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Overview: JCOI Green Hydrogen Pilot Projects Implementation

SASSCAL
Southern African Science Service Centre for Climate Change and Adaptive Land Management

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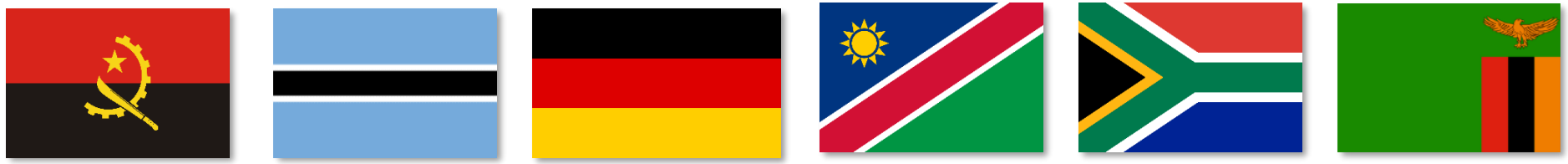
Association of Municipal Electricity Utilities – Women in Electricity (AMEU-WiE) General Meeting
8 May 2025, Virtually, MS Team



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Presentation Outline

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#	ITEM
1	About NAMWIE
2	About SASSCAL
3	The JCOI between Germany and Namibia
4	Projects Implementation Status
5	Lessons and Conclusions

About NAMWIE

- **Namibia Women in Engineering (NAMWIE)** an association that focuses on encouraging and supporting women in engineering and related fields.
- **NAMWIE** organizes events like career fairs and workshops to inspire young learners, particularly girls, to pursue STEM (Science, Technology, Engineering, and Mathematics) careers.
- **NAMWIE** organizes events and conferences to facilitate networking among women engineers and other stakeholders.
- **NAMWIE** advocates for greater gender diversity in engineering and related fields.
- **NAMWIE** plays a crucial role in addressing these challenges (gender bias, work-life balance, limited access to resources , lack of role models) and promoting greater gender diversity in the engineering profession in Namibia.

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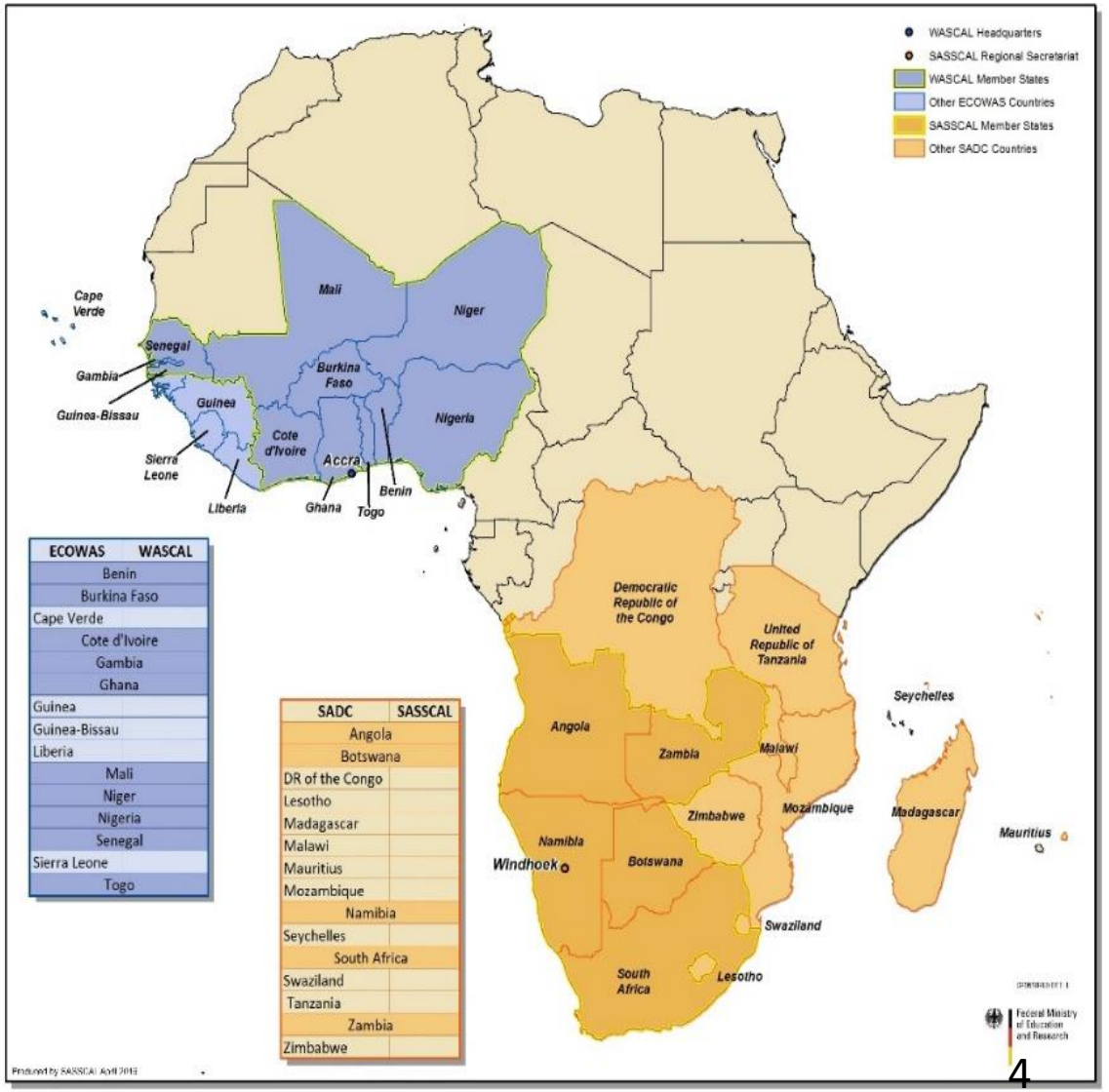
SASSCAL Southern African Science Service Centre for Climate Change and Adaptive Land Management

