

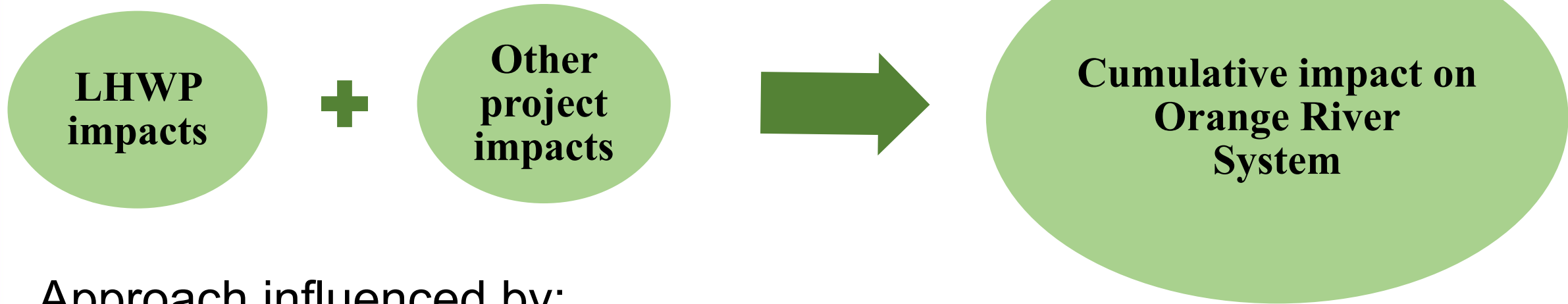
# **CUMULATIVE IMPACTS OF THE LHWP ON THE SENQU / ORANGE RIVER BASIN**

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**LHDA**

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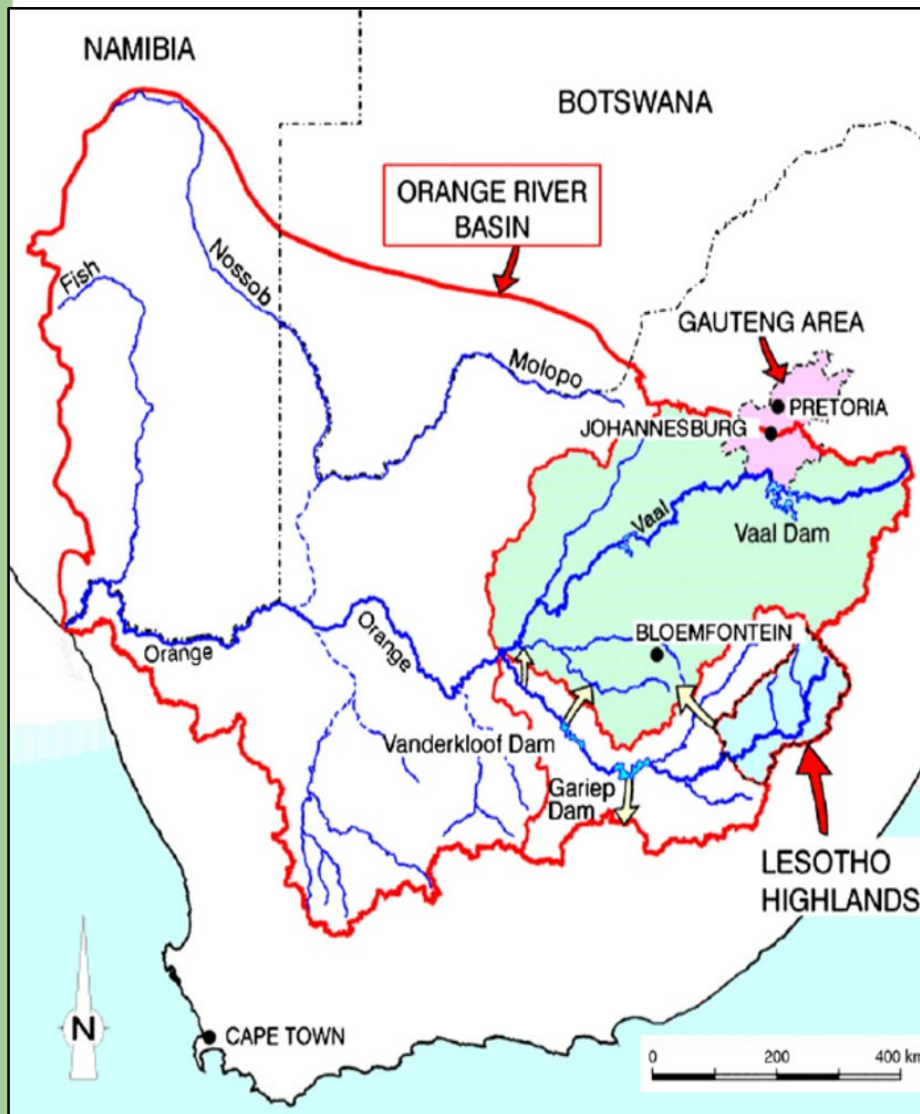


