LEAP-SE
Long-Term Joint EU-AU Research and Innovation Partnership on Sustainable Energy

PRAGMA-E

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Production of Renewable Ammonia for Global Markets in Africa

Fueling Europe's Decarbonization Ambitions

Vision and Objectives

To promote **green ammonia** as a **bridge** between Africa and Europe by assessing Africa's **production potential**, **local fertilizer demand**, **market opportunities**, and its **potential role** in supporting Europe's decarbonization goals

- **Obj. 1 Resource mapping** : ≥50 sites screened by GIS, 3–5 priority hubs per country
- **Obj. 2 Market and agriculture** : demand to 2040, ≥15,000 smallholders, ≥50% women in consultations
- **Obj. 3 Trade and logistics** : 3 export scenarios, ≥3 EU ports, CO_2 and cost per route
- **Obj. 4 Knowledge transfer** : ≥8 workshops, 1 policy roadmap, ≥3 peer-reviewed papers

24
months
01.05.2026 – 30.04.2028

7
partners
Germany, Italy, Senegal, Morocco, Namibia

3
case-study countries
Morocco · Senegal · Namibia

KEY CHALLENGES

Socio-economic

- ✓ African smallholder farmers face **high dependency on imported fertilizers** and **persistent food insecurity.**
- ✓ Women remain **underrepresented** in agricultural input markets.
- ✓ Europe needs **scalable green hydrogen carriers** to decarbonize hard-to-abate industries.
- ✓ **Regulatory gaps** and **trade barriers** hinder AU-EU green ammonia trade.
- ✓ Existing business models often **exclude local communities** from value chain ownership and benefit sharing.

Scientific/Technical

- ✓ Green ammonia accounts for **only 0.1% of global ammonia production,** while Africa accounts for just **2% of global electrolyzer capacity**.
- ✓ No integrated study has yet linked African **RE potential**, **production costs**, **fertilizer demand**, and **export logistics** in a single value chain framework.
- ✓ Significant challenges remain in **Infrastructure development** and **cost mapping**

RESULTS

PRAGMA-E will:

- Develop geospatial cost maps for Morocco, Senegal, and Namibia
- Produce fertilizer demand forecasts and inclusive business models
- Assess export pathway to EU markets & deliver a policy roadmap



CONSORTIUM

Green Development and Innovation

Université Sultan Moulay Slimane

Khénifra
المدرسة العليا للتكنولوجيا
ÉCOLE SUPÉRIEURE DE TECHNOLOGIE

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

RWTH AACHEN UNIVERSITY

TOR VERGATA
UNIVERSITÀ DEGLI STUDI DI ROMA

ASTOL

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MUR
Ministero dell'Università e della Ricerca

IRESEN
Institut de Recherche en Energie Solaire et en Energies Nouvelles

République du Sénégal
Un Peuple - Un But - Une Foi
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