

MINUTES

Interactive Forum on

Drylands Management Policy

International Experience and New Initiatives

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SPONSORED BY



**DEPARTMENT OF LAND RESOURCES
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Drylands with high economic value and productive potential include arid, semi-arid and dry sub-humid region with desert fringes. In India, drylands account for 203 million hectares or 61.9 per cent of the geographical area. Admittedly, these regions are under steep pressure of population rise and increasing dependency on limited resources. Projections suggest that the second phase of agriculture growth and economic sustenance will come from the drylands. Recent estimate suggests that about 50 per cent of the country's area is affected by various land degradation process and needs concerted efforts to restore the degraded drylands. From decadal to century scale these land use systems, arid and semi-arid drylands have supported farming, pastoral and artisan communities for meeting their livelihood needs and providing options. The available land area is attracting industries, which accelerate the degradation process. The eventual process leads to desertification/ degradation of land area and loss of production potential of the climatically unfriendly fragile drylands. The cultural adaptive mechanism of the stakeholder community for fragile and variable ecosystems is now endangered by industrialization and economic development which disturbs ecosystem balance irreversibly with adverse consequences leading to desertification. This calls for prudent approach to sustainably interact, utilize and manage the natural resources and ecological functions for sustainable economic growth at the regional to national scale.

The Indian arid zones cover an area of about 3,20,000 km² which is approximately 12 per cent of the country's geographical area. Of which, hot desert located in the states of Rajasthan (1,96,150 km², 61%), Gujarat (62,180 km², 20%), Punjab (14,150 km², 5%), Haryana (12,840 km², 4%), Maharashtra (1,290 km², 0.41%), Karnataka (8,570 km², 3%) and Andhra Pradesh (21,550 km², 7%) accounts for 3,16,730 km². In addition to this, cold desert accounts for an area of about 70,300 km² which exists in Ladakh region of Jammu and Kashmir. Exceeding human and livestock population beyond the carrying capacity of land, over grazing, removal of vegetation cover, excess withdrawal of ground water, salinity ingress and overall land abuse due to unplanned industrial activities are the major human induced causes for land degradation. It has further been aggravated by low (average 326 mm) and erratic rainfall, frequent

drought, high temperature, high wind velocity resulting in high evaporation rate, soil erosion and high runoff. The rate of resource exploitation and resultant land degradation is much more severe and faster in the fragile drylands systems, which needs to be addressed immediately.

Drylands are endowed with unique biodiversity and natural resources of economic value. There appears to be faster degradation due to indiscriminate and unsustainable practices leading to loss of biodiversity and ecosystem services at various scales. It has been a cause for concern in the recent past due to fast disappearance of the biodiversity calling for urgent mitigation option to arrest further degradation leading to desertification. Thus, a concerted approach to analyze the process of desertification, natural resources conservational needs and management issues through a proactive interaction between the researchers, environmental conservationists and policy makers is call of the day to streamline the common policies which have wide applicability to drylands research and monitoring.

The UNCCD, looking at these factors, declared year 2006 as 'International Year of Desertification'. Various research institutions/organizations like CAZRI and AFRI in Rajasthan and Gujarat Institute of Desert Ecology (GUIDE) in Gujarat, have been working on various research projects of developmental nature for the sustainable improvement of the drylands and their communities. However, these agencies are by and large working in isolation to implement developmental research project on specific area. It is one of the drawbacks in realizing the major objective of sustainable enhancement of drylands productivity.

To date various government agencies have mandates that address the subject 'desert' as relative term due to the fact many objectives fall under priority drylands research. These government bodies address at least one facet of the drylands in isolation through problem solving approach. Likewise, numerous agencies plan the development of drylands as productive land resources with eventual arrest of desertification. There is case for better coordination among these agencies to identify the holistic approach areas so that funds are utilized effectively involving multi-institutions to address the developmental issues of drylands.

A quick freelance look at the agencies with working objective directly/indirectly related to drylands included in their mandate is listed below. Sometimes it is felt that all of these agencies directly or indirectly control the development with inter-linkages to various administrative controls lacking common policy approach.

