



# 13<sup>th</sup> International Conference on Development of Drylands “Converting Dryland Areas from Grey into Green”

Jodhpur, India; 11-14 February 2019

## Jodhpur Declaration

### Preamble

Drylands cover about 41% of earth’s land area and are home to 38% of world’s human and almost half of livestock population. They are endowed with ample solar and wind energy, vast mineral resources, rich useful biodiversity including stress tolerant plants and animals, crops, fruits, trees, grasses, spices, medicinal and aromatic plants; and rich cultural heritage. Dryland dwellers have accumulated vast indigenous knowledge that enables them to be resilient in the harsh environments. These endowments of drylands underpin their global importance. However, achieving food security in drylands has been a great challenge due to low crop and livestock productivity and fragile natural resource base. Water scarcity, land degradation and loss of biodiversity are increasing due to excessive anthropogenic pressure and unabated climate change. The livelihood of more than two billion people who live in dryland areas is, therefore, at considerable risk and these areas need special attention from the research, development and policy-making communities to achieve the sustainable development goals (SDGs).

### Thirteenth ICDD 2019

In order to discuss the challenges of dryland areas in the face of changing climate, and to explore their solutions, ‘The Thirteenth International Conference on Development of Drylands: Converting Dryland Areas from Grey into Green’ was organized by the International Dryland Development Commission (IDDC) and the Arid Zone Research Association of India (AZRAI), in collaboration with the Department of Agricultural Research and Education (DARE) of Government of India, Indian Council of Agricultural Research (ICAR), Indian National Academy of Agricultural Sciences (NAAS) and the Trust for Advancement in Agricultural Sciences (TAAS), at the ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India during 11-14 February 2019. The Conference was attended by 379 participants from 80 international and national organizations representing 39 countries from six continents.

### Road Map

As a result of in-depth deliberations in the conference, we the participants unanimously endorse the following action points for urgent attention of all stakeholders, including the policy makers, for implementation:

1. Drylands are most vulnerable to climate change but their vulnerability **would vary** from place to place because of spatial diversity in resources, farming systems and

policy settings. Development of appropriate adaptive and mitigation strategies would, therefore, need precise assessment of impact of climate change on local rather than global or regional scale. International agreements that have laid out framework for transfer of knowledge and capacity building to enable developing countries to do local impact assessment and develop adaptive strategies should be sincerely implemented. Any complacency in implementing Paris Agreement, Kyoto Protocol, the Sendai Framework for Disaster Risk Reduction, and Sustainable Development Goals (SDGs) can result in a catastrophic situation leading to social upheaval and destruction of ecosystem security.

2. Scarcity of water for dryland agriculture is going to increase in future with changing climate, urbanization and growing demand from other sectors. Several agro-climatic region specific technologies have been developed which are being implemented to some extent. Appropriate irrigation practices need to be promoted, with greater focus on micro-irrigation (especially sprinkler and drip irrigation), even in canal command areas, to enhance water productivity. Technologies for efficient use of brackish water need to be developed, including conjunctive use for irrigation, fishery, etc. On-farm water conservation must be encouraged. Good watershed management practices, including traditional water harvesting-based cultivation, need to be promoted through community involvement and by forming water-users associations. Public awareness campaign to promote prudent water use needs to be taken up on massive scale.
3. Sustainable use of natural resources and their conservation and management need to be accorded high priority. Scientific land use planning, along with sustainable farming practices, should therefore be promoted. Concerted efforts have to be made for out-scaling innovations that save soil, water, nutrients, biodiversity, energy, labour, etc. In this context, Conservation Agriculture based Sustainable Intensification (CASI) should be given high priority and technological, socioeconomic and policy bottlenecks that hamper its rapid adoption should be expeditiously removed. Use of solar energy for farm operations should be promoted by developing user-friendly technologies and making them accessible to small holder farmers. There are several success stories emanating from dedicated efforts of individuals and communities that have improved economic well-being of dryland communities while strengthening ecosystem health and services. These include, amongst others, the African Forest Landscape Restoration Initiative (AFR 100), Sustainable Land Management (SLM) practices and 'Grain for Green' initiative and should be out-scaled. The 'Dry Arc Initiative' by the CGIAR Centres, with similar objectives, should be supported that would contribute to sustainable development of dry areas.
4. Sustainable agricultural diversification through horticulture, agroforestry, silvi-pasture, aquaculture, etc. should be promoted. Increased emphasis on R&D on crops suitable for mixed and intercropping systems to enhance cropping intensity, low volume high value crops and commodities (e.g. spices, medicinal and aromatic plants, etc.) which are specially adapted to dryland agriculture, would help generate higher income and ensure better livelihood opportunities. Appropriate techniques for value addition and reduction of postharvest losses should be developed and promoted. Use of protected agriculture for more efficient use of soil, water and nutrients, prolonging

the period for crop production and ensuring high economic returns under harsh dry environments should be promoted.

5. Exploiting the genetic biodiversity available in the dryland areas for developing high-yielding and stress-resistant genotypes, using conventional breeding techniques as well as the state of the art molecular biology and biotechnological tools, will have to be given high priority as the past improvement efforts have mostly neglected the dry areas in this regard.
6. In order to provide livelihood security and enhance resilience of farmers in dryland areas, policy support and enabling environment, including enhanced investment and compensation/support to farmers for much needed environmental services, environment friendly agriculture and good agronomic practices, should be ensured rather than providing input subsidies. Availability of easy credit at low interest rates, crop and livestock insurance, and access to timely and accurate knowledge about weather, successful farming practices, inputs and markets, would enhance resilience of dryland farming communities to weather aberrations and secure their livelihood.
7. Farmer Producer Organizations (FPOs), micro enterprises, agri-clinics and custom-hiring centers for farm machinery, with necessary legal and policy framework, need to be encouraged. Provision of 'Pledged Storage' or warehouse receipt system around agri-markets, and linking farmers with markets through farmers' cooperatives around activities related to post-harvest processing and value addition would go a long way to avoid distress sale.
8. It is critical that technology dissemination is accelerated and quality extension services are provided, for example by promoting a self-employed cadre of 'Technology Agents' and the use of new information technology tools. Thrust is needed on vocational training of rural youth and farm graduates, and linking their services to farmers on consultancy basis through bankable projects.
9. Developing countries would have to at least double their investments in agricultural research and innovation for development (ARI4D) to address future challenges and to ensure food, nutritional and environmental security of the dryland eco-systems. Public - private sector partnership synergies will have to be fully harnessed in this regard.
10. Finally, agriculture in the dry regions must be liberated from the scourge of hunger, poverty and malnutrition. Accelerated science and innovation-led agricultural growth, therefore, must be inclusive and should address needs and aspirations of resource-poor smallholders including women farmers. In future, the gains in agricultural production would largely depend on a paradigm shift from the 'integrated germplasm improvement' to 'integrated natural resource management' with focus on location specific and farm typology specific portfolios of Climate Smart Agriculture Practices (CSAPs), services (specially for weather and market intelligence, capacity development and knowledge sharing) and enabling policies for converting dryland areas from grey into green.