

**Lesotho Highlands
Development Authority
Phase I & II Update**



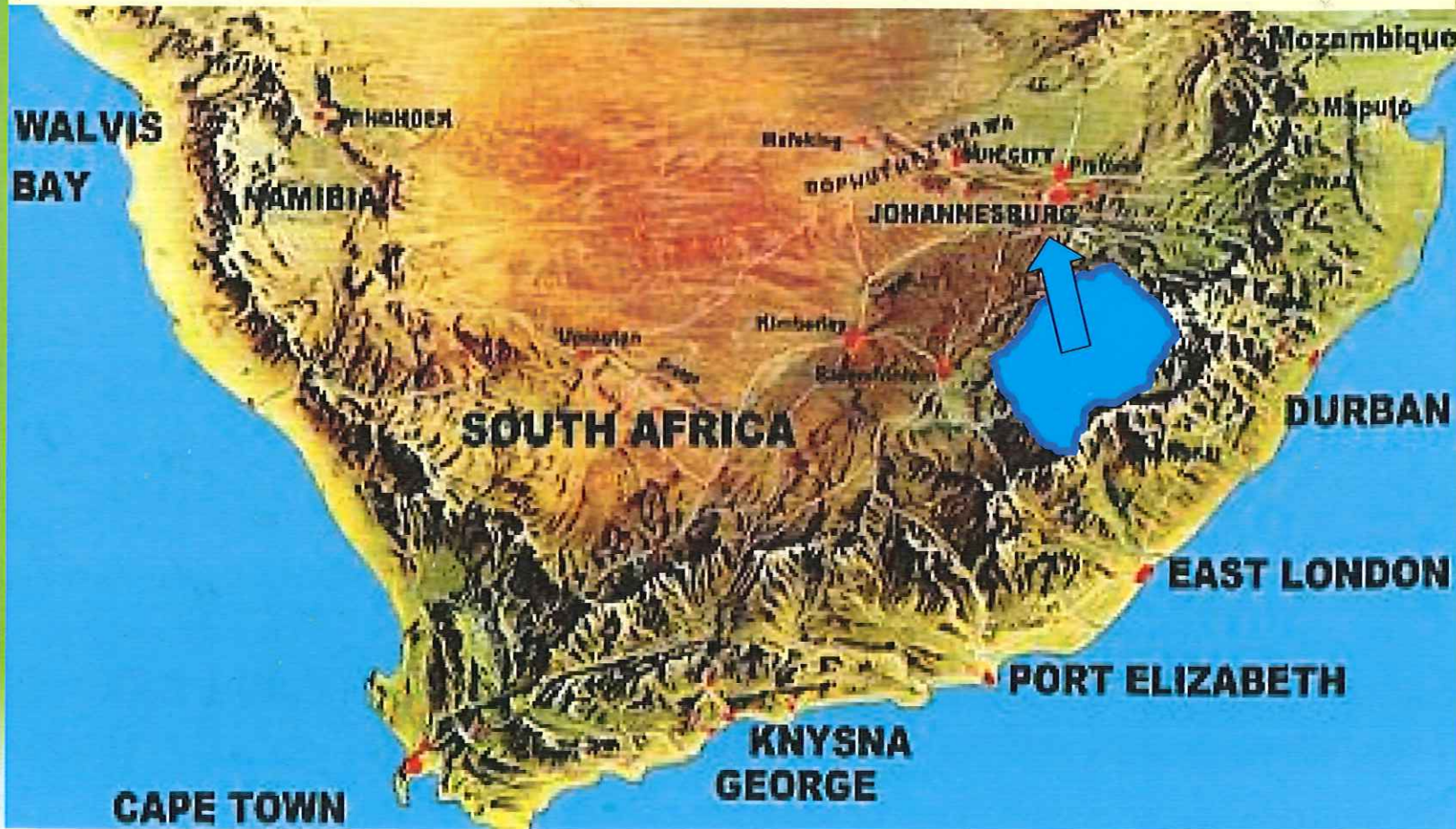
CONTENTS

- LHWP description
- Legal framework
- Project governance
- Lessons learnt and applied in Phase II
- Procurement policies
- Contract packages
- Progress to date

WHAT IS THE LHWP ?

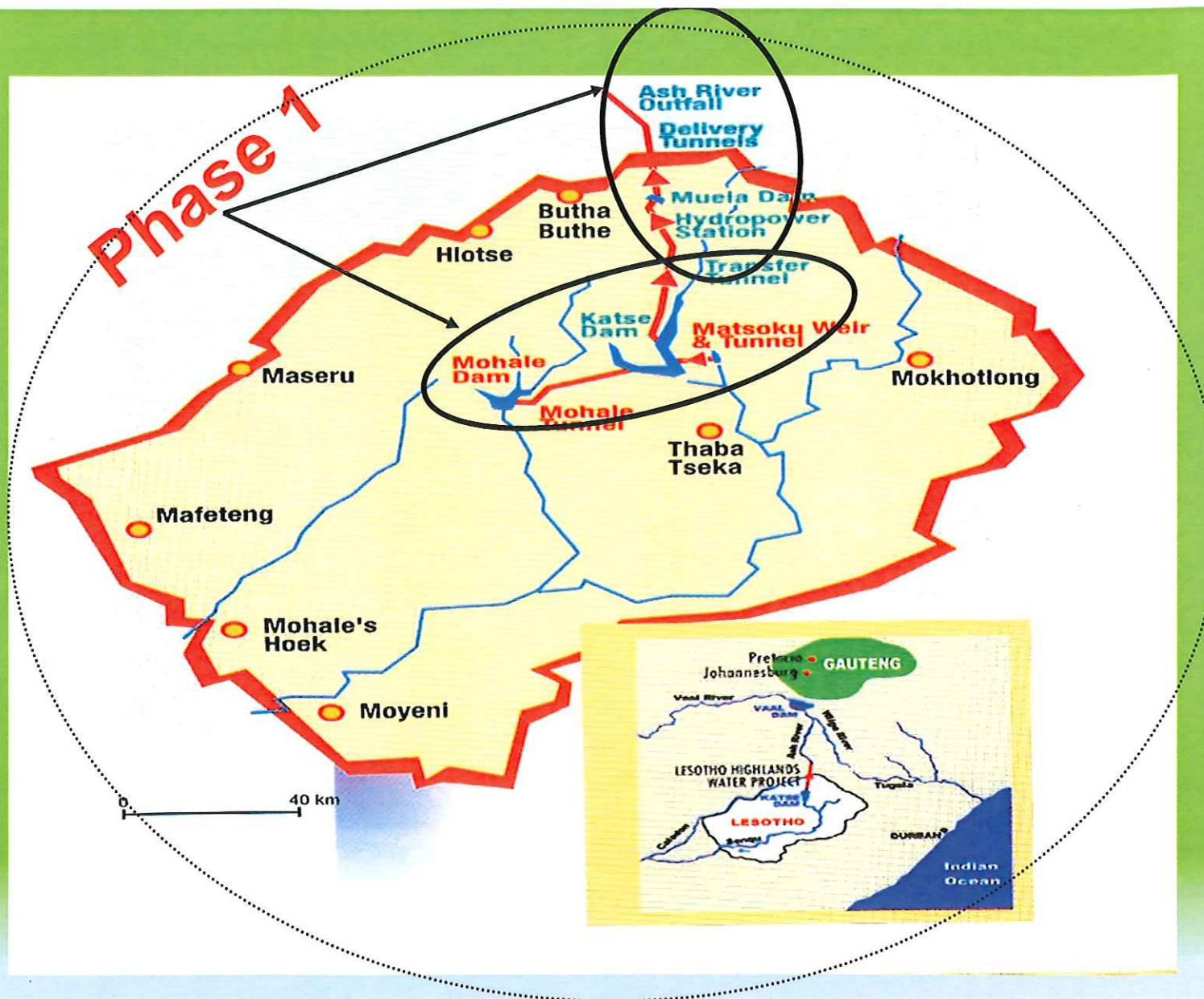
- Bi-national inter basin water transfer: ultimate delivery 70 m³/s
- 5 Phases - 30 year
- Implementation : LHWC, LHDA & TCTA
- One of largest engineering projects
- Funded by water users **not** taxpayers

- ✓ Treaty signed on 24 Oct 1986
- ✓ Phase II Agreement signed on 11 August 2011



Treaty

- **Consists of 19 articles and 3 Annexures that talk to the working arrangement and implementation between the South African and Lesotho governments**
- **The two Governments have a joint oversight on the LHDA, a vehicle established by the Treaty to be responsible for the implementation in Lesotho of both components of the Project (Water Transfer and Hydropower).**
- **Unlike the TCTA, where the Government of Lesotho does not contribute to its cost, the LHDA is paid for by both Governments in the ratio reflecting the value of their respective investments which currently is at 7% for Lesotho and 93% for South Africa.**
- **The current governance model gives both Governments a joint oversight on the implementation of the Project through the LHWC, which has oversight of the Board and the Chief Executive.**