Approach influenced by:

- Environmental (baseline) context
- Trajectory of change
- Information about impact of other activity
- Does activity already exist / proposed?

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## Vaal Dam

### Orange River Project:

- Gariep Dam (water transfer), Phase I
- Vanderkloof Dam (with HP), Phase II

### Lesotho Highlands Water Project:

- Katse and Mohale Dams, Phase I
- Polihali Dam, Phase II

**POTENTIAL FOR CUMULATIVE IMPACTS = HIGH**

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# AREAS OF INFLUENCE



# CUMULATIVE EFFECT OF PHASE II



Macro-scale cumulative assessment of Polihali in context of Orange River Basin  
(DWA - *Water Resource Reconciliation Strategies, 2013*)

- Surface water quantity – reduction in yield
- Surface water quality – Orange River dilutes pollutants from Vaal System
- Aquatic habitat fragmentation – dam = physical barriers in river
- Changes in aquatic ecology – riparian to lacustrine, fish migration, reduced erosion

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# CURRENT & POTENTIAL DEVELOPMENTS



## Orange River Augmentation:

- Neckertal Dam (Namibia) – reduction in flows on Fish River
- Less water for Orange River Mouth = Ramsar Wetland (Biodiversity & Birds)
- Raise Gariep Dam
- Recycle water

## Lesotho Developments:

- Further phases of LHWP
- Hydropower projects
- Lowlands Water Supply Scheme, e.g. Makhalleng Dam, water to Botswana
- Diamond mining

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## Lesotho:

- Attenuation of flow-related impacts

## RSA:

- cumulative impact of LHWP & ORP
- flow reduction along Orange

## Reconciliation Strategies for Orange River System (2013):

- Aim - ensure water supply for next 30 to 40 years
- Flexible - accommodate future changes in water requirements and transfers
- Outcome - specific interventions with particular actions
- Balance water need through regulations, demand management measures

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- Integration with other planning & management processes
- Cooperation among stakeholders (DWA, ORASECOM)
- Adhere to national and international commitments and obligations

## WATER RESOURCE IS DECREASING, DEMAND IS INCREASING

Therefore:

- Implement more effective water demand and management strategies
- Shared use of Phase II between Vaal & Orange Rivers
- Ongoing climate change investigations and strategies
- Revise LHDA IFR Policy
- Prioritise 'Working for Water' in d/s watercourses
- SADC Revised Protocol on Shared Watercourses

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# CONCLUSIONS

LHWP Impacts  
Other Project Impacts

National level CIA  
Senqu Catchment  
Scale

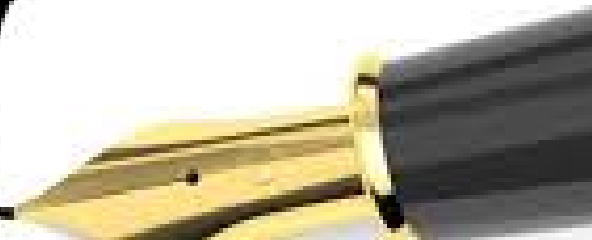
**Broad Basin-  
level  
CIA**

- Expand scope, consider downstream consequences of LHWP & other water demands on entire Orange River Basin
- Bigger commitment of resources, more detailed studies
- Proposed or existing interventions – flexible and adaptive
- Ongoing M&E of impacts
- New projects - new CIA

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*Thank  
you*



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