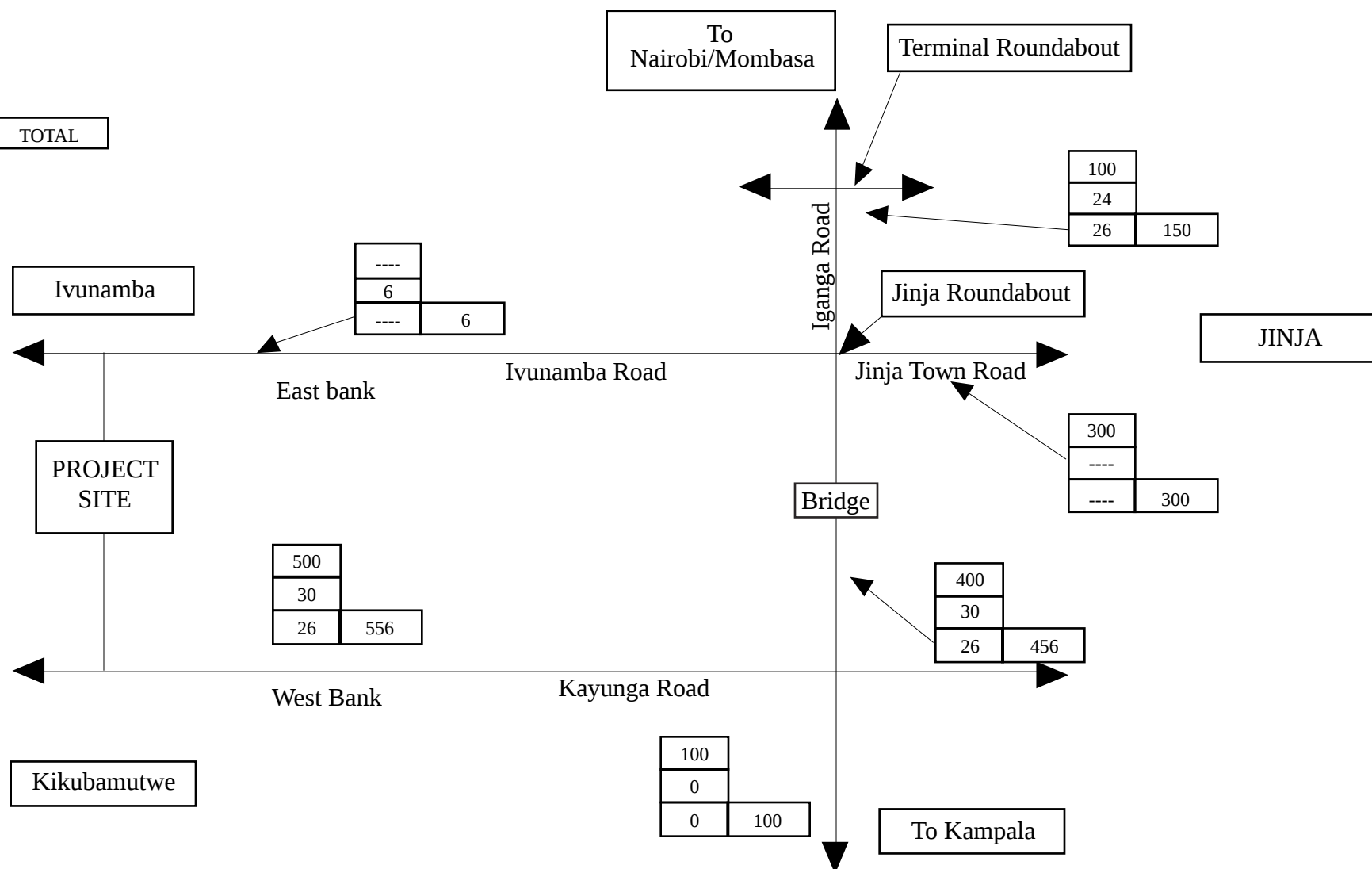
LEGEND

M/C - Motorcycles
PT - Public Transport
P/C - Pedal Cycles
HGV - Heavy Goods Vehicle

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-45	Figure 7.4
Prepared for: BUJAGALI ENERGY LIMITED	BASELINE TRAFFIC COUNTS (2006) 12 HOUR MOVEMENTS: WEEKDAYS		