1. **Ministry of Agriculture**

All institutions engaged in education, research and development and extension such as CAZRI, ICRISAT, and various ICAR institutions have sometimes overlapping research objectives relating to desert and arid drylands.

2. **Department of Animal Husbandry**

Addresses various aspects of development of grasslands and livestock research mandate.

3. **Ministry of Environment and Forests**

It has one of the departments that support research on arid drylands. It acts as nodal agency on development of action plan on combating desertification and closely works with international institutions, bodies (UNCCD) as signatory to international treaties etc.

4. **Ministry of Home Affairs**

It has Border Area Development Program (BADP). Thus, it has strong control on the land resources and arid drylands of Rajasthan, Gujarat, Punjab and Haryana. It has potential to collaborate with other agencies on specific objective, while placing due importance for border area plan.

5. **Ministry of Rural Development**

The projects administered from the department have direct relevance to livelihood and socio-economics of communities dependent on arid drylands. The ministry concentrates on socio-economic improvement of stakeholders of the region to realize the objective of sustainable usage and co-existence with fragile arid zones. These governmental agency's mandate on sustainable land use and management of resources has direct implications, however it lacks holistic approach while interpretation of the outcome.

No doubt the National Action Plan lays emphasis on coordinated approach but in reality much needs to be done for research and developmental projects administered by these agencies, which either directly or indirectly address the issues of arid drylands and desertification. This calls for policy planners to re-look at developing a consortium with broader goals, which have short to long-term implications. Some of the broader goals that need immediate policy formulation as a consortium approach include:

Goal 1: Develop interdisciplinary research programs and projects that address key issues of environmental concern in drylands

Goal 2: Promote a greater awareness of arid lands issues and problems and

Goal 3: Develop collaborations and strategic partnerships with institutions and stakeholders in arid lands.

Thus policy to establish research and monitoring consortium must seek to develop integrated scientific activities and research directions that do not isolate but coordinate to realize success of developmental research. A policy level integrated approach that accommodates inter sectoral interest and at the same time flexible enough to absorb changes in the long run with sustainability as its central theme is to be developed. It is believed that the interactive forum will place importance on these issues and come out with a recommendation to establish consortium policies for the agencies with refined mandate on drylands management as expected in the National Action plan.

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Interactive Forum on **Drylands Management Policy** International Experience and New Initiatives

The importance of the drylands has been receiving attention due to its uniqueness in terms of its rich biodiversity and livelihood support to the dependent communities. However, there is renewed interest in initiating developmental projects aiming at particular objective yet holistic and multi-institutional in approach. In this direction, there are many government agencies which support project through various funding mechanisms to implementing agency. However, it is opined that these agencies work in isolation and have minimal collaboration to make the project approach and implementation more successful. In view of the facts, just concluded interactive forum had the theme of 'drylands management policy' to share the experience, concerns and policy issues related to the drylands.

The interactive forum was supported by **Department of Land Resources, Ministry of Rural Development (MoRD), Government of India, New Delhi** and organized by the **Gujarat Institute of Desert Ecology (GUIDE), Bhuj-Kachchh**. The interactive forum was held on November 23, 2007 at Jacaranda Hall-1, India Habitat Center, New Delhi

The programme:

Introduction	Shri. Hasmukh Shah, Founder Chairman, Gujarat Institute of Desert Ecology, Bhuj-Kachchh.
Inauguration	Dr. Subas Pani, IAS, Secretary, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.
Presentation	Prof. Uriel Safriel, Hebrew University of Jerusalem, Israel.
Discussion	All Participants

The interactive forum was well attended* by Central and state government agencies, policy planners, resource person of various disciplines and scientific community. The attendance in the interactive forum included Dr. Subas Pani, Mr. Bhaskar Chatterjee, Mr. V. M. Arora, Mr. Moni Malhotra, Mr. Nitin Desai, Prof. Uriel Safriel, Sh. Hasmukh Shah, Mr. P. N. Roy Choudhary, Mr. Sandeep Virmani, Dr. J.S. Samra, Mr. Sanjay Kumar, Mr. Prem Narain and many senior officials representing government

agencies, NGOs, Ford Foundation and research institutions like CAZRI, BSI, ZSI, SDAU, NRCC and AFRI. In total **32** participants (**Annexure-I**) were present in the venue of the interactive forum.