LHWP phase 1: main features

	»	<u>Phase 1A</u>	<u>Phase 1B</u>
▪ Water delivery		18 m ³ /s	11 m ³ /s
▪ Main reservoirs		Katse Dam – 185 m	Mohale Dam – 145 m
▪		Muela HydroDam – 55 m	Matsoku Weir – 13 m
▪ Tunnels		88 km	30 & 6 km
▪ Hydropower		72 mW	
▪ Access roads	New	172 km	36 km & 70 km
▪	Upgraded	170 km	64 km
▪ Electric power lines		334 km & 14 sub st	72 km & 5 sub st
▪ Telecommunications			
▪ Construction villages		3	2
▪ Rail sidings		1	1

LHWP phase 1: main features

	<u>Phase 1A</u>	<u>Phase 1B</u>
»		
▪ Border posts	2	
▪ Water delivery	Jan 1997	Jan 2004
▪ Eng & Construction	M 5350 mil	M 2876 mil
▪ Environmental & ▪ Social projects	<u>M 404 mil</u>	<u>M 114 mil</u>
☒ TOTAL COST	M 6932 mil	M 4212 mil
» or	\$ 1019 mil	\$ 619 mil

Phase 1 benefits: South Africa

- ❑ High quality water transferred > 10,000 million m³ to date, improved security of water supply, significantly reduced water treatment costs
- ❑ Secure low cost water supply for Mining, Power & other Industries, Households and Agriculture
- ❑ RSA Contractors and Consultants in all major contracts
- ❑ Supply of construction material and equipment e.g. cement, Steel, etc.
- ❑ Job opportunities during construction of all works – skilled and semi skilled.
- ❑ Improved infrastructure
 - New border crossings and Improved amenities
 - Community halls, Clinics, Houses,
 - Improved railhead facilities. E.g. Ficksburg.

Phase 1 benefits: South Africa

- During time of drought the LHWP water is released from the Little Caledon River to relief stress from the FreeState border towns including Mangaung and Bloem Water
- Recently (Dec 2015) Aliwal North received water from the Katse Dam
- Economic Spinoffs –

FreeState border towns benefit from:

- Improved tourism activities - Hospitality industry
- Improved spending by Lesotho Nationals
- Benefits to local small service providers

Large material/goods suppliers eg. Cement, fuel, vehicles, etc....

Bursaries (72) and Internship learning opportunities (120)

Phase 1 benefits: Lesotho

- ❑ Job Opportunities - More than 16,000 jobs created (Phase1)
- ❑ M1 billion paid in wages (Phase 1)
- ❑ Opportunities Local Contractors
- ❑ Opportunities for Local Consultants
- ❑ Supply of goods & services
- ❑ High Quality Roads means
 - Improved access into the highlands areas and
 - Greatly reduced travelling time
- ❑ Tourism attraction and beneficiation of local cottage industries
- ❑ Fisheries industry development

Phase 1 benefits: Lesotho

- **Royalties Revenue**
- **Infrastructure- (Phase 1)**
 - > 300 km of paved/tarred roads
 - > 400 km of Grade-1 gravel roads
 - 1,133 km of roads rehabilitated to grade 1 standard
 - 11 bridges built
 - 3 bridges border between Lesotho & RSA [Maseru; Maputsoe and Caledonspoort]
 - > 300 km of power lines (including substations)
 - Work camps, staff housing [**Katse, Mohale, Likileng**] 800+

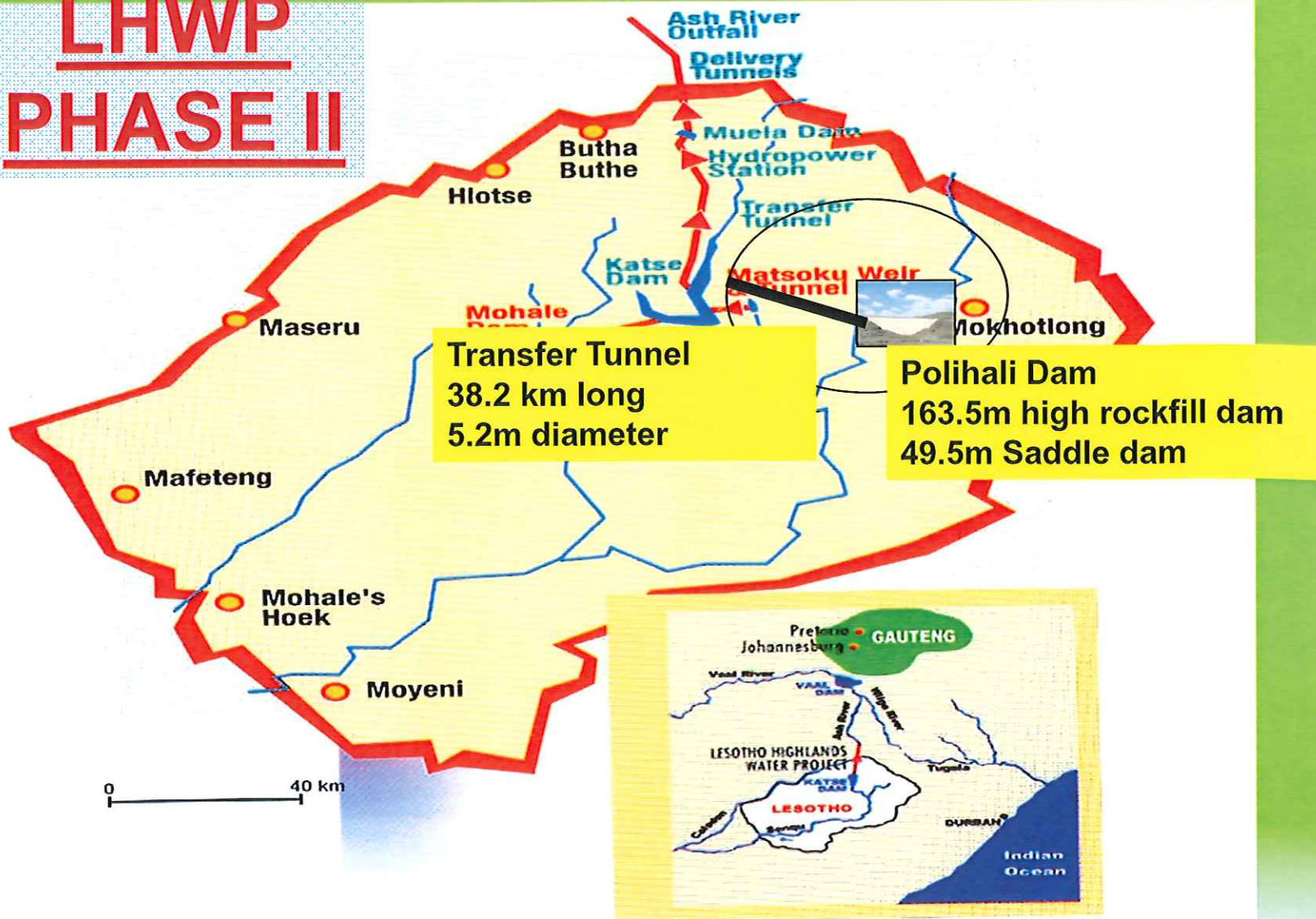
Phase 1 benefits: Lesotho

Macro-Economic Impact- Study commissioned in 2003/04 showed;

- ❑ GDP- Growth rose from 3.0% p.a in the pre-Project period, to 5.5% p.a during the Phase IA construction period (1988-1997).
- ❑ Phase 1B supported GDP growth by close to 1 percentage point since 1995.
- ❑ The overall impact on government accounts has been positive
- ❑ The increase in capital expenditure has inter alia promoted foreign direct investment (FDI).
- ❑ A positive net effect on the overall balance of payments

Similar benefits expected during Phase II. Impact on Engineering and Construction industry expected to be much greater since 50% of all Advance Infrastructure work allocated to Lesotho and at least 10% of Main Works (Dam and Tunnel)