Cars/LV	
Buses	
HGV's	TOTAL

Key



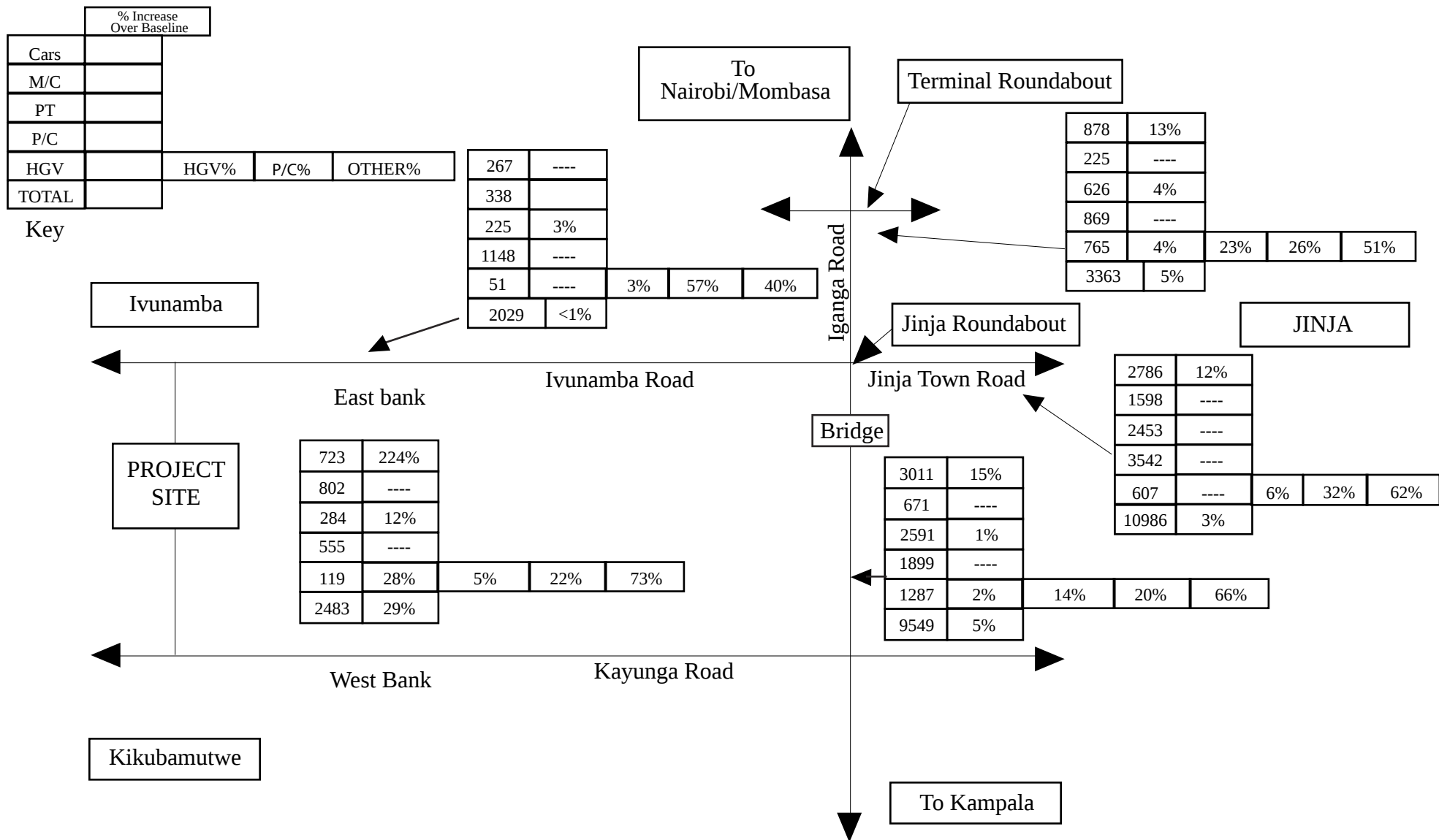
Source: AESNP (2001)

Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-46	Figure 7.5
Prepared for: BUJAGALI ENERGY LIMITED	PREDICTED PROJECT TRAFFIC DURING CONSTRUCTION 12 HOUR MOVEMENTS: WEEKDAYS		



LEGEND

LV - Light Vehicle
HGV - Heavy Goods Vehicle



LEGEND

M/C - Motorcycles
PT - Public Transport
P/C - Pedal Cycles
HGV - Heavy Goods Vehicle



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-47	Figure 7.6
Prepared for: BUJAGALI ENERGY LIMITED	TOTAL PREDICTED TRAFFIC DURING CONSTRUCTION 12 HOUR MOVEMENTS: WEEKDAYS		

Updated by:





