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Joint statement formulated on June 20, 2024, on the occasion of the virtual meeting “*Combating desertification: success stories from across the African continent*”, jointly organized by Nucleo di Ricerca sulla Desertificazione (NRD, University of Sassari, Italy) and DesertNet International to celebrate the World Day to Combat Desertification 2024

Building a new generation of scientists and informed citizens to combat land desertification

This year marks the 30th anniversary of the signature of the United Nations Convention to Combat Desertification (UNCCD). Land degradation and desertification are pressing global challenges that threaten the livelihoods of billions, particularly in arid and semi-arid regions. Addressing these complex issues requires a multidisciplinary approach centered on research, education, capacity building, and the dissemination of best practices. This comprehensive strategy ensures that interventions are context-specific, culturally relevant, and sustainable. We hereby intend to make recommendations to Parties to the UNCCD regarding several issues which we have concluded still need to be addressed.

Research

Science is the cornerstone of combating desertification and land degradation. It provides the data and insights necessary to understand the causes and effects of these phenomena, enabling the development of effective strategies.

In Africa and beyond, we recommend that key research initiatives focus on

- Developing indicators to qualify the state of land degradation based on primary productivity, soil cover rate and organic matter stock.
- Identifying hot-spots for interventions.
- Identifying resilient land management practices that can withstand extreme weather conditions.

- Characterizing the role of microbial communities in soil health maintenance.
- Developing drought-resistant crop varieties.
- Assessing the impact of climate change on land use patterns.
- Setting up gene banking for future propagation to ensure food security and sustainable land management practices.
- Developing new sustainable agrivoltaic solar energy technologies, which may support the water-energy-food nexus in areas enduring desertification processes.

By prioritizing research, science-based solutions can be tailored to the unique environmental and socio-economic conditions of different regions, ensuring their effectiveness and sustainability. Additionally, it is crucial to integrate indigenous knowledge with scientific research, incorporating farmers' valuable ethnobotanical knowledge and innovation-generating potential when developing sustainable land management practices. Current agricultural education often relies heavily on Western models, neglecting indigenous practices, while more effort should be invested in researching indigenous knowledge and incorporating it into science- and technology-based land management practices.

Education

Educated citizens are better prepared to implement and advocate for practices that mitigate desertification. It is also important to correct misconceptions about desertification. For example, desertification is not solely the transformation of land into desert, nor is it confined to desert regions or solely a natural phenomenon linked to climate. The UNCCD Convention proposes the following definition of desertification: «*“Desertification” means land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities*». By training the younger generations, societies as a whole can be better equipped to address desertification challenges. Education plays a vital role in raising awareness and equipping communities with the knowledge needed to combat land degradation.

To achieve these goals, we recommend

- Integrating topics related to desertification and climate change into school curricula.
- Promoting environmental education programs targeting youth and women.
- Developing training programs for local farmers on sustainable land management practices.

Building capacity

Capacity building empowers individuals and organizations with the knowledge and skills needed to address land degradation and desertification. These include strategies for drought management, contingency planning, soil conservation, crop diversification, and integrated water resources management. Empowering local communities through such initiatives fosters ownership and sustainable implementation of measures towards land degradation neutrality.

Special emphasis should be placed on youth and women, recognizing their critical roles in agricultural activities and natural resource management.

We therefore recommend

- Strengthening institutional frameworks that support sustainable land management.
- Enhancing the technical skills of local communities, particularly among youth and women.
- Facilitating cross-sectoral collaborations to ensure a holistic approach to land management.

Regarding the specific context of Africa, we recommend the African Union Commission, within its bold initiative to combat desertification, to develop farming schools and vocational training for youth on agroforestry, train extension workers, and label Great Green Wall (GGW) territories to coordinate economic and social investments and provide clear monitoring of changes and impacts. Investing along the value chain with a marketing approach can raise GGW products to the same level as imported farming products.

Knowledge dissemination

The contribution of scientific findings to improve the living conditions of the local communities concerned depends on **respect for and defense of the fundamental rights of local communities**, such as the **right to land** and the **right of access to water**, which are fundamental and inalienable human rights. We refer here to the United Nations Declaration on the Rights of Peasants and Others Working in Rural Areas, adopted on 17/12/2018.

For effective knowledge dissemination we recommend

- Utilizing traditional and digital media to widely share information.
- Establishing knowledge-sharing platforms that allow for the exchange of experiences and innovations.
- Engaging community leaders and influencers to advocate for sustainable practices.

Inclusivity

Youth, women, and local communities are pivotal in the fight against desertification. Their involvement ensures that interventions are context-specific and culturally relevant.

We recommend

- Encouraging youth participation in environmental stewardship through incentives and support for green entrepreneurship.
- Empowering women with leadership roles in natural resource management, by recognizing their critical role in agricultural activities.
- Fostering community-led initiatives that utilize indigenous knowledge and practices.

Cross-cutting recommendations

➔ **Policy and Cooperation.** Policy makers at all levels should enhance research, education, and dissemination of knowledge as foundational pillars for understanding the complexities of land degradation and desertification. Engaging all stakeholders, particularly through education and dissemination efforts, raises awareness of the challenges and opportunities within the sector. This process equips individuals, especially women, youth, and indigenous and minority groups, with the knowledge and skills necessary to address these issues.

➔ **Scientific cooperation a driver for peace.** Science should not be subject to the fluctuations of political change but be protected as a global public good. The concept of **Open Science**, as defined in the UNESCO Recommendation on Open Science (2021), is relevant to the fight against desertification and land degradation. It aims to render knowledge freely accessible to all, opening up the processes of creating, evaluating, and disseminating scientific knowledge to society beyond the traditional scientific community.

➔ The **universal nature of knowledge** should encourage young scientists to realize their responsibility as global citizens. Research institutions and universities should promote an ethical approach to science, contextualizing specialized research within the wider issue of international solidarity.

Conclusions

Within this framework, to sustain efforts against desertification, we recommend to

- invest in **developing a new generation of scientists and informed citizens** who are equipped to address future environmental challenges. This includes:
 - Providing scholarships and funding for students pursuing studies in environmental sciences.
 - Creating mentorship programs that connect young scientists with experienced researchers.
 - Promoting public awareness campaigns that highlight the importance of sustainable land management.

Programs like the One Planet Fellowship are essential, fostering long-term **collaboration between African and European researchers** to find solutions to desertification and climate change. This program exemplifies how knowledge exchange, training, and collaboration can support African research and develop a community of young, dynamic researchers.

Overall recommendations:

- **Increase Funding:** Advocate for increased funding for research in Africa.
- **Strengthen Training:** Enhance the training of young researchers and improve research facilities.
- **Policy Integration:** Create and strengthen the link between research and policy.
- **Access to Data:** Organize better access to scientific data.

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