The interactive forum was started with welcome introduction by Sh. Hasmukh Shah, Founder



Chairman, Gujarat Institute of Desert Ecology, Bhuj-Kachchh. Introducing the topic to the forum, he emphasized the importance of drylands management policy at national level. During the discussion, he added that besides national action plan, there is need for vision statement and coordinated efforts from various government agencies to develop

short – to long-term action plan for sustainable development of drylands keeping in mind the rapid industrial and urban development.

Dr. Subas Pani, IAS, Secretary, Department of Land Resources, Ministry of Rural Development, New Delhi in his inaugural address discussed various developmental projects administered by the Ministry of Rural Development. He highlighted the importance of integrated area development and watershed program. In this direction, the challenge before the country is agriculture development in drylands area, sustaining the livelihood and socio-economics of



the stakeholder communities. Rural employment is also one of the aspects that need consideration while developing the policies for drylands. Program management in the drylands is complex but needs to be addressed at landscape scale. He also pressed for re-defining the holistic approach to address

the issues of livelihood and watershed development at micro-scale. In this direction, coordination of all departments at state and district level is must for successful implementation of the project. His commitment to initiating the development project in drylands was spelt on the lines of developing the exclusive program for drylands agriculture to suite culturally variable communities. Likewise, the market linkages for the drylands produce are one of the areas that need critical policy approach. He further highlighted that cluster approach can be best suited to harvest benefits owing to inherent characteristics of drylands and cultural differences. He placed major emphasis on water conservation for animals and drinking purpose. Water harvesting has to be given prime consideration before it is subjected for external contamination like Arsenic and Fluoride. Before concluding, he also mentioned in brief on animal resource management in drylands.

Subsequently, Prof. Uriel Safriel, Hebrew University of Jerusalem, Israel; presented a talk on



ecosystems and its services highlighting the importance of policy issues related to drylands and livelihood of dependent communities. During the talk Prof. Uriel Safriel discussed various facets of the drylands management and issues of universal nature. His remarks were based on his experiences of global perspectives on drylands policy. His talk mainly

revolved around academic and scientific basis of various ecosystem services in general and drylands in particular. He opined that moisture conservation is one of the issues in drylands. While describing the ecosystem services, he also opined that environment and development can not be in conflict. Land degradation in lose-lose situation will erode the land resources of already stressed drylands systems. Thus, ecosystem services evaluation will provide value attached for the particular aspects of the drylands, for instance the services of the Banni grasslands, which has existed for many years. Interestingly, he correlated poverty and population explosion to over exploitation of the drylands resources leading to degradation. In his analysis on availability of good land for the cultivation, indicated the gap however drylands can act as buffer zones for the expansion of agriculture. Besides,

he also discussed in brief on low cost technologies to supplement the economy of the communities in drylands. For instance, aquaculture and harvesting solar energy is one of the areas that need critical assessment to develop user technologies to suite drylands.



He provided insight on environmental economics and assigning the value to ecosystems services based conversion of mangrove areas for shrimp culture and again restoration of mangroves after the culture was over. The economics highlighted that conversion of mangrove into shrimp culture yield a negative economic trend, which in fact

reveals the value of services provided by the mangrove ecosystem. Interestingly the interpretations suggested that degradation of ecosystem due to unplanned business model will cost more for rehabilitation. He also touched on the socio-economics of the drylands dependent communities. Some of the data presented in his talk suggested that poverty and higher population explosion act as stressors for the drylands degradation and unsustainable usage of natural resources. While highlighting the suitable technologies for drylands, he pressed on aquaculture and solar energy as most suited. He emphasized the need for alternative livelihood options for drylands dependent communities to minimize the exploitative dependency. He concluded his talk placing emphasis on development of water policy (re-use of treated water), land tenure issues specific to grassland development in Banni to sustain the livestock as mainstay source of livelihood and adaptation to climate change.