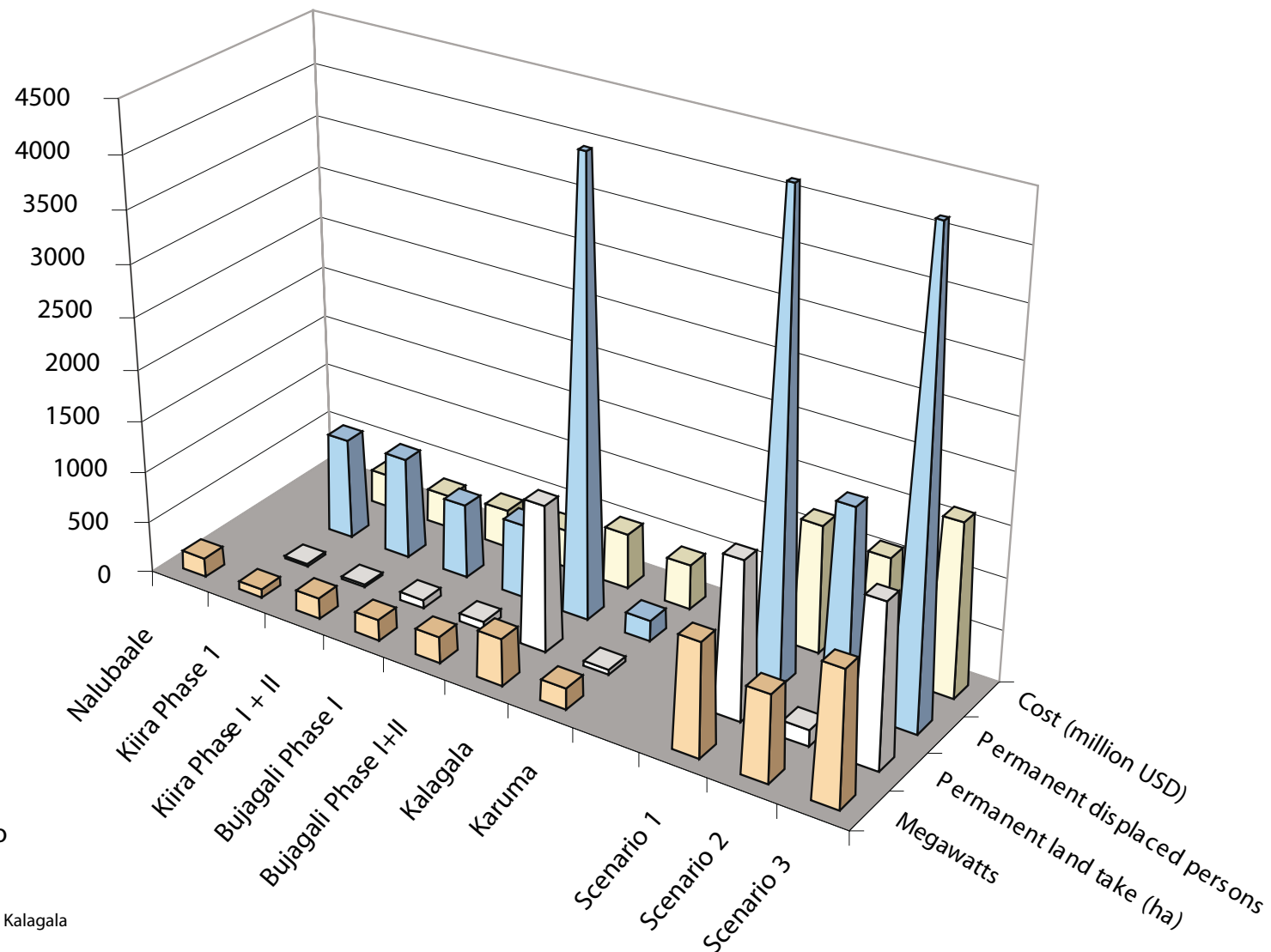
Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-48	Figure 7.7
Prepared for: BUJAGALI ENERGY LIMITED	LOCATION OF EXISTING & PROPOSED HYDROPOWER PROJECTS ON THE VICTORIA NILE		

Option/Combined Scenario

Scenario 1:
consists of Nalubaale + Kiira + Bujagali + Kalagala

Scenario 2:
consists of Nalubaale + Kiira + Bujagali + Karuma

Scenario 3:
consists of Nalubaale + Kiira + Bujagali + Kalagala + Karuma



Source: WS Atkins, Cumulative Impact Assessment (March 2000)