About SASSCAL

- **The Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL)** was formed in 2012 as one of the 1st realisation of the Bali Action Plan (COP 13) (in 2007), under the proposal for **Regional** centers.
- Five **SADC** Countries (Angola, Botswana, Namibia, South Africa and Zambia with funding from the BMBF – German Federal Ministry of Research and Education)
- SASSCAL's formation was in response to global change challenges
- Formed alongside **West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)**, in **ECOWAS** region of West Africa



Promoting science for sustainable development

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SASSCAL Research Projects

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Research and Human Capital Development are vital for knowledge creation and finding solutions to adapt and mitigate climate change

SASSCAL I (completed)

BMBF is the main funder of SASSCAL's core research, Green Hydrogen ,Human Capital Development and Research Infrastructure.

Member States contribute to SASSCAL's operational budget

Angola
13 Tasks
83 Individuals
15 Institutions

Namibia
18 Tasks
70 Individuals
31 Institutions

projects with German PIs
22 Tasks
102 Individuals
38 Institutions

Zambia
16 Tasks
179 Individuals
30 Institutions

Botswana
14 Tasks
80 Individuals
16 Institutions

South Africa
5 Tasks
80 Individuals
11 Institutions

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SASSCAL 2.0 Research Projects & Thematic Areas

SASSCAL
Southern African Science Service Centre for Climate Change and Adaptive Land Management

TIPPECC

ANGSOIL
Climate Smart Crops
FOSRECS
Properties Plants
SUSTAIN
RIBS
FRAMe

WIRE

Beekeeping

ANTELOPE
ELNAC

Every project ensures capacity development

Every project has at least 2 Southern African partners and is supported by a German partner

SASSCAL Role in the JCOI

SASSCAL is coordinating the implementation of the Joint Communique of Intent (JCOI) between Namibia and Germany Governments (25 August 2021), to cooperate in research and development, conduct feasibility studies and support the development of joint pilot plants:

- **Namibia Green Hydrogen and Derivatives Strategy**

- **The Green Hydrogen Pilot Projects**
  - Implementation Coordination
  - Research Components Monitoring
- **Youth for Green Hydrogen Scholarships (Y4GHS)**
  - Two Calls
  - Around 151 scholarships beneficiaries awarded (73 TVET trainees and 78 Master's students – 85 Males and 60 Females)
  - Students' enrolments in Namibia with Mobility to Germany


JOINT COMMUNIQUÉ OF INTENT

Between

THE GOVERNMENT OF THE REPUBLIC OF NAMIBIA

And

THE FEDERAL REPUBLIC OF GERMANY

On

COOPERATION IN THE FIELD OF ENERGY RESOURCES

SASSCAL Role: Coordination and Monitoring

- Conduct projects monitoring and coordination through various means, such as: reports, visuals and physical inspections.
- Conduct regular inspection site visits to identify and verify developments.
- Record progress against milestones (WPs) and grant funds.
- Monitoring the installation and commissioning of project equipment on site.