Some of the important points discussed in his talk, which highlighted the importance of the drylands policy, are;

1. Development and Environment cannot be in conflict, both should be synergistic and sustainable in nature.
2. Development of sustainable model for drylands with due consideration of ecosystems services.
3. Alternative technologies for sustainable utilization of the drylands resources

4. Development of water policy for drylands
5. Land tenure issues in Banni grasslands and restoration issues linked to current status of the grasslands
6. Adaptive capacity of the drylands to projected climate change

Later in the day, participants discussed on various issues related to drylands, management and policy aspects.

Following are the important issues related to drylands discussed during the interactive forum;

1. The implications of intensive management in drylands and risk proofing in situation of crop failure. The erosion of traditional varieties in the region due to introduction of high yielding genetically improved varieties.

The point was addressed in line with supplementing the traditional crop husbandry with alternative income generating systems. Example of bio-fuel in South American countries was referred as alternative income source. However, the feasibility of the technology for the drylands was discussed while placing importance on not to transform the ecosystem; rather, it can be effectively and sustainably utilized with the resources of the drylands. Crop diversification was also one of the suggestions.

2. How do the government and people look at land tenure issue in situation of common land where resource sharing is not equitable? It is one of the perennial issues to be tabled for consensus re-defining of the clauses from responsible govt. agencies.
3. There was strong point on encouragement of green technologies with alternative livelihood option, which will help conserve flora and fauna. Thus, it supports sustainable development of the drylands.
4. Attitudinal changes of stakeholder community need due consideration to address conservation of arid drylands/desert ecosystems as they provide various services in their own right. People who use desert and part of local economy must be instilled with responsibility to sustainably interact with ecosystem.
5. Threat of eco-tourism on the desert biodiversity was also discussed with conservational perspective. Besides, genetic diversity is also one of the important aspect that need consideration while declaring an area as protected area. The value of the biodiversity has to be spelt in situation of industrialization having negative impact. Suggestively, deserts have been attracting tourism but have been leisure destination for the affluent people. However, it can be

turned into alternative livelihood source with share of the contribution is ploughed back to ecosystem restoration.

6. Drylands have supported animal husbandry and agriculture. There has been issue of tenurial lands. How it can be individualized without any adverse effect on the ecosystem. However, presumably, individualization will have misuse of the resources by the communities. It was also voiced that role of migratory behaviour of pastoralists contributing for the development in the region.
7. Restoration of the grasslands must be addressed keeping ecological succession of the grass species for coupled livestock improvement program. Importance should be placed on the rangelands as they sustain endangered species. Grazing during the dry season is not sustainable. Poor market system in the rangelands for the milk products has been contributory factor for misuse of the resources.
8. Due to multiplicity of the people and large land mass in drylands, how action, regulation and policy can be developed without crossing the red lines. Moreover, solution to this must consider pressure on demography.
9. Drylands are also experiencing rapid industrialization resulting in reduction in biological potential. How it can be minimized through suitable technologies for enhancement of the biological potential?

Thus, major policies related issues emerged from the interactive forum, which call for consorted approach for sustainable development, utilization and enhancement of the productivity of drylands with bettered socio-economic conditions of the dependent communities.

- Water conservation at micro-scale
- Alternative technologies to enhance the productive capacity of the drylands
- Adaptation mechanism to climate change
- Conservation and value addition mechanism to traditional agriculture based activities to enhance the risk management ability in situation of intensive agricultural management.
- Development of sustainable models for drylands with due consideration for ecosystems services.

The common platform provided opportunity to actively interact on various issues related to drylands and enforce the govt. agencies to re-fine the policies collectively as one consortium. The interactive forum was concluded with vote of thanks.

