

The background of the slide is the flag of Lesotho, which consists of three horizontal stripes of blue, white, and green, with the national coat of arms centered on the white stripe. The text is overlaid on this background.

Public Awareness, Involvement, and Outreach on Nuclear Energy's Role in Climate Action, Focus on Lesotho & SADC MS

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Purpose of the Presentation

- Demonstrate how public awareness and stakeholder engagement can promote informed decision-making for nuclear energy in SADC countries.
- Highlight the use of INPRO tools (KIND-ET) to enhance transparency and trust

Outline

- Introduction
- Lesotho Power System
- Challenges
- Policies and Plans
- Cooperations and regional integration
- Role of Nuclear Energy



Introduction: Lesotho Overview

- Landlocked country in Southern Africa
- Area: ~30,355 km²
- Population: ~2.2 million (2024 estimate)
- Urbanization rate: ~33%
- Key economic sectors: Agriculture, textiles, water exports, and energy
- Member of SADC and Southern African Power Pool (SAPP).

Power System

Electricity Demand & Electrification Rate

➤ National electrification rate: ~50.4% (urban ~81%, rural ~38%)

Electricity consumption: 970GWh

- Electricity demand: ~970 GWh; local generation ~532 GWh (Hydro + Solar).

- Imported Power: ~438 GWh from Eskom (South Africa) and EDM (Mozambique) Fossil Fuel Based

➤ Peak electricity demand: ~172 to 203 MW

Energy System Challenges

- Hydropower output declines during droughts due to climate variability.
- Solar PV remains intermittent and cannot sustain baseload demand.
- Dependence on fossil-fuel imports increases vulnerability.
- Need for reliable, low-carbon alternatives — nuclear energy offers a solution.



GHG Emissions & Climate Commitments

- Energy sector contributes ~20% of national GHG emissions
- Commitment under Paris Agreement: Reduce GHG emissions by 35% by 2030 (relative to BAU)
- Renewable and nuclear energy are key to achieving these targets

Cooperation at regional level (connections to other systems)

Member of Southern African Power Pool (SAPP)

Electricity imports from Eskom (South Africa) & EDM (Mozambique)

Potential regional power trade through renewable projects

Ongoing discussions on cross-border grid interconnection improvements

Why Nuclear Energy Matters for SADC

- Provides reliable baseload power complementing renewables.
- Reduces GHG emissions and dependence on imported coal power.
- Supports hybrid systems (nuclear + renewables) for grid stability.
- Enables regional collaboration in clean energy transition.

Stakeholder Engagement & Sustainable Development

- Public awareness and transparency build trust and acceptance.
- INPRO tools (KIND-ET) support evidence-based, inclusive decision-making.
- Engagement fosters policy coherence and regional collaboration.
- Continuous outreach ensures sustainability and informed participation.

INPRO Tool: KIND-ET Overview

- Based on Multi-Attribute Value Theory (MAVT).
- Enables comparison of nuclear and non-nuclear options using Key Indicators (KIs).
- Includes weighting, ranking, and sensitivity analysis for transparent results.
- Facilitates dialogue between policymakers and technical experts.

Applying KIND-ET in Decision-Making

- Step 1: Define problem and energy options (e.g., NPP vs. Hydro PP).
- Step 2: Identify high-level objectives — Cost, Performance, Acceptability.
- Step 3: Select Key Indicators across areas like economics, safety, and infrastructure.
- Step 4: Perform weighting, evaluation, and sensitivity analysis.
- Step 5: Interpret results for policy and stakeholder communication

Findings

- Public perception of nuclear energy remains limited, with common misconceptions.
- Transparent, data-driven approaches improve trust and policy alignment.
- Regional collaboration enhances capacity building and knowledge sharing.
- Awareness initiatives increase public understanding and acceptance.
- Sustainability depends not only on technology and economics but also on social and political acceptance

Conclusions

- Public awareness, transparency, and stakeholder involvement are essential for sustainable nuclear power programme
- Policymakers should integrate nuclear energy planning with outreach, education, and regional cooperation
- Nuclear energy can advance SADC's low-carbon and energy security goals.
- Public engagement, transparency, and education are essential for success.
- INPRO tools like KIND-ET foster data-driven, inclusive decision-making, through ensuring informed participation will strengthen policy support and sustainability outcomes
- Regional cooperation strengthens sustainability and policy coherence