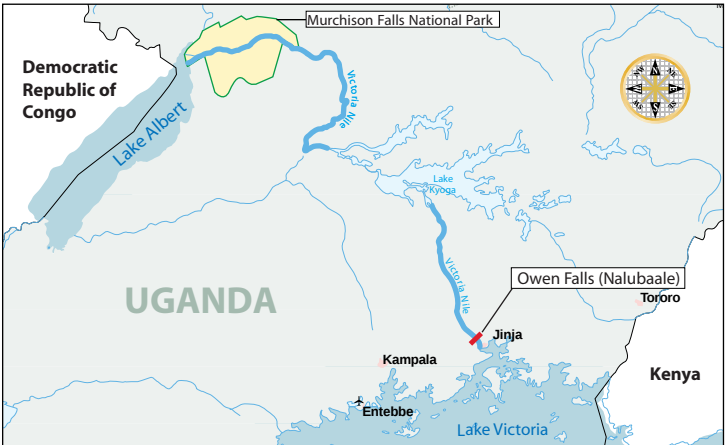
Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-49	Figure 7.8
Prepared for: BUJAGALI ENERGY LIMITED	MAJOR BENEFITS AND ENVIRONMENTAL COSTS OF FIVE HYDROPOWER OPTIONS AND COMBINATIONS OF OPTIONS		

Pre 1954



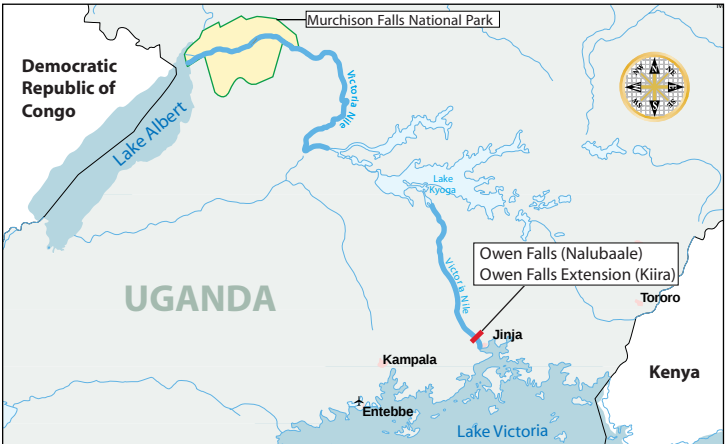
- No development on Nile.
- Jinja is fishing harbour and regional administrative centre. No extensive heavy industry.
- Little tourism.
- Local environment impacted only by low level subsistence agriculture and fishing.
- Ripon Falls provides hydrological control between Lake Victoria and the Nile.
- Railway bridge constructed over the Nile at Jinja.
- Murchison Falls National Park established in 1954.

1954 Owen Falls (Nalubaale)



- Nalubaale (formerly Owen Falls Dam) constructed just downstream of Ripon Falls with flooding between Owen Falls and Ripon Falls.
- With the blasting of Ripon Falls and reliable source of power, Jinja becomes the industrial hub of Uganda, Dam provides a roadway across the river.
- Barrier to fish movement between Lake Victoria and Victoria Nile created by Nalubaale.
- A period of above average rainfall results in historically high lake levels.
- Water released from Nalubaale in accordance with the "Agreed Curve" which mimics natural flows.
- At high lake levels water in excess of that needed for power generation "spilled".

2001 Owen Falls Extension (Kiira)



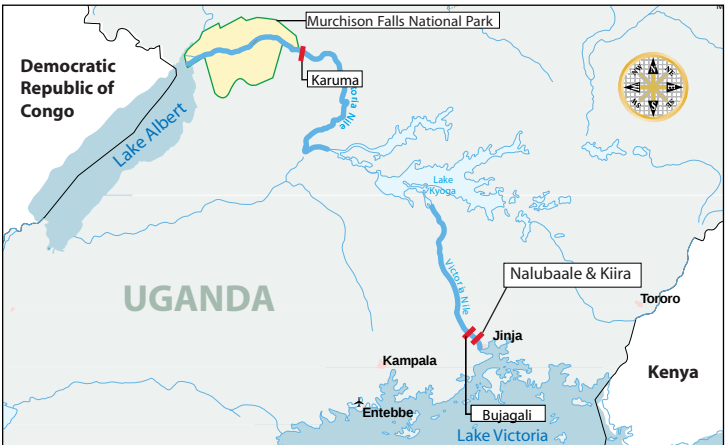
- Kiira (formerly Owen Falls Extension) constructed in parallel to Nalubaale to increase peak generating capacity.
- No increased impoundment.
- No impacts on growing tourism industry based around Bujagali and other rapids downstream.
- From 2001 to 2006 water released from combined operation of Nalubaale and Kiira exceeds the "Agreed Curve", contributing to lower water levels in Lake Victoria.
- 2005 to 2006 low lake levels force reduced operation of Nalubaale and Kiira, resulting in severe load shedding.
- 2006 emergency thermal generators constructed to alleviate load shedding.
- Subsequently water releases expected to be to the "Agreed Curve".
- Some limited resettlement required to accommodate canal.