List of Participants

Dr, Subas Pani, IAS, Secretary, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.

Shri. Bhaskar Chatterjee, IAS, Additional Secretary, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.

Shri. V. M. Arora, Director, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.

Dr. C. P. Reddy, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.

Deputy Secretary, Department of Land Resources, Ministry of Rural Development, Govt. of India, New Delhi.

Dr. J. S. Samra, CEO, National Rainfed Area Authority, New Delhi.

Shri, Roy Choudhary, Principal Secretary, Gujarat Department of Forests and Environment, Gandhinagar, Gujarat.

Shri. Prem Narain, Joint Secretary, Department of Agriculture, Krishi Bhavan, New Delhi.

Shri. Suman Kaushik, Planning Commission, Yojana Bhavan, New Delhi.

Shri. Sanjay Kumar, Ministry of Forest and Environment, Gol, New Delhi.

Prof. Uriel Safriel, Hebrew University of Jerusalem, Israel.

Shri. Hasmukh Shah, Founder Chairman, Gujarat Institute of Desert Ecology, Bhuj-Kachchh.

Shri. Moni Malhotra, Secretary General, Rajiv Gandhi Foundation, New Delhi.

Shri. Nitin Desai, Former UN under Secretary General, Defense Colony, New Delhi.

Dr. A. M. Patel, Research Scientist, Sardar Krishinagar Dantiwada Agriculture University (SADU), Dantiwada, Gujarat.

Dr. T. K. Bhati, Principle Scientist, Central Arid Zone Research Institute, Jodhpur.

Dr. Padma Bohra, Zoological Survey of India (Desert Regional Station), Jodhpur, Rajasthan.

Dr. Ramakrishna, Director-In-Charge, Zoological Survey of India, Kolkata.

Dr. K. M. L. Pathak, Director, National Research Centre for Camel, Bikanair, Rajasthan.

Prof. Uriel Safriel is the Professor of Ecology in the Hebrew University of Jerusalem, and currently on sabbatical in the University of Maryland at College Park, USA. He got his D. Phil. From Oxford University and post-doctoral training from the University of Michigan. He Served as the Chief Scientist of the Israeli Government's Nature and Parks Authority and as a Director of Israeli national Institute for Desert Research of Ben-Gurion University of the Negev; Currently - the Focal Point of Israel as a Party to the UN Convention to Combat Desertification. He is the Team member of the 2nd and 3rd IPCC Assessment Reports (Asia and Synthesis Chapters of WGII) and a Coordinating Lead Author in the Millennium Ecosystem Assessment - "Dryland Systems". He is also the Coordinator of the Israeli component of "Regional Initiative for Dryland Management" and "Monitoring and Evaluation of Watersheds in the Middle East" projects, jointly carried out by Israeli, Palestinian, Jordanian, Egyptian, Tunisian, Turkish and US teams.

Dr. Yogesh Gokhale, Tata Energy Resources Institute, New Delhi.

Shri. Kiran Vaghelu, Hunnarsala, Abhiyan, Bhuj-Kachchh.

Dr. Vasant Saberwal, Ford Foundation, New Delhi.

Dr. Ganesan Balachandar, Ford Foundation, New Delhi.

Ms. Neelima Khetan, Chief Executive, Seva Mandir, Udaipur, Rajasthan.

Dr. Yash Veer Bhatnagar, Senior Scientist, Nature Conservation Foundation, Mysore.

Dr. Diwakar Sharma, WWF, New Delhi.

Shri. Sandeep Virmani, Vice Chairman, Gujarat Institute of Desert Ecology (GUIDE), Bhuj-Kachchh.

Dr. V. Vijay Kumar, Director-In-Charge, GUIDE, Bhuj-Kachchh.

Dr. S. F. Wesley Sunderraj, Sr. Scientist, GUIDE, Bhuj-Kachchh.

Dr. S. Kumaraswamy, Scientist, GUIDE, Bhuj-Kachchh.