CONTENTS

• Phase I
• Phase II
• Costs
• Implementation program
✔ Treaty signed on 24 Oct 1986
✔ Phase II Agreement signed on 11 August 2011
WHAT IS THE LHWP?

• Bi-national interbasin water transfer
  - ultimate delivery 70 m$^3$/s
• 5 Phases  - 30 year
• Implementation - LHWC, LHDA & TCTA
• One of largest engineering projects
• Worth $8 billion
WHY THE LHWP?

- Augmentation for Vaal System in RSA
- Millions people without water
- Cheaper alternative source
- Good quality water
- Opportunity for regional development
- Hydro-electricity for Lesotho
Project governance
**Project governance**

- **Gov of Lesotho**
- **Gov of South Africa**
- **LESOTHO HIGHLANDS WATER COMMISSION**
- **LHDA**
- **TCTA**
Current 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
WHO PAYS FOR WATER TRANSFER FEATURES?

Funded by water users not RSA taxpayers
PHASE 1A & 1B
MUELA HYDRO POWER SWITCH YARD
THE SPIRAL ALOE – ALOE POLYPHYLA
Knipfolia caulenses – Lesotho Red-hot Poker
PHASE II & KOBONG PUMP STORAGE SCHEME
LHWP
PHASE II

Kobong Pump storage
101m high Kobong Dam
6.3 km tunnels 11.5m dia

Transfer Tunnel
38.2 km long
5.2m diameter

Polihali Dam
163.5m high rockfill dam
49.5m Saddle dam
# Advanced Infrastructure

## Roads
- St Peters to Oxbow Rd
- Oxbow to Seate Bridge Rd
- Seate Bridge to Mapholaneng Rd, etc..

= OR =
- Matsoku to Polihali Route

## Residencial Areas
- Client, Engineer, Contractor facility, Lodge @ Mporosane and Polihali
- Labour camps

## Feeder Roads
- Mokhotlong to Mositeng
- Chaba Li Maketse to Moeaneng
- Ha Tlhakola to Makalong
- Ramoruti to Ha Pohla
- Ntlholohetsane to Ha Letjama
- Various road bridges

## Construction Power
- Reroute Letseng-Tlokoeng 33kV line
- Reroute Tlokoeng-Mapholaneng 33kV line
- Reroute Mapholaneng-Mokhotlong 33 kV line
- New line 132kV line (Kao option done by LEC to be considered later)

= OR =
- Matsoku to Polihali line

## Telecommunications
- Relocate existing lines
- Polihale dam connection
- Tunnel connection @ Polihali

## Substation
- Upgrade Ha Lejone sub station
Biophysical features

<table>
<thead>
<tr>
<th>Mitigation measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish species</td>
</tr>
<tr>
<td>Natural grass and woodlots</td>
</tr>
<tr>
<td>Sedimentation</td>
</tr>
<tr>
<td>Erosion prevention programmes</td>
</tr>
<tr>
<td>Rehabilitation of disturbed areas</td>
</tr>
<tr>
<td>Rescue Indigenous and threatened flora and fauna</td>
</tr>
</tbody>
</table>

**Instream Flow Requirements**

<table>
<thead>
<tr>
<th>Instream Flow Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFR volumes and policy -</td>
</tr>
<tr>
<td>Downstream losses &amp; compensation</td>
</tr>
</tbody>
</table>

**Water quality**

<table>
<thead>
<tr>
<th>Water quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility for monitoring</td>
</tr>
</tbody>
</table>
SOCIAL

Resettlement

- Polihali Reservoir Affects = 17 Villages = 534 Households = 2547 People
- 5 Villages fully submerged
- 12 Partially Affected (To be move upslope)

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

- 72 Villages Affected = 3312 Households = 1125 Ha = 16560 People
- Mokhotlong Town Excluded
# SUMMARY OF COMMUNITIES ASSETS LOST TO DAM & INUNDATION

<table>
<thead>
<tr>
<th>VILLAGES</th>
<th>ARABLE LAND (HA)</th>
<th>TREES</th>
<th>HOUSE/OPTAK (M²)</th>
<th>RONDA-VEL (M²)</th>
<th>POLATA/MALINE (M²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>1125</td>
<td>14812</td>
<td>2617</td>
<td>8960</td>
<td>6170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KRAALS/STABLES (M²)</th>
<th>BUSINESS FACILITIES (M²)</th>
<th>GOVERNMENT FACILITIES (M²)</th>
<th>CHURCH/SCHOOL (M²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 647</td>
<td>656</td>
<td>1 546</td>
<td>843</td>
</tr>
</tbody>
</table>
KOBONG PUMP STORAGE SCHEME (LESOTHO DEV)
KOBONG 1200MW PUMP STORAGE SCHEME

PROJECT STATUS

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Dam</td>
<td>Katse Dam</td>
</tr>
<tr>
<td>Upper Dam</td>
<td>Kobong Dam</td>
</tr>
<tr>
<td>Dam height</td>
<td>101 meters</td>
</tr>
<tr>
<td>Headrace Tunnel length</td>
<td>4270 meters</td>
</tr>
<tr>
<td>Headrace Tunnel diameter</td>
<td>11.5 meters</td>
</tr>
</tbody>
</table>