2010 Bujagali



- Bujagali results in impoundment of water between Dumbbell Island and Nalubaale/Kiira. (8 km)
- Some islands submerged and some people displaced. (In 2001)
- Increased power to Ugandan grid resulting in improved power stability and developmental benefits, the emergency thermal generators are shut down.
- Considerable benefits to local communities through jobs and implementation of various social action plans
- Changes to tourism especially white water rafting due to submergence of rapids between Dumbbell Island and Nalubaale/Kiira operations shift further downstream.
- Operation of Bujagali Dam reuses the same water released from Nalubaale and Kiira, allowing twice the amount of power to be generated from the same amount of water released. Downstream flows continue to be controlled by Nalubaale and Kiira, with no or minimal influence from Bujagali.
- Focus of rafting shifts to Kalagala, tourism expands, Kalagala area protected by government of Uganda.

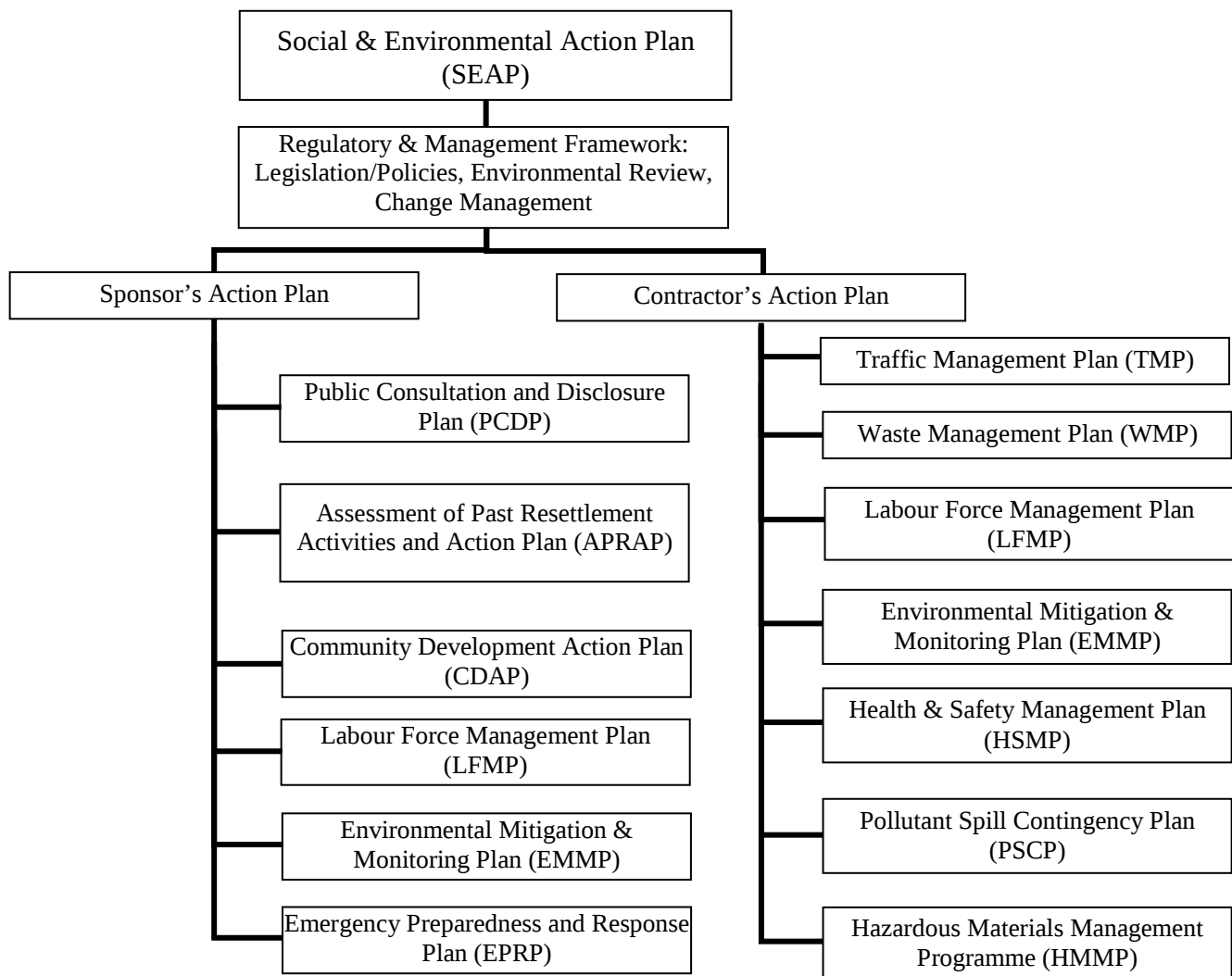
2012 Karuma



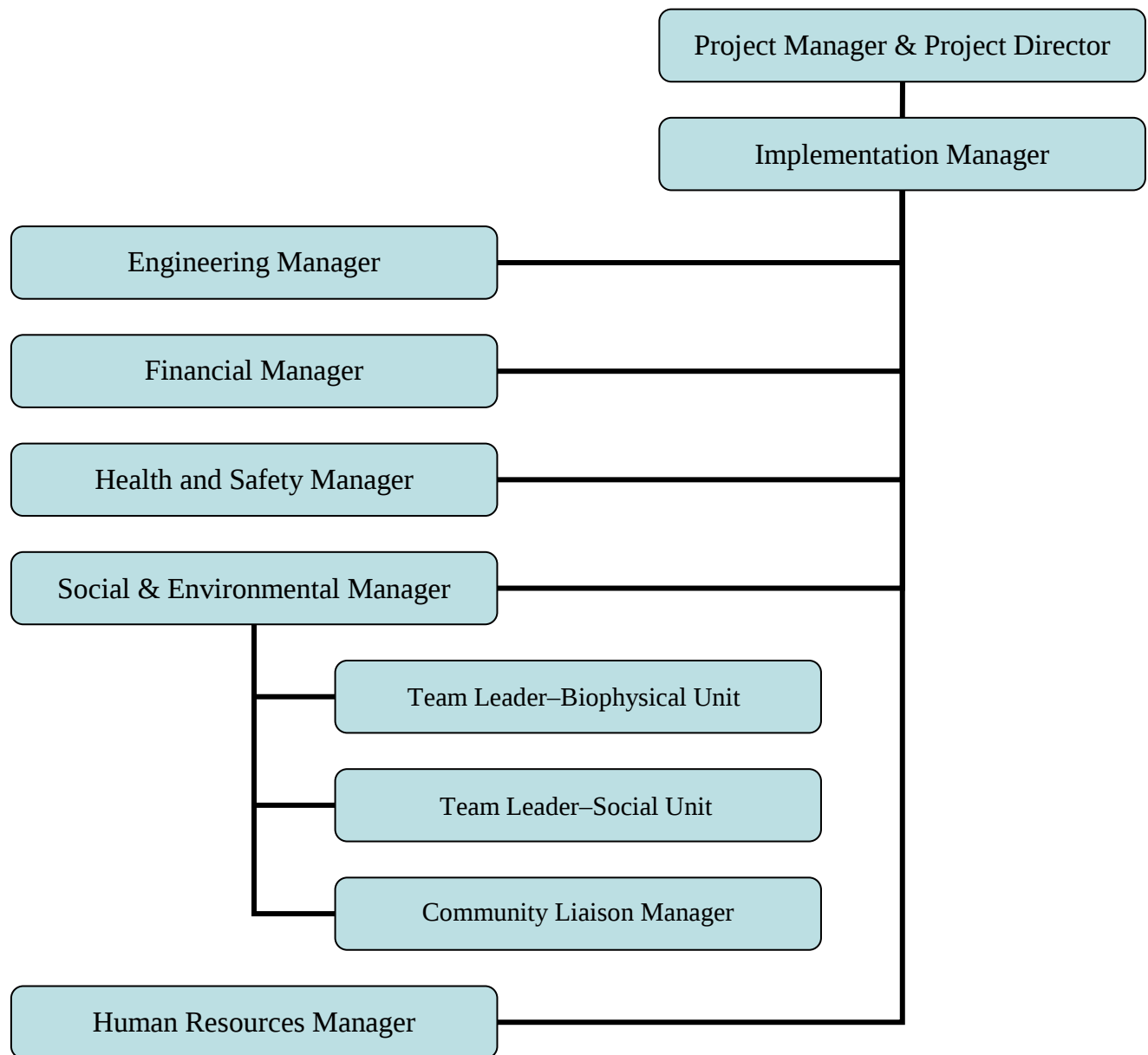
- Run of the river Karuma project provides additional power to Ugandan grid with associated developmental & regional benefits.
- No Impoundment or river blockage due to project design. Downstream flows continue to be controlled by Nalubaale and Kiira.
- No changes to river hydrology anticipated except in the stretch which has had flow diverted.
- Relatively few people resettled.
- No further impact to tourism anticipated.