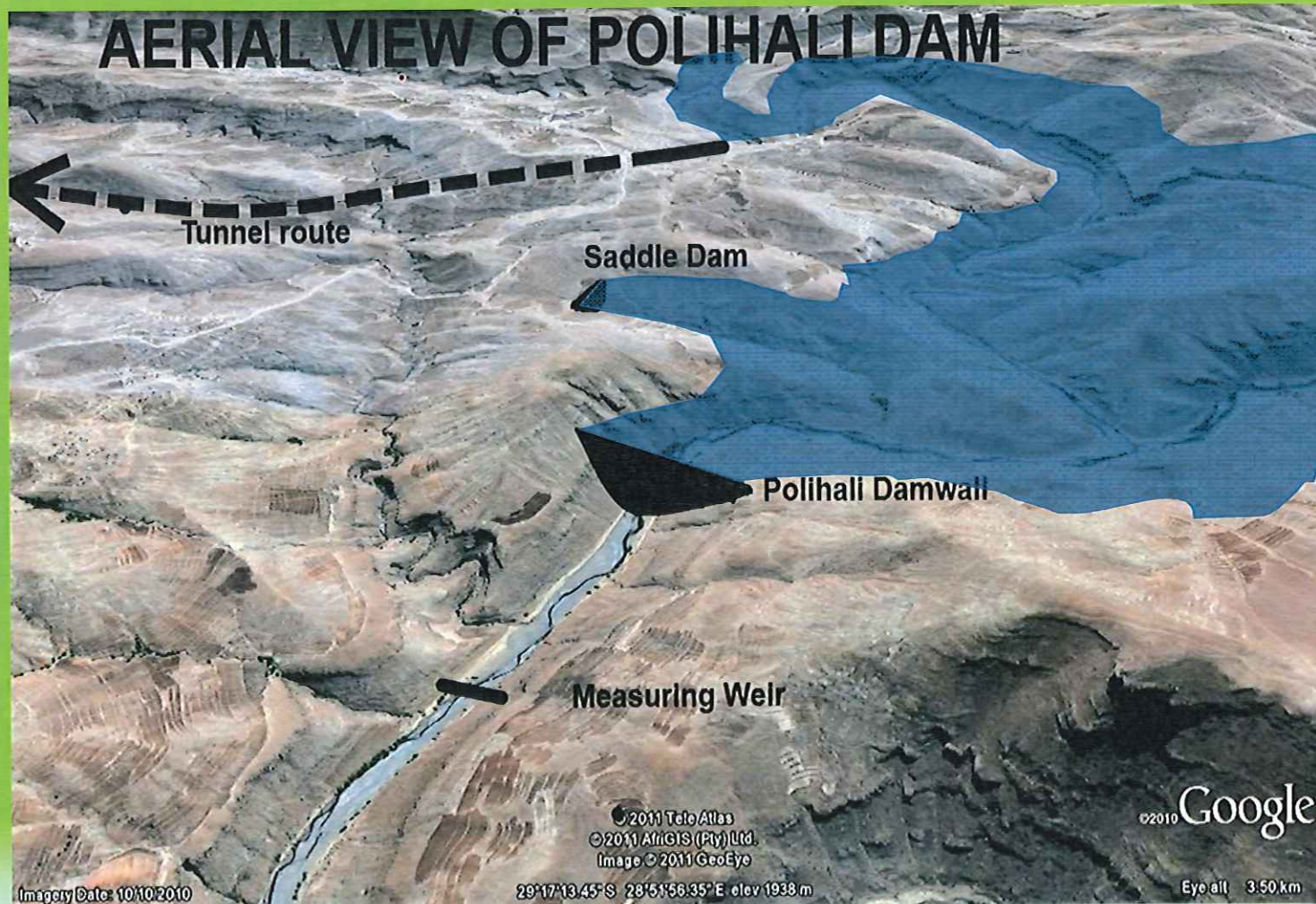
LHWP PHASE II



POLIHALI DAM

Damsite	Downstream of Senqu and Khubelu River confluence
Damtype description	Concrete faced rockfill embankment damwall
Damwall height	163.5m high with Full supply level of 2075 masl
Construction program	56 months
Filling period	700 days

POLIHALI DAM & SADDLE DAM



LHWP2
PMU

Polihali – Katse tunnel

Tunnel capacity	18.8 m³/s at hydraulic grade line of 1:4776
Tunnel length and diameter	Total length = 38.2 km : see Table 7
Type of lining	Partially lined
Construction program	56 months)
Delivery Tunnel upgrading	Increase Muela Dam FSL by 2.5m with crest radial gates

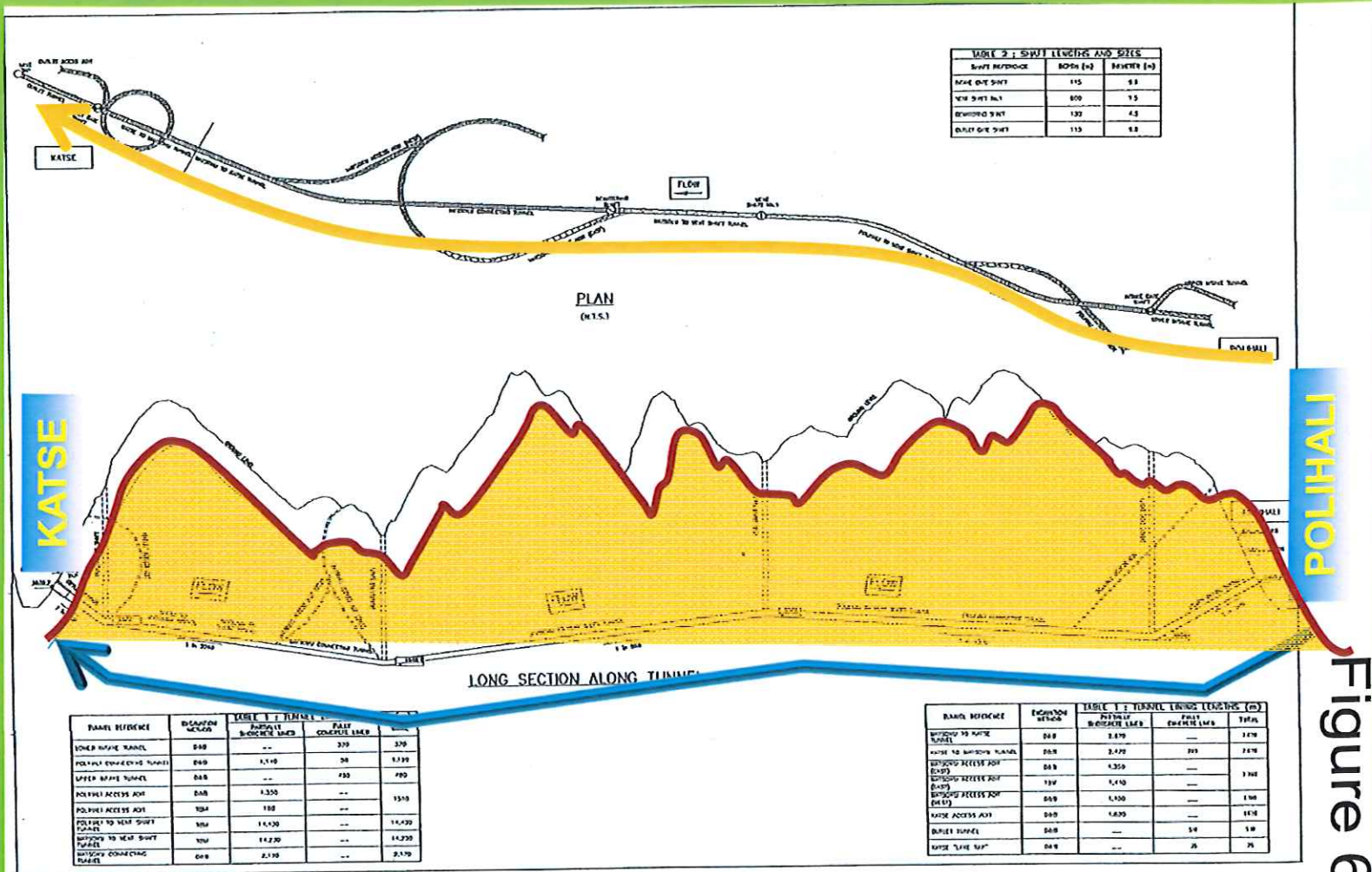


Figure 4-9: Polihali Katse Tunnel: General Arrangement for Southern Alignment

Figure 6

Hydropower (under investigation)

Generation capacity	Generation: 1000 MW Pump Storage scheme
Type of station	Underground peak/standard generation
HP site	Bokong/Kobong valley and Katse Dam
Construction program	56 months
Cost	R 15 000 mil

Advanced infrastructure

NEW ROADS	CONSTRUCTION POWER	
47 km : Matsoku to Polihali Route + 4 major bridges	45km: Matsoku to Polihali line	RESIDENTIAL AREAS
FEEDER ROADS	Substation Polihali	Client, Engineer, Contractor facility, Lodge, Hospitals @ Mporosane and Polihali, Commerce area
Mokhotlong to Mositeng	Upgrade Ha Lejone and Matsoku sub station	
Chaba Li Maketse to Moeaneng	TELECOMMUNICATIONS	
Ha Tihakola to Makalong	Relocate existing lines	
Ramoruti to Ha Pohla	Polihale dam connection	Labour camps
Ntlholohetsane to Ha Letjama	Tunnel connection @ Polihali	
Various road bridges		

Biophysical features

<u>Mitigation measures:</u>
Fish species
Natural grass and woodlots
Sedimentation
Erosion prevention programmes
Rehabilitation of disturbed areas
Rescue Indigenous and threatened flora and fauna
<u>Instream Flow Requirements</u>
IFR volumes and policy -
Downstream losses & compensation
<u>Water quality</u>
Responsibility for monitoring

Social

Resettlement

Compensation => Individual & Communal
Lump Sum or Annual payments

- Polihali Reservoir Affects = 17 Villages
= 534 Households = 2547 People

Other assets Affected By Reservoir (Lost fields & grazing lands)

- 72 Villages Affected
= 3 312 Households
= 16 560 People
- } = 1125 Ha

Resettlement and Compensation

Livelihood restoration programs

Summary of communities assets lost to dam & inundation

Villages	Arable Land (Ha)	Trees	House/ Optak (M²)	Ronda-Vel (M²)	Polata/ Maline (M²)
72	1125	1481	2617	8960	6170