Namibia Three Green Valleys

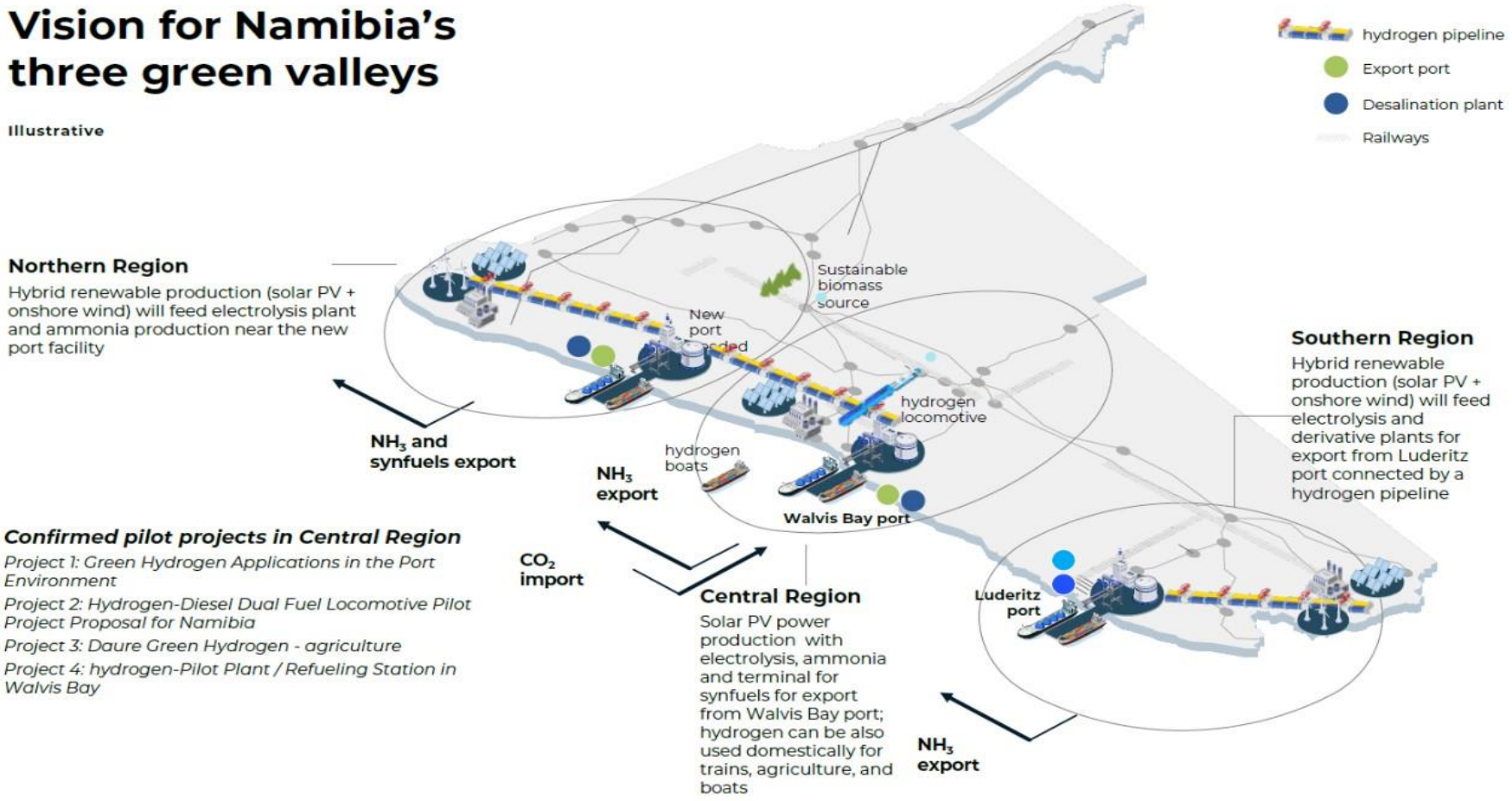


Photo: Namibia Green Hydrogen and Derivatives Strategy

Daures Green Hydrogen Village (DGHV)

- DGHV situated in the Daures Constituency in the Erongo Region
- To produce green hydrogen and ammonia from renewable sources
- Establish green schemes that create employment and partnership in the area
- New partnerships and demonstration of green hydrogen applications enabling of green hydrogen economy
- Nine (9) Work Packages
- Research Components with UNAM and Stuttgart University

- Project up to 80% completion
  - Most Infrastructure works completed.
  - Harvesting of various vegetables (cucumbers, tomatoes, peppers) has already commenced with various retail outlets in nearby towns as off-takers.
  - Solar field (0.74 MW) installed , commissioned and functioning (Off-grid system)
  - Housing units and Eco lodge completed.
  - The installation and commissioning of the Hydrogen Electrolyser and Ammonia Generation assets underway, anticipated to be complete by end of June 2025.