NOTE: NOT TO SCALE

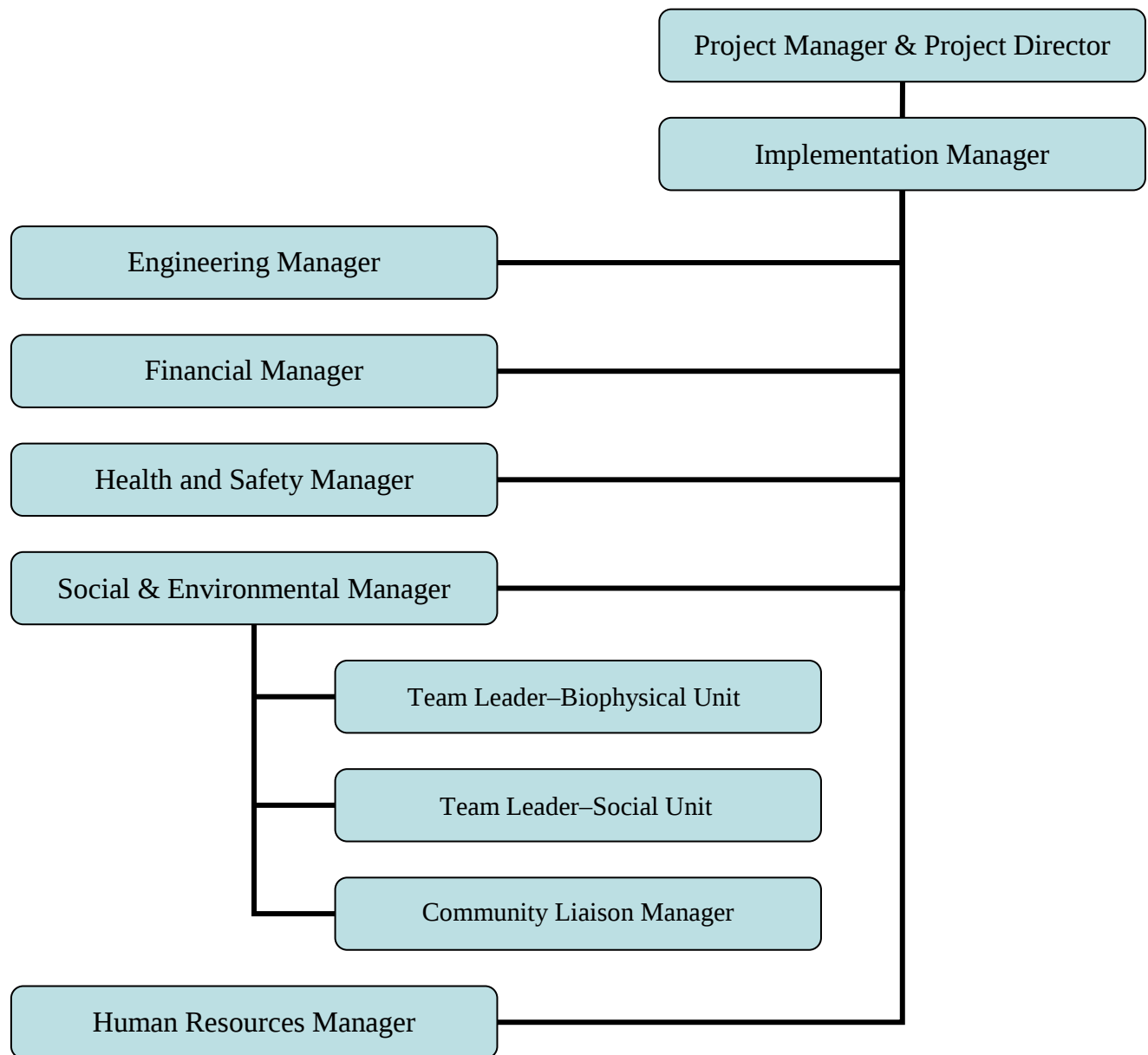
Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-50	Figure 7.9
Prepared for: BUJAGALI ENERGY LIMITED	CUMULATIVE EFFECTS OF HYDROPOWER DEVELOPMENTS ON THE VICTORIA NILE IN UGANDA(1954-2012)		