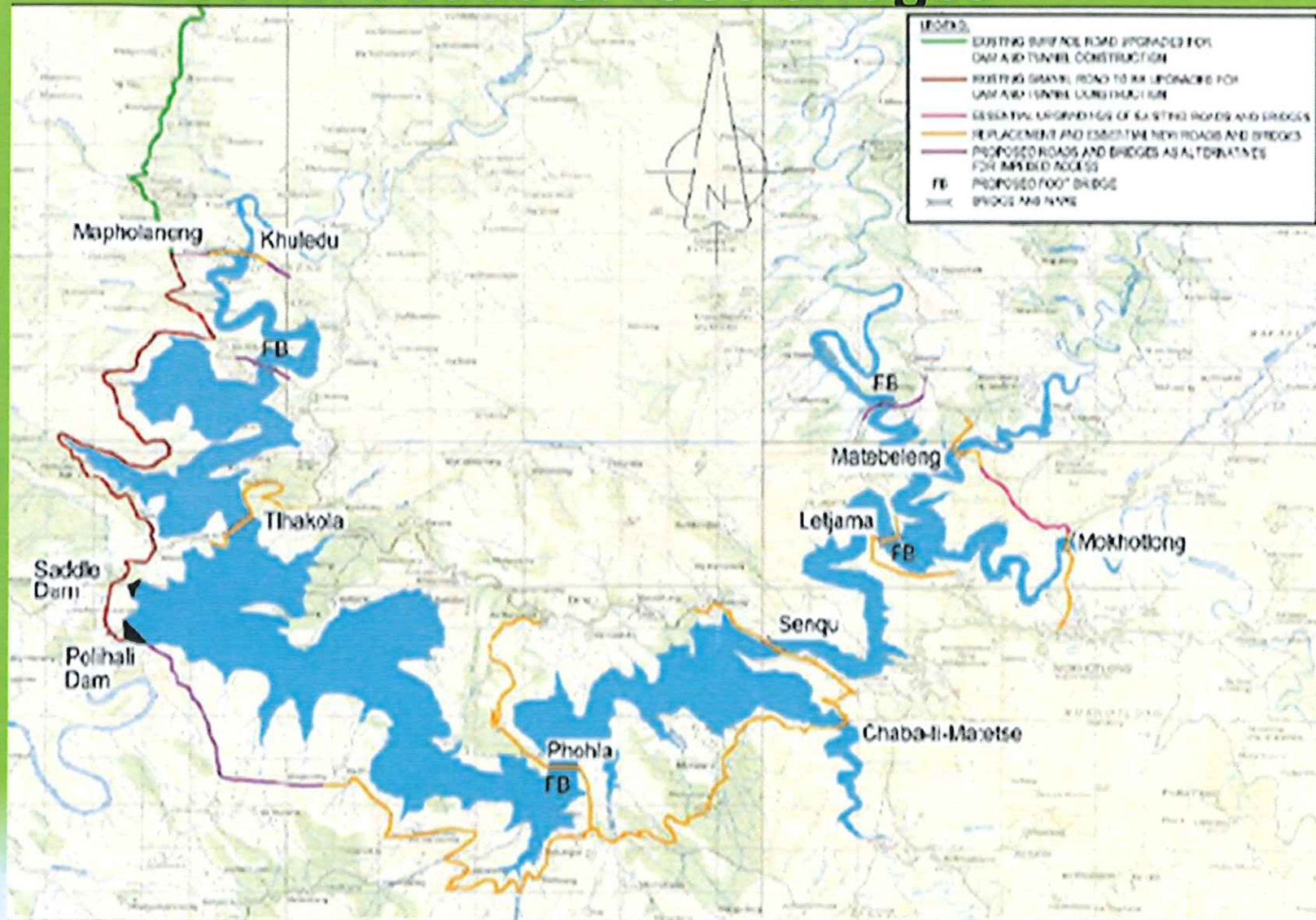
OTHER STRUCTURES

KRAALS/ STABLES (M²)	BUSINESS FACILITIES (M²)	GOVERNMENT FACILITIES (M²)	CHURCH/ SCHOOL (M²)
10 647	656	1 546	843

BIOPHYSICAL

- 31 potential impacts
- 10 with high rating
- 1 remain high after mitigation

Feeder roads & foot bridges



LEGAL FRAMEWORK

- LHDA Order
- The Treaty & applicable Protocols.
- The Governance Manual
- The Phase II Agreement
- Applicable laws of Lesotho

Protocols

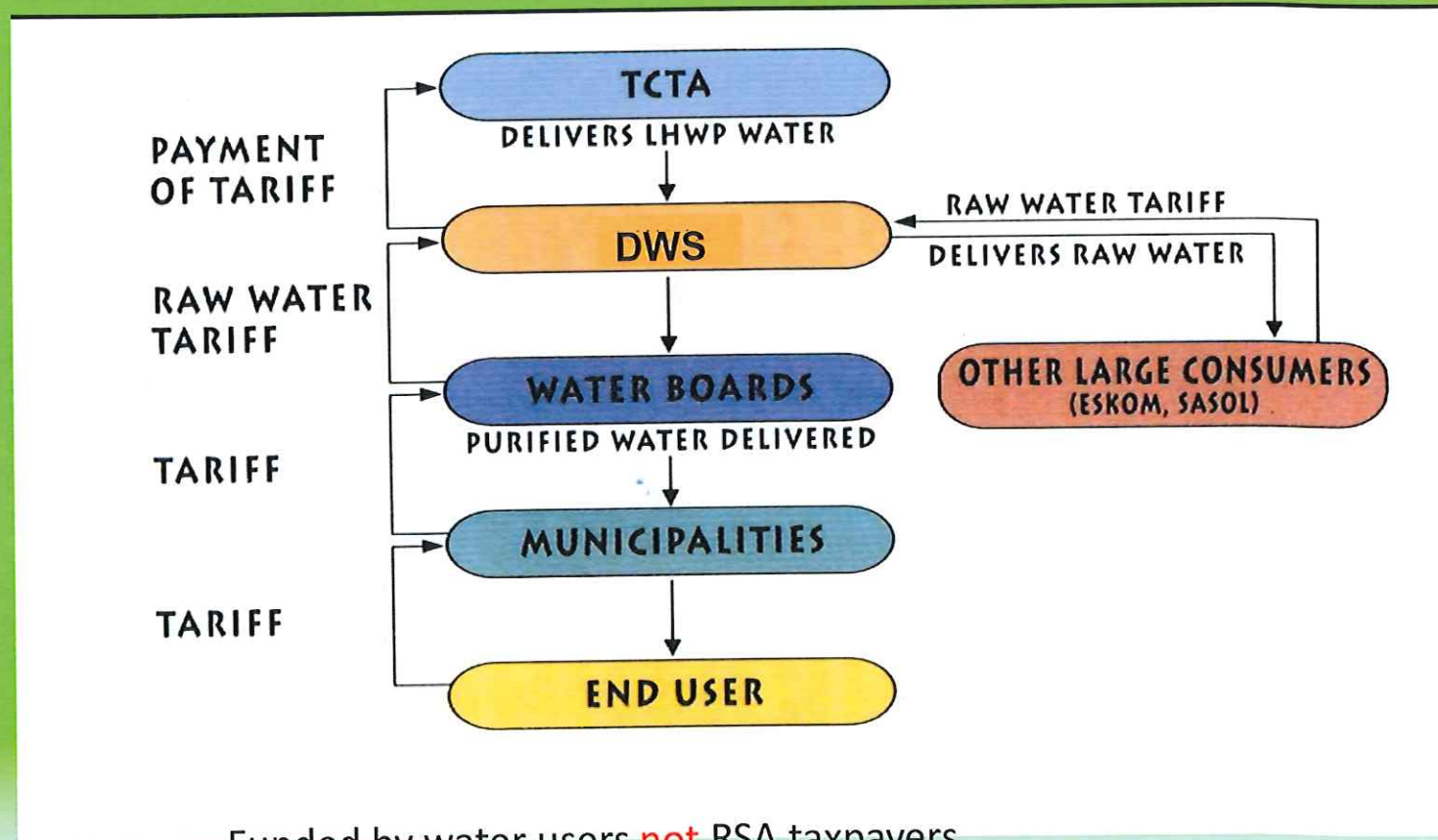
- 1 – Royalty Manual**
- 2 – Caledon Works area**
- 3 – Apportionment of Phase 1A costs**
- 4 – Supplementary cost and funding arrangements**
- 5 – Taxes, dues and charges**
- 6 – Change in Governance**

Treaty and protocol VI

- The oversight function of the LHWC to includes the Hydropower component of the Project (this was by request of the Government of Lesotho);
- LHWC is the only channel of the Governments' inputs into the Project, and responsible and accountable to the two Governments in the implementation of the whole Project;
- Clear line of authority and accountability: The Chief Executive is appointed by and reports to the Board. The Board is appointed by and reports to the LHWC, and The LHWC is appointed by and reports to the two Governments;
- Members of the Board and the Chief Executive of the implementing authority of the Project (LHDA) are appointed on merit (qualifications, experience and character) through a transparent process;
- LHWC's joint oversight on the TCTA restricted to the Operations and Maintenance function of the Project (LHWP).

