

Two days Training Program
on
**Conserving Natural Resources for Sustainable
Development in Dry Areas**



**Under
Sustainable Land and Ecosystem Management –Country Partnership
Programme**

held at

**ARID FOREST RESEARCH INSTITUTE,
New Pali Road, Jodhpur-342005
22-23 February 2012**

Proceedings of the training on 'Conserving Natural Resources for Sustainable Development in Dry Areas' held on 22-23 February 2012 at Arid Forest Research Institute, Jodhpur

In the process of capacity buildings under 'Sustainable Land and Ecosystem Management-Country Partnership Programme' Arid Forest Research Institute, Jodhpur organizes a training on 'Conserving natural resources for sustainable development in dry areas' with special emphasis on dry lands on 22-23 February 2012, for those who are involved in conserving our natural resources like forest officials, scientists, block development officers, progressive farmers, NGOs. This training programme accommodated lectures and field visits.

Director, AFRI Jodhpur inaugurated the training session by lighting the lamp and garlanding the Goddess Saraswati. At the onset of the training Dr. G. Singh, Head, Forest Ecology division welcomed the guest and the trainees and gave a brief about the SLEM programme and the training details. It was followed by general introduction and address to the participants by Group Coordinator, Research, AFRI, Jodhpur. In last the introduction session was addressed by the Director, AFRI, Jodhpur highlighted the problem of the dry region (arid region) and the importance of this training in benefits of the people and dry lands too.



A total of 29 trainees participated in this training covering different organization (Table 1), which includes:



- Jal Bhagirathi Foundation, Jodhpur
- Central Arid Zone Research Institute, Jodhpur
- Mitigating Poverty in Western Rajasthan (MPOWER), Jodhpur
- Jila Parisad, Barmer
- Jila Parisad, Jodhpur
- State Forest Department,

Rajasthan

- Progressive Farmer
- Arid Forest Research Institute, Jodhpur

In the technical sessions on 22nd February 2012, Dr. G. Singh, AFRI in his lecture "How to assess biodiversity and carbon stock? Based on a case study" described the needs of base line data collection on biodiversity and biomass/carbon and its importance for any projects in estimating/ projecting carbon sequestration. In this lecture methodology like laying out of sample plots (different size and type), sampling methods and data collections on type of species, their population, growth variables (height, dbh, crown spread, basal area etc), biomass of the plants of varying categories. Calculations of soil carbon density and stock, different diversity variables, carbon in biomass tree, shrubs, herbaceous biomass, litters and Coarse Woody Debris (CWD) along with expansion factors were stressed upon.



Dr. D. C. Joshi, Principal Scientist (Ret) from Central Arid Zone Research Institute, Jodhpur focused on various types of soils particularly in arid regions in Rajasthan and the adjoining areas, their characteristics and importance of management to improve productivity of the dry lands. Soil quality representing composition, physical, chemical and biological properties



including available water storage capacity, available