DGHV Site Pictures

- ***Solar field of 0.74 MW***

- ***Electrolyser and Ammonia production Units facility***

DGHV Site Pictures cont'd

- ***Green House and Harvested vegetables***

- ***Eco lodge and Camping Siste***

DGHV- UNAM Research Component

- Projects situated at UNAM Main Campus (Khomas Region) , Henties Bay SANUMARC Campus (Erongo Region) and Ogongo Agricultural Campus (Omusati Region).
- Research into Green Hydrogen and its applications in Daures Green Hydrogen Village.
- Research into extraction of minerals and metals for industrial applications in material development and fertilisers for agricultural use.
- Research into copper and copper-based thin films for applications in electrochemical water splitting for green hydrogen generation.
- Project up to 80% completion.
- Research equipment's procured through the project such as the Miniflex X-Ray Diffractometer (XRD), Spectrophotometer amongst others.

- **Upcoming closing conference between Namibia and Germany on 4 – 5 June 2025:**
  Registration link: https://forms.gle/QVbYokiZHrec7qi3A

DGHV – UNAM Research Components Pictures

- ***Fully functional Miniflex XRD installed at UNAM Main Campus***

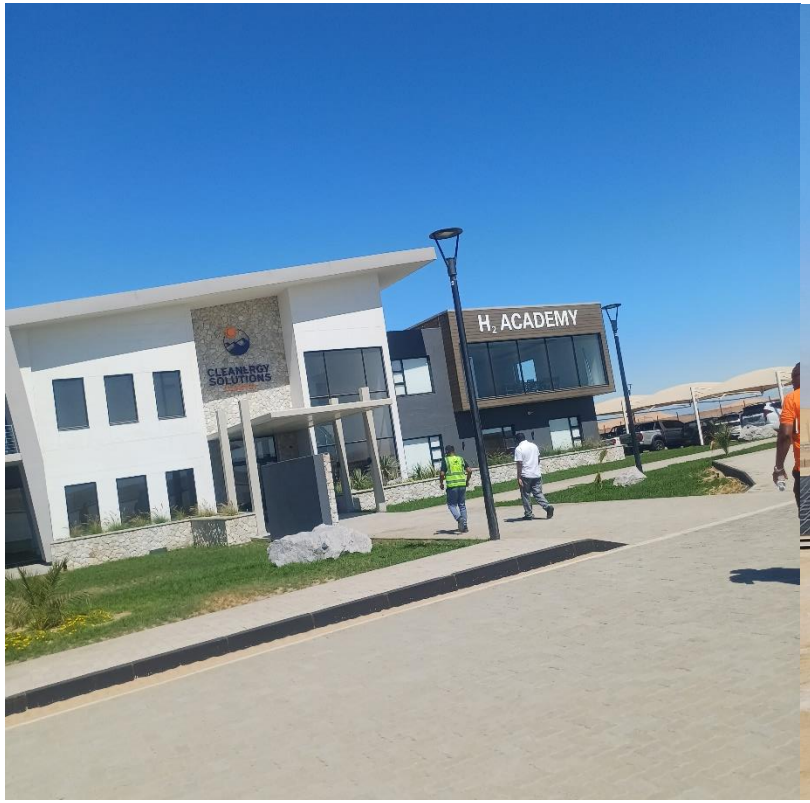
- ***Spectrophotometer stationed at UNAM Henties Bay Campus (SANUMARC)***

Cleanergy Green Hydrogen Plant and Refuelling Station

- Cleanergy situated between Swakopmund and Walvis Bay in the Erongo Region.
- Test and develop a green hydrogen production and refueling station.
- Demonstrate integration of green hydrogen production technologies in the Green Hydrogen economy.
- Ten (10) Work Packages including five supported by the grant.
- Research Component by UNAM and research partners.

- Project up to 90% completion
- Most infrastructures are up to 99% completion
- Solar field of 5 MW and battery storage of 373 kWh installed, commissioned and functioning
- 90% of all PEM electrolyser parts delivered on site with installation commencing beginning of May 2025.

Cleanergy Site Pictures



- *H2 Academy*

- *Solar Field of 5 MW*

- *Green Hydrogen Plant*

Conclusions and Learnings

- The pilot projects experience numerous challenges and opportunities during implementation:
  - Availability of key components in the market (e.g. Electrolysers) hamper progress.
  - Limited local research data e.g, wind and solar to inform the design and implementation of the projects, i.e. some projects had to install wind masts to collect data.
  - The implementation experience and research components will provide valuable insight on similar projects, resulting in replication in other SASSCAL Countries.
  - Technical Expertise on similar projects regionally a limitation on execution.
  - Existing policy and regulatory frameworks for the energy sector serving as interim green hydrogen projects implementation guidelines.
  - Pilot projects contribute to the reduction of green house gases (GHG) through renewable energy sources for green hydrogen production.
  - Strengthen technical capacity and education.
  - Promote green jobs and youth empowerment.
  - Collaboration and partnership is very crucial for the green hydrogen economy.

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Thank You

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