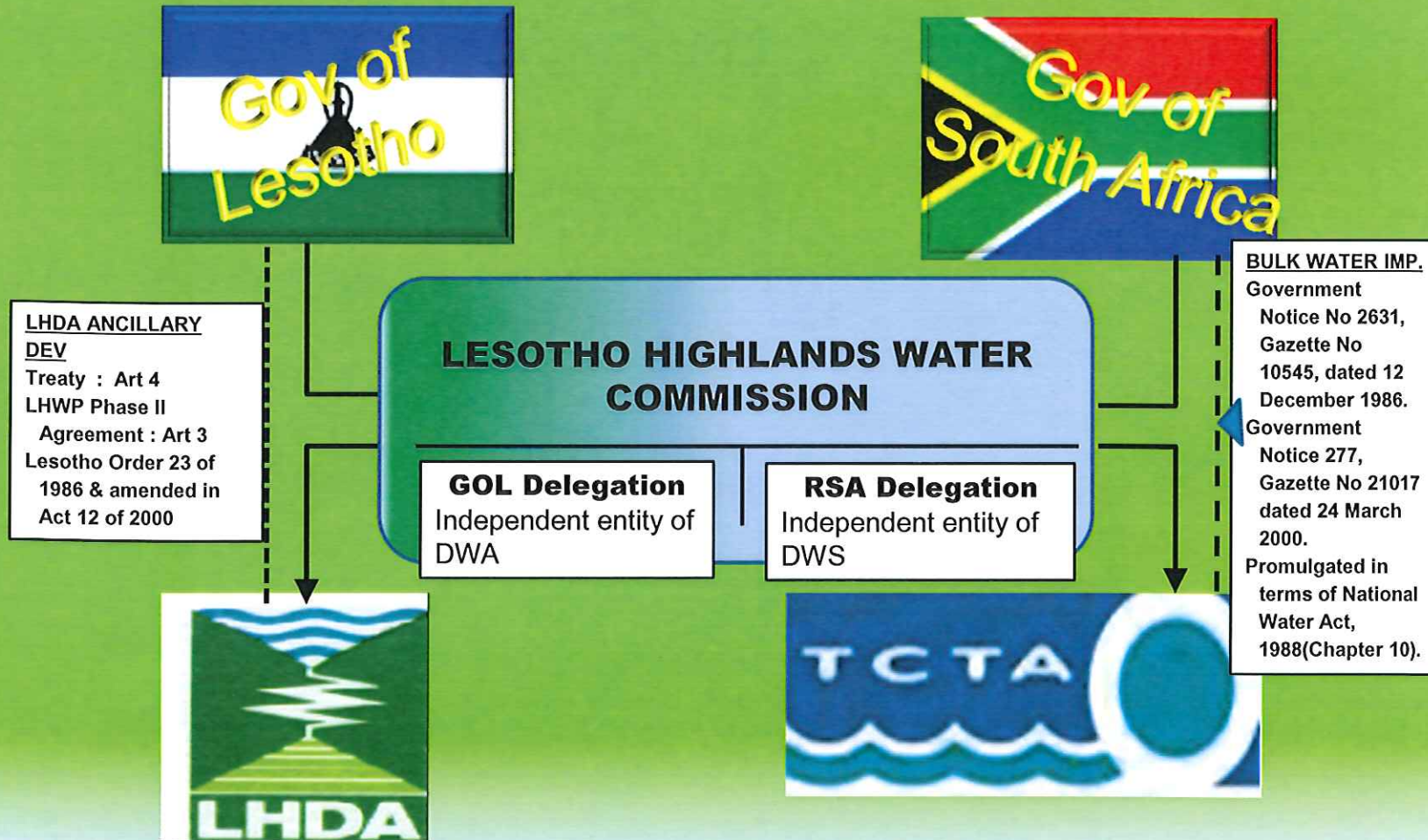
PROJECT GOVERNANCE

WHO PAYS FOR WATER TRANSFER FEATURES?