- Detailed Feasibility Study funded by Swedish Government to commence in October 2010
- Feasibility Study complete Mar 2012
- Detailed design June 2012 to mid 2014
- Construction to start March 2015
- Completion end 2019
Katse reservoir

Tunnel Intake
Water transfer to SA
COSTS & IMPLEMENTATION PROGRAM
# RSA - WATER TRANSFER COSTS

<table>
<thead>
<tr>
<th></th>
<th>Dec 2010 COSTS (mill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLIHALI DAM</td>
<td>R 2381.20</td>
</tr>
<tr>
<td>TUNNEL</td>
<td>R 2016.62</td>
</tr>
<tr>
<td>INFRASTRUCTURE</td>
<td>R 1285.60</td>
</tr>
<tr>
<td>ENGINEERING</td>
<td>R 1086.90</td>
</tr>
<tr>
<td>ADMINISTRATION</td>
<td>R 335.70</td>
</tr>
<tr>
<td>ENVIRONMENT</td>
<td>R 365.50</td>
</tr>
<tr>
<td>SOCIAL COSTS</td>
<td>R 363.30</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>R 7834.80</strong></td>
</tr>
</tbody>
</table>
# GOL - HYDROPOWER COSTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Dec 2010 PRICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000mw Pump Storage</td>
<td>R 6136 million</td>
</tr>
<tr>
<td>Transmission Line</td>
<td>R 1500 million</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>R 7 636 million</strong></td>
</tr>
</tbody>
</table>

Total Phase II costs  =  R15 471 mill
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July ’11</td>
<td>Submit Phase II Agreement to Gov’s</td>
</tr>
<tr>
<td>mid Aug ’11</td>
<td>Governments sign Phase II Agreement</td>
</tr>
<tr>
<td>Oct ’12</td>
<td>Project Management Unit start work</td>
</tr>
<tr>
<td>Jan ‘11 – July ’20</td>
<td>Environmental &amp; Social studies &amp; plans</td>
</tr>
<tr>
<td>Oct ‘12 to Dec ‘15</td>
<td>Designs &amp; Issue construction tenders</td>
</tr>
<tr>
<td>Dec’14 – Nov ’16</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>Aug 16’ - Nov ’20</td>
<td>Dam &amp; Tunnel</td>
</tr>
<tr>
<td>Mar ‘19 ’18</td>
<td>Start Impound to 2000 masl</td>
</tr>
<tr>
<td>Jan 13’ - Dec ’20</td>
<td>Pumpstorage</td>
</tr>
<tr>
<td>Nov 2020</td>
<td>Water Delivery</td>
</tr>
</tbody>
</table>
ORGANISATIONAL STRUCTURE

GOVERNMENT OF SOUTH AFRICA

TREATY

GOVERNMENT OF LESOTHO

DEPT OF WATER AFFAIRS

MINISTRY OF NATURAL RESOURCES

TRANS-CALEDON NNEL AUTHORITY

LESOTHO HIGHLANDS WATER COMMISSION

LESOHTO HIGHLANDS DEVELOPMENT AUTHORITY

CONSULTANTS

CONTRACTORS

Independent oversight
PHASE II AGREEMENT
ARTICLE 6 - Institutional arrangements & Governance

- LHDA Board and Technical Sub-committee
- LHWC members attend Technical Sub-committee in ex-officio capacity
- PMU
- Annual audit by independent firm of recognized International chartered accountants
ARTICLE 9 - Electricity supply to the Project

- Lesotho to supply electricity
- RSA also to supply electricity re: Treaty Art 17(4)

ARTICLE 10 - Procurement of Goods and Services

- Competitiveness, transparency, cost effectiveness and quality
- Preference order: Lesotho, South Africa, SADC & International
- Lesotho & RSA to share value of infrastructure work on 50:50
- Other main works Art 16(7) of Treaty applies
- Joint ventures – voluntary
- Preference margins – Party requesting shall bear cost increases
- International funding agencies – own procurement rules may apply
- Most services to be outsourced, hence no significant LHDA staff increases
ARTICLE 11 - Recruitment of Personnel

• Preference order: Lesotho, RSA & SADC
• Outsourcing of services
• Individual staff development through “on the job” training
• PMU staff recruitment

ARTICLE 12 - Cost Allocation Process

• Method of apportionment of costs (refer to Annex II Table of features)
• Annual Cost to Funding report

ARTICLE 13 - Financing Arrangements

• Cost effective and efficient financing
• LHDA & TCTA develop Funding Strategy
• Loans, credit facilities & other borrowings
• Existing funding arrangements of 1 April 2005 continues to apply
• Concessionary finance – excess availed to RSA
• Keep unutilized funds in interest bearing account
ARTICLE 14 - Taxes

- New tax regime
- Provisions of Protocol V shall no longer apply
- Relevant provisions of this Article applies to Phase I O&M and Phase II
- RSA not liable for dues, taxes or charges except …
- Dues, charges levied by Lesotho shall be paid to RSA
- VAT levied by Lesotho shall be paid to RSA
- Income taxes levied by Lesotho shall be paid to RSA – 30% administration fee withheld
- Lesotho retains income taxes levied on Lesotho Nationals
- Scope & application
- Contractors, consultants, service providers to monthly supply information
THANK YOU

QUESTIONS?