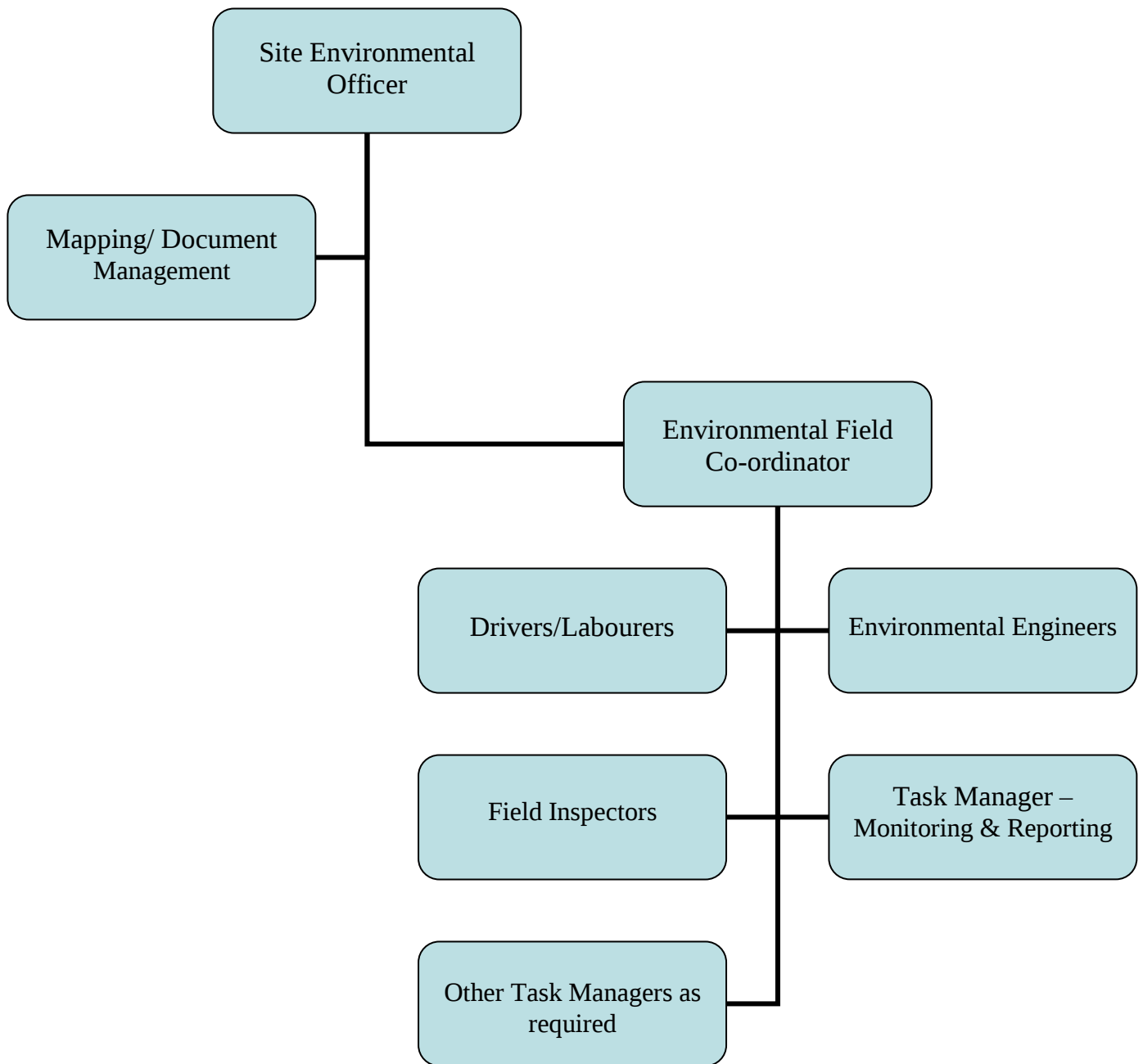
Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-52	Figure 8.1
Prepared for: BUJAGALI ENERGY LIMITED	SEAP COMPONENT PLANS		



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-53	Figure 8.2
Prepared for: BUJAGALI ENERGY LIMITED	SPONSOR'S IMPLEMENTATION TEAM STRUCTURE (INDICATIVE)		



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-53	Figure 8.2
Prepared for: BUJAGALI ENERGY LIMITED	SPONSOR'S IMPLEMENTATION TEAM STRUCTURE (INDICATIVE)		



Project Name: BUJAGALI HYDROPOWER PROJECT SEA	Date: December, 2006	10045-H-54	Figure 8.3
Prepared for: BUJAGALI ENERGY LIMITED	EPC CONTRACTOR'S ENVIRONMENTAL TEAM STRUCTURE (INDICATIVE)		