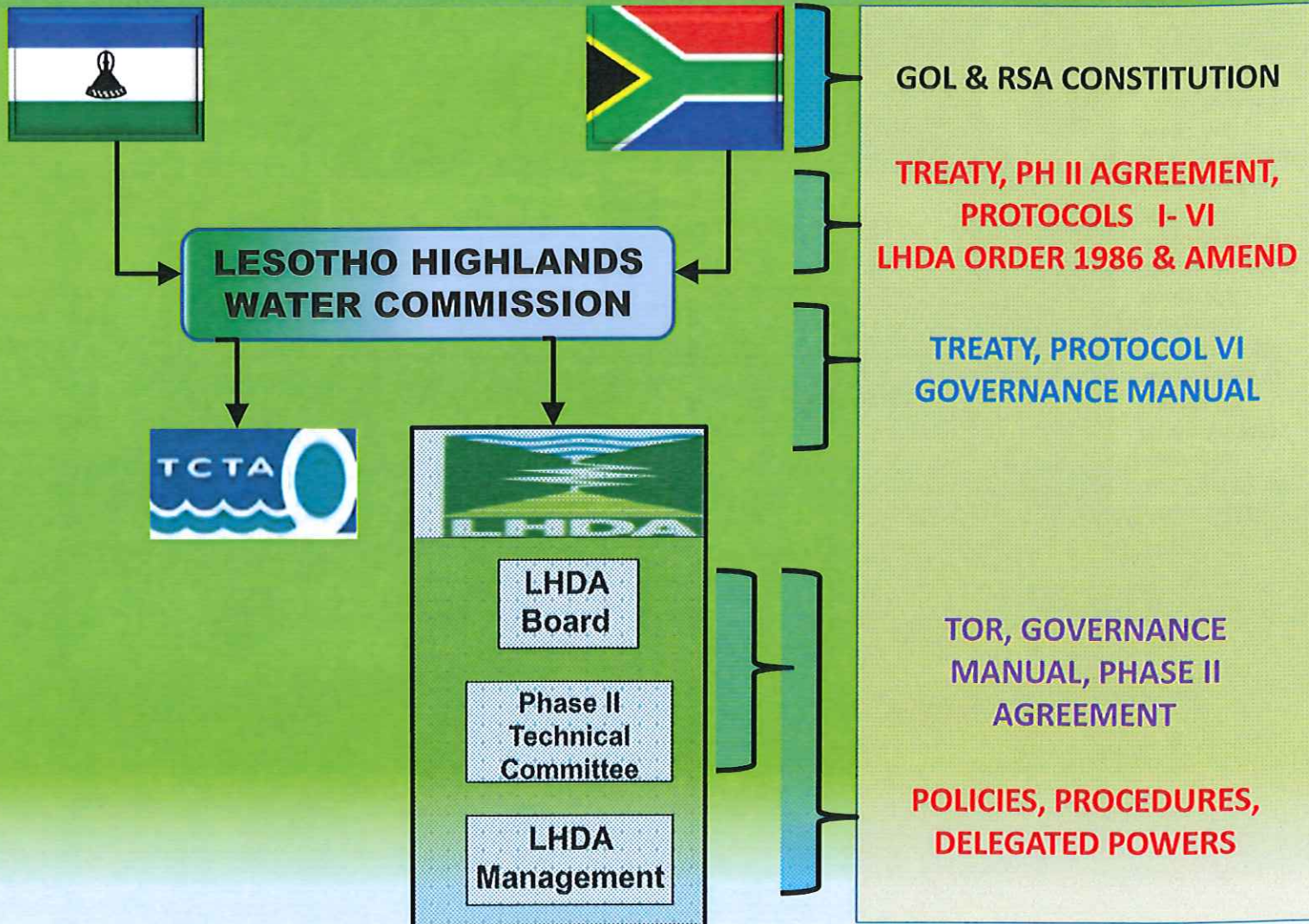


Funded by water users **not** RSA taxpayers

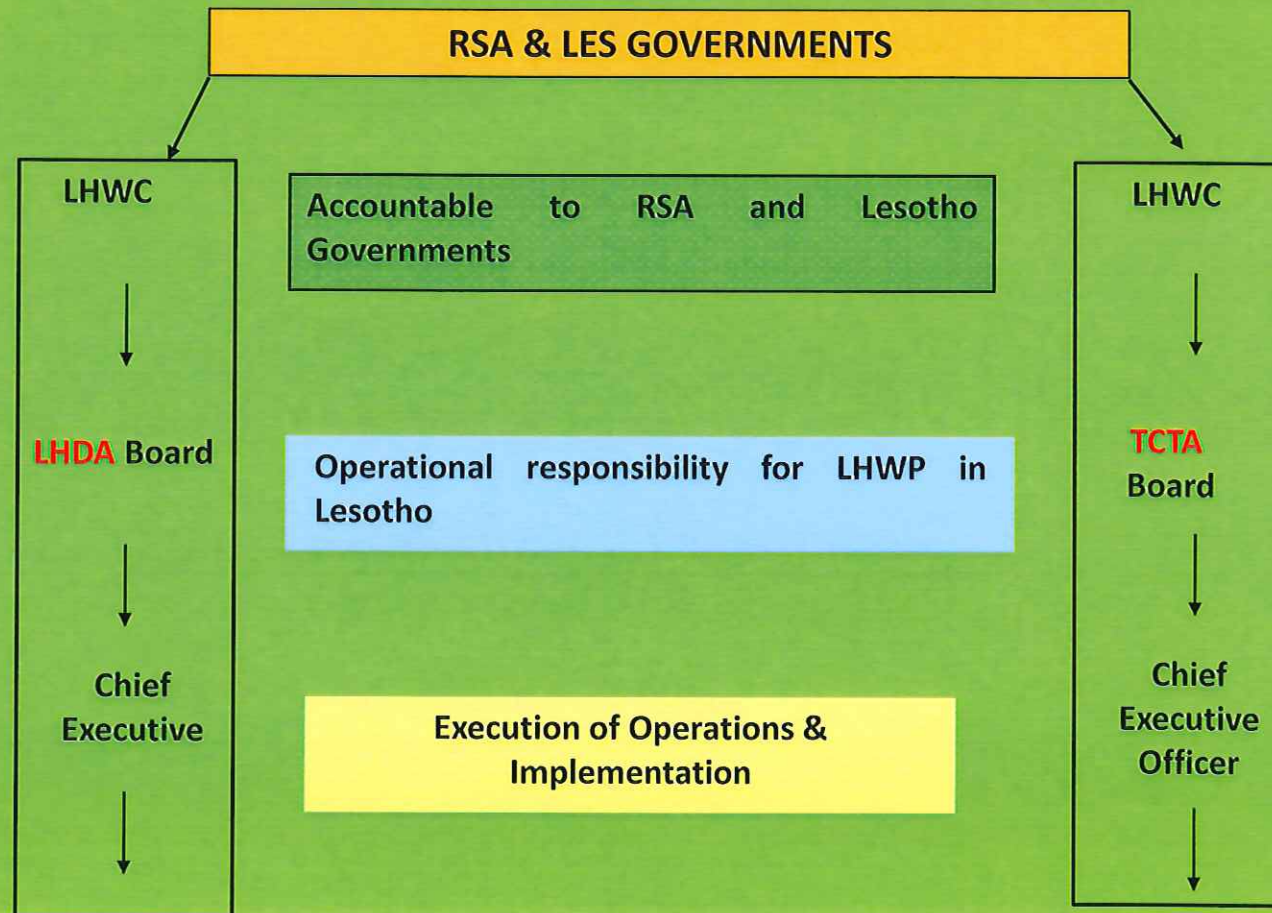
Project governance – Prot VI & Phase II



Project governance instruments



Phase II : Accountability Framework



Accountability Framework

LHWC

Accountable to SA and Lesotho governments for LHWP



LHDA Board

Operational responsibility for LHWP in Lesotho

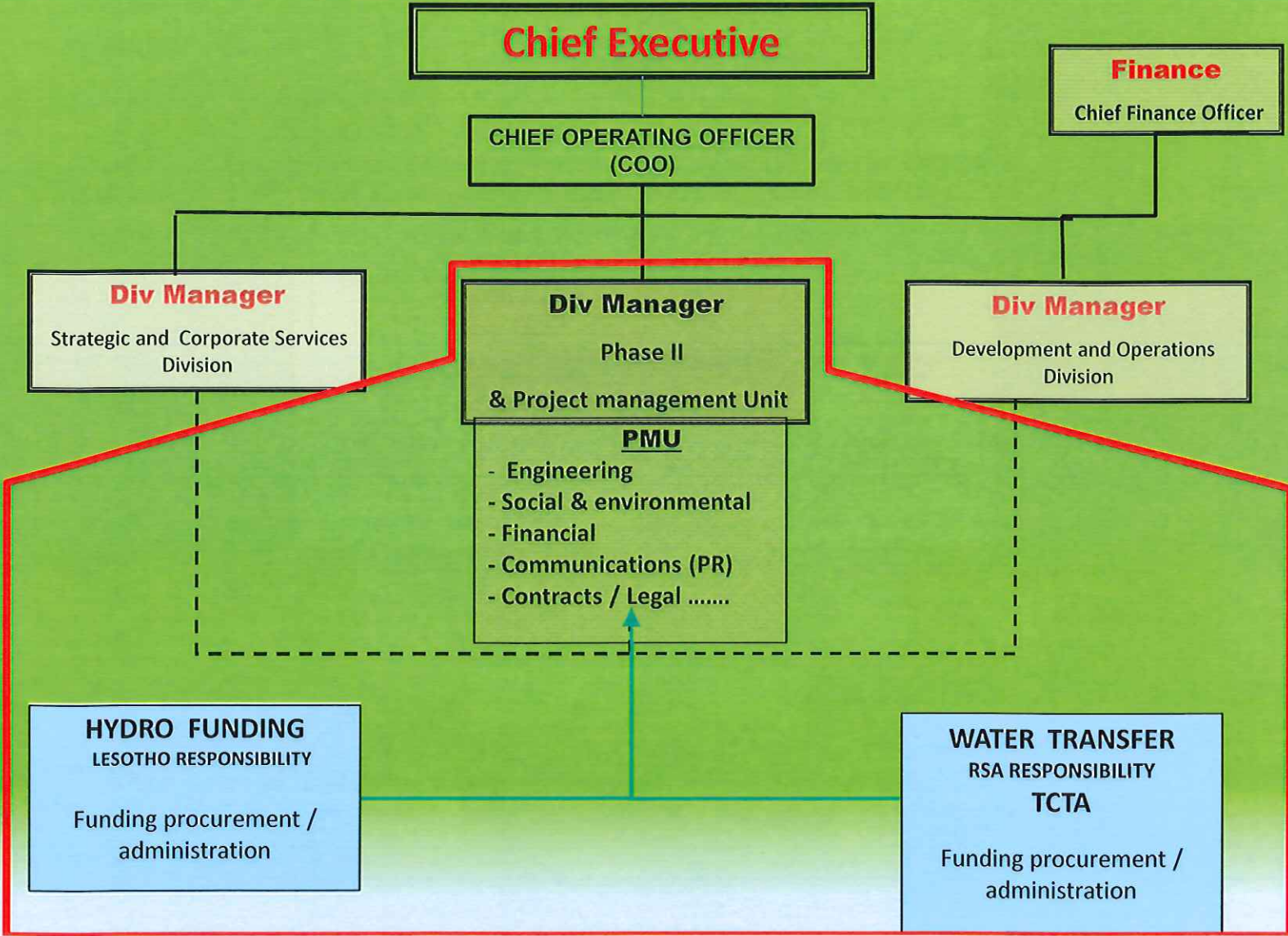


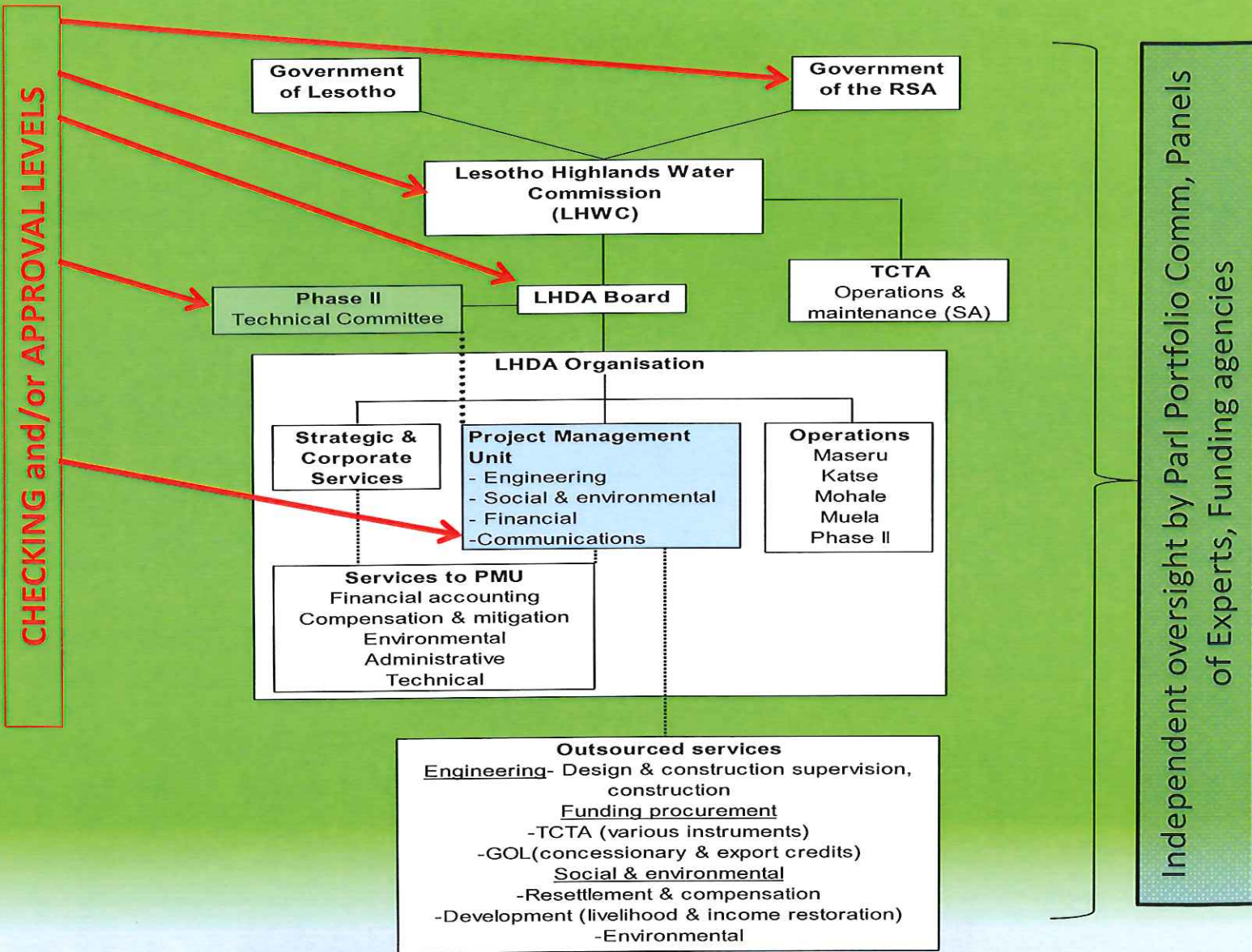
Chief Executive

Execution of Operations & Implementation



TOP STRUCTURE OF THE LHDA – PHASE II





LHWC

- **“Responsible and accountable” for the LHWP.**
- **Acts on behalf of the governments of Lesotho and South Africa in accordance with the Treaty and various Protocols.**
- **Advise the governments on the LHWP**
- **Channel for all government inputs relating to the LHWP.**

LHWC cont..

