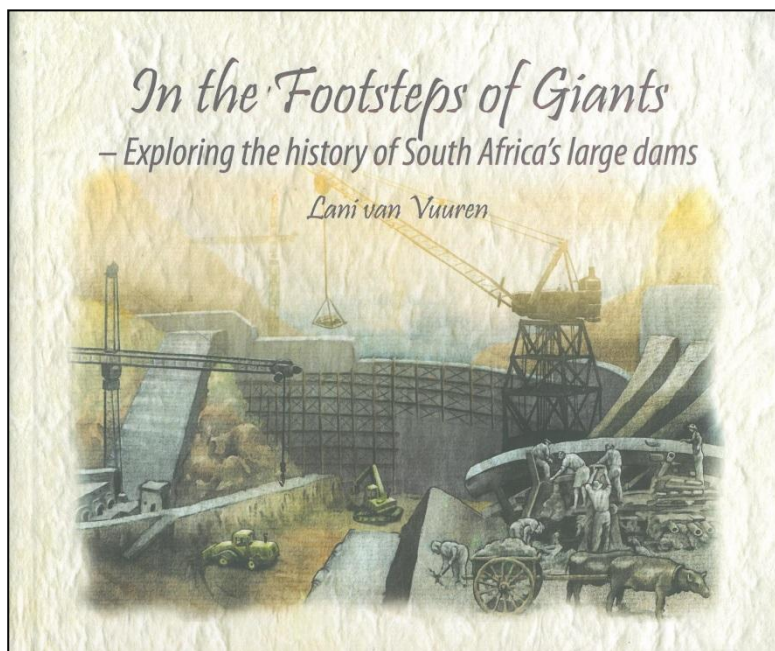




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# SUSTAINABLE IRRIGATION IN SOUTH AFRICA: EVIDENCE FROM HISTORY



**Lani van Vuuren  
and Gerhard Backeberg**

[Laniv@wrc.org.za](mailto:Laniv@wrc.org.za)

[Gerhardb@wrc.org.za](mailto:Gerhardb@wrc.org.za)



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# Presentation outline

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- 1. Background**
- 2. History of irrigation development**
- 3. Case studies of sustainable irrigation**
- 4. Implications for the future**

**Note: Based on a chapter by Lani van Vuuren of the book compiled by the ICID WG: History**

# Theme of the side event and international workshop

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## **History of water crisis , old and recent issues**

### **Definition of crisis:**

**A crucial stage or turning point in the course of something, especially in a sequence of events or a disease; an unstable period, especially one of extreme trouble or danger in politics, economics, etc.**

**A time when a difficult or important decision must be made**

**(Dictionary.reference.com, 2015)**



# Background

- **Productive agriculture sector, net food exporter**
- **Arable land: 15% of agricultural land**
- **Irrigation: 10% of arable land**
- **Mainly extensive agriculture in a semi-arid natural environment**
- **Water will limit future expansion of irrigation**
- **Less than 10% of population directly involved in agriculture**
- **At least 40% of population experience household food insecurity**



# History of irrigation development

- **Phases of development**
  - **Agricultural phase up to 1875**
    - **Individual schemes**
  - **Agricultural-mining phase up to 1920**
    - **Co-operative schemes**
  - **Agricultural-mining-industrial phase up to 2015**
    - **Public schemes**
  
- **Purpose of irrigation development**
  - **Utilisation of water resources for agricultural development and prosperity of society**
  - **Economic existence/livelihoods of people in agriculture**

# History of irrigation development (Continued)

- **Various crises**
  - **Natural – Droughts, floods**
  - **Economic – Great depression, business cycles**
  - **Political – Colonial, apartheid, democratic governments**
  - **Social – Inequality, poverty, unemployment**
  
- **Current challenges**
  - **Productive water use**
  - **Uplifting rural economies**
  - **Business opportunities in food value chains**
  - **Eradicating hunger and reducing poverty**
  - **Improving food security, nutrition and health**



# Case studies of sustainable irrigation

- **Vaalharts, Lower Olifants and Loskop irrigation schemes (constructed in period 1930 – 1945)**
  
- **Observations common to most irrigation schemes**
  - **Infrastructure of dams/weirs/canals**
  - **Land area supplied with water/classification of soils as suitable for irrigation**
  - **Water allocation according to riparian doctrine, quotas and licensing**
  - **Crops cultivated (food, forage, fibre)**
  - **Irrigation technology (surface, sprinkler, micro/drip)**

# Case studies of sustainable irrigation (Continued)

- **Management of irrigation farms**
  - **Markets for crops/livestock: Local and international**
  - **Financing: Fixed and operating capital**
  - **Entrepreneurial and managerial capacity**
  
- **Management of irrigation schemes**
  - **IMT from government to private WUA**
  - **Reduction of canal water losses**
  - **Expansion of irrigation with water savings**





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# Implications for the future

- **Major challenges**
  - **Producing more food with same or less water**
  - **Decision support through R&D**
  
- **Requirements for sustainability and preventing a crisis/turning point for national and household food security**
  - **Adaptation to changing markets**
  - **Investment in maintenance of infrastructure and new technologies**
  - **Improvement in human and social capacity**
    - **Knowledge**
    - **Practical skills**
    - **Productivity growth**
  
- **Lessons from history**
  - **Learn from the past to prevent mistakes in future**