The LHWC acts according to the following principles:

- Responsibility for strategic “overall” policies;
- Determine in respect of any matter “appropriate” policies, procedures and expenditure limits
- Has approval powers for which no appropriate policy, procedure or expenditure limit is laid down.
- May establish such “non-executive” committees for its operations.

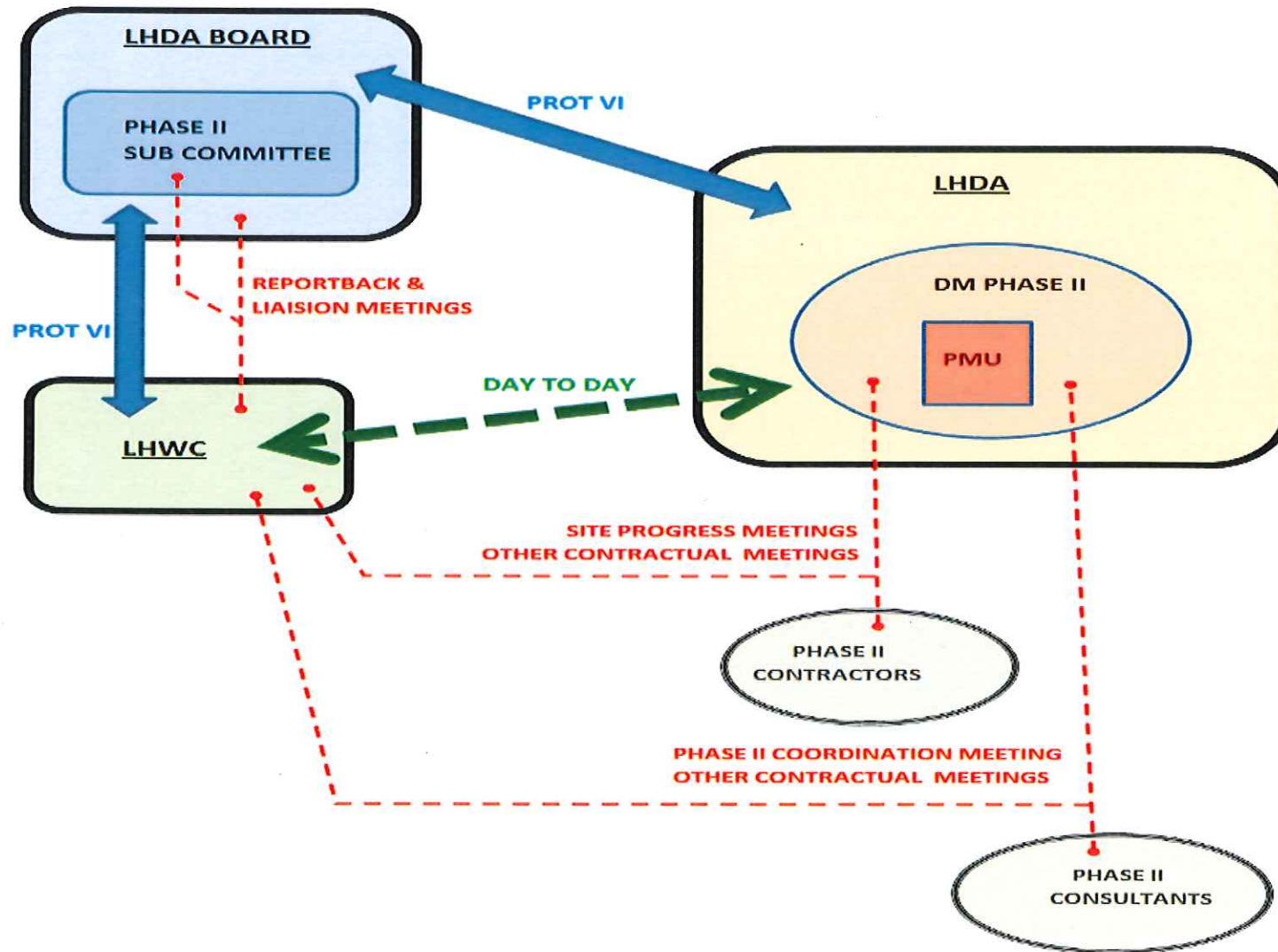
LHDA Board

“Board of the LHDA is accountable to the LHWC for the effective, efficient and economic management of the LHWP”.

Primary Functions of the Board

- Establish operational policies for the management and control of LHDA and its management;
- Appoint the Chief Executive of the LHDA in consultation with LHWC;
- Establish and monitor a delegation structure and levels of authority granted to the chief executive and management (defined through the required governance manual).
- Report to the LHWC on a quarterly basis.
- Ensure access to information needed to enable the LHWC to execute its responsibilities.
- The chairman of the board of the LHDA "... shall act as the channel of communication between the Board and the [LHWC]." Board Chairman can delegate powers to Chief Executive.

LHWC COMMUNICATIONS & MONITORING



**LESSONS LEARNT
and
APPLIED IN PHASE II**

Lessons learnt

- Multi purpose, multi country adds significantly to complexity – but rewards make it worthwhile
- Require robust project governance system
- Presence of both Governments/Countries on LHDA Board is important
- Tight procurement processes to avoid corruption
- Clear and equitable sharing of costs and benefits
- Separation of oversight and implementation responsibilities
- Resettlement and compensation need clear policies, transparency, adaptability. Treaty provision ‘Nobody worse off as a result of the project..’ a powerful safeguard

Lessons learnt

- World Bank Involvement lent credibility
- International Panel of Experts added value –
Engineering & Socio / Environmental
- Environmental/social programs need careful planning
- Importance of upfront EIA, EAP
- Rigorous complaints procedure
- IFR – to be started earlier, implement, monitor, adapt
- Careful planning of financing and contracting
- Deal with contractor claims promptly; use DRB

Lessons applied

1. **Political mandate** for objectives are important. Set objectives and then stick with them over the whole project implementation period.
2. **Complex international negotiations** require time.
3. **Project implementation control measures** to minimize risk of cost increases.
4. **Do not rely on general policies** - specific requirements to be built into the contracts
5. **Include clear, unambiguous definitions, process and targets** in all contract documents.
6. **Setting targets**
 - a) Determine focused and measureable objectives before any tenders are issued.
 - b) Monitor and enforce implementation over the life of the whole contract.
 - c) Accurate measurement of socio economic achievements also during construction.
 - d) Determine objectives with week by week and monthly target reviews and impose penalties for non performance.

Lessons applied continued

7. **Clearly defined reporting and intervention strategies both within the contract, within and to the external governance structures**
8. **Personnel safety above all !!!**
9. **Don't kill the environment downstream of dams**
10. **Measure, measure, measure, evaluate then decide**

11. *The contractor / implementer must be motivated to achieve, and not to find excuses for slow performance !!!*
12. *Downtime costs money and generates unnecessary stress*

PROCUREMENT POLICY

LEGISLATIVE FRAMEWORK

- LHDA Order No 23 of 1986 as amended;
- The LHWP Treaty signed between the Governments of Lesotho and South Africa in October 1986 and applicable Protocols. (Specifically Art 6 (17))
- Governance Manual Second Edition June 2004 and subsequent amendments
- Phase II Agreement signed between the Governments of Lesotho and South Africa in August 2011. (Specifically Articles 10 and 11)
- Applicable laws of Lesotho eg. Land Act 2010.....
- It is prudent to take relevant sections of the RSA BBBEE legislation into consideration, for the South African portion of consultancies/contracts, recognizing:
(i) Ownership, (ii) Management structure recognizing gender, (iii) Skills Development, (iv) Enterprise and Suppliers Development, (v) Purchase from BEE compliant suppliers and (vi) Socio Economic Development

SUMMARY OF ARTICLE 6(17) OF THE TREATY AND ARTICLES 10 & 11 OF THE PHASE II AGREEMENT

- **Articles 10 and 11 of the Phase II Agreement** deals with the procurement of goods and services and the recruitment of personnel. The provisions are aimed at reducing costs and giving local suppliers of goods and services a fair chance to benefit from the project. **Preference will be given to such suppliers, including contractors and consultants, in Lesotho, South Africa, the SADC member states and then internationally,** in that order. **Advance Infrastructure consultancy and construction** contracts will be **shared equally** between Lesotho and South African consultants and contractors.

Article 6(17) of the Treaty shall apply to all components other than infrastructure. Consultants registered in Lesotho may enter into joint ventures with external firms to make up its fifty per cent share thereof;”

- **Article 6 of the LHWP Treaty - General Duties Regarding the Project**
*The consulting services relating to the delivery of water to South Africa shall allow for the **contribution of consultants nominated by South Africa to the extent of not less than fifty percent in value** with regard to that part of the Project situated in the Kingdom of Lesotho*

PROCUREMENT PRINCIPLES

- (i) To comply with the spirit and objectives of Article 6(17) of the Treaty and Articles 10 and 11 of the Phase II Agreement, as well as the provisions of Lesotho Public Procurement Regulations of 2007, Part III(12)
- (ii) To take relevant sections of the RSA BBBEE legislation into consideration, for the South African portion of consultancies/contracts
- (iii) To foster competitiveness and transparency while increasing participation of individuals from Lesotho, South Africa and SADC Member states.

PROCUREMENT PRINCIPLES

- **Cost Effectiveness**
- **Competitiveness**
- **Transparency**
- **Quality**
- **Preference** – A margin of preference will be applied to local and regional firms whilst not excluding international firms from participating where special expertise and capacity are needed. Preference will be given to suppliers, including contractors and consultants from Lesotho, South Africa, the SADC Member states and others, in that order.
- **Ethics and fair Dealings** in accordance with the LHDA Anti-corruption Policy.

Consultancy Contracts

The preference scoring criteria include the following elements:

- A - Participation by Lesotho registered firms (4)
- B - Participation by Black owned South African companies (3)
- C - Participation of Lesotho Nationals in Key Positions (3)
- D - Participation by qualified RSA Black Individuals in different categories (3)
- E - Participation of Women in Key Positions (2)
- F - Total Participation by qualified Youth (1)
- G - Total Participation by qualified persons with disabilities (1)
- H - Skills Development (2)
- I - Supplier Development (SD) during contract period. (1)

Total score = 20

- **Bonus points above 20 allowed for if more than minimum criteria met**
- **Penalties applied if consultants do not comply during execution**

Construction Contracts

- Open , Competitive bidding, using a single- envelope system
- Tender Evaluation shall be based on Tender Price, Preference and Quality
- All procedures to conform as much as possible with BBBEE guidelines of South Africa.
- Preference criteria shall be applied to the evaluation of tenders, with weighting adjusted to suit (i) the nature of the works, (ii) the scale of the contract and (iii) regional capability.
- Contractor prequalification will be considered for the main construction contracts ie Dam and Tunnel works
- .

Construction Contracts

- Construction works for all the Advance Infrastructure restricted to contractors registered in Lesotho or South Africa on an equal basis in accordance with Article 10 of the Phase II Agreement
- Where international funding agencies insist on applying their own procurement rules and procedures, both Parties shall negotiate with such agencies and adapt such rules The main contracts (Polihali Dam, Polihali Transfer Tunnel) will not be restricted to contractors registered in Lesotho or South Africa only. Preference requirements will still be applied.
- **Penalties applied if contractors do not comply during execution**

CONTRACT PACKAGES

Contract packages - engineering

Red colour = 50:50 sharing

Black colour = At least 50% share for RSA

AI	Bulk Power and Telecommunications - Design & Construction Supervision
AI	Major Bridges - Design & Construction Supervision
AI	Feeder Roads and Footbridges - Design & Construction Supervision
AI	Main Access Road - Design & Construction Supervision
AI	Northeast Access Road - Design & Construction Supervision
AI	Urban Planning & Architecture - Planning, Design & Constr. Supervision
AI	Architecture Katse Lodge
ENG	Geotechnical Engineering Services
ENG	Reservoir Demarcation
DAM	Polihali Dam - Design & Construction Supervision
TUN	Polihali to Katse Transfer Tunnel - Design & Construction Supervision

Construction packages – works

Red colour = 50:50 sharing RSA:LES

Black colour = No minimum or maximum participation of RSA companies

AI	Bulk Power and Telecommunications - Construction
AI	Major Bridges - Construction
AI	Feeder Roads and Footbridges - Construction
AI	Main Access Road - Construction
AI	Northeast Access Road - Construction
AI	Permanent and Temporary Housing - Construction
AI	Katse Lodge Upgrade
DAM	Polihali Dam – Construction
TUN	Geotechnical Investigations
TUN	Polihali to Katse Transfer Tunnel - Construction
SOC	Local Development Programmes - Rural Electrification, WATSAN etc.

Contract packages - services

Red colour = 50:50 sharing RSA:LES

ENV	Biophysical & Archaeological Baseline Study
ENV	IFR Baseline Study
ENV	EIA - Dam and Tunnel
ENV	EIA - Project Housing & Dam Site Establishment
ENV	EIA - Western Access Corridor
ENV	EIA - Major Bridges
ENV	EIA - Tunnel West Establishment
ENV	EIA - Feeder Roads and Footbridges and Inundation Area
ENV	Heritage/Archeological Management Plan
ENV	Implementation of IFR/Water Quality Monitoring Plan
ENV	Biodiversity Monitoring
ENV	Integrated Catchment Management Plan
HLTH	Public Health Baseline Study
HLTH	Public Health Action Plan
SOC	Socioeconomic Baseline Study
SOC	RAP – Project Housing & Dam Site Establishment
SOC	RAP - Northeast Access Road
SOC	RAP - Western Access Corridor
SOC	RAP - Polihali Dam - Inundation Areas (including Feeder Roads)
SOC	RAP – Katse Basin Construction Facilities
SOC	Compensation preparation
SOC	Monitoring contracts

PROGRESS TO DATE

Key project milestones

Forecast

Ratification of Agreement	Jun 13
Advance Infrastructure : construction	Apr 17 – Nov 18
Dam construction	Aug 19 – Jul 24
Tunnel construction	Sept 19 – Jan 25
Water Impoundment	June 23
Water Delivery	Feb 25
Project Close-out	Dec 26

(See detailed program in information pack)

MCWAP Phase 2

**Durat
ion
Mont
hs**

2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water Use Licence	42	Jan 16			Jun 19						
EIA	18	Feb 16	Jun 17								
Land acquisition	13		Jun 17	Jul 18							
Procure: Design											
Design	25	Nov 16	Dec 18								
Procure: Construction											
Construction	64			Dec 18				Dec 22		Jul 24	
Water delivery commences Dec 22 and concludes Jun 2025											
Project close-out											
LHWP Phase 2 –Dam											
Water Use Licence		Not Applicable									
EIA	14	Aug 16	Nov 17								
Land acquisition	72	Sept 16	Jul 18	Jun 17	Jul 18	Jun 17	Jul 18	Sept 22			
Procure: Design	7	Jul 16	Feb 17								
Design	24		Mar 17		Mar 19						
Procure: Construction	4				Mar-Jun19						
Construction	59				Jul 19					Jun 24	
Land procured in phases as needed. Final acquisition by Sep 22											
LHWP Phase 2 –Tunnel											
Water Use Licence		Not Applicable									
EIA	12		Jan 17	Jan 18							
Land acquisition	24			Jun 18	Jul 19						
Procure: Design	8	Jul 16	Mar 17								
Design	23		Apr 17		Mar 19						
Procure: Construction	4				Apr-Jul 19						
Construction	64				Aug 19						Feb 25

COST SUMMARY (RANDS)

Cost by Category	Revised Budget (Nov 2015)	Revised Budget (May 2016)	Cost to Date (Sept 2016)	Expended %
Engineering	2,005,585,533	2,005,585,533	42,660,631	2.1
Main works: Dam & Tunnel **	8,250,000,000	8,250,000,000	14,826,663	0.2
Advanced – infrastructure. ***	3,948,671,168	3,693,811,168	25,648,701	0.7
Administration & PMU	679,234,490	527,142,687	205,319,699	30.2
Environmental & Social	1,305,714,826	1,261,496,094	24,129,188	1.9
Sub-totals	16,189,206,018	15,554,851,707	312,584,882	
Contingency	2,065,974,109	2,470,687,309		
Escalation	4,660,121,495	5,251,133,926		
Total (Excl Escalation to completion and Contingencies)	22,915,301,624	23,276,672,942	312,584,882	1.4

Note ** Dam and Tunnel prices based on worst case scenario where Tunnel is fully concrete lined. Detailed geotechnical drilling underway.

*** Infrastructure cost based on new Katse to Polihali road. Cheaper alternative access route under investigation. Point for discussion and agreement with GOL.

A scenic landscape photograph featuring a vast mountain range under a clear blue sky with scattered white clouds. A thick layer of white clouds fills the valleys, creating a 'sea of clouds' effect. In the foreground, two people are silhouetted against the bright light, standing on a rocky ridge. The overall scene is bright and expansive.

QUESTIONS ?

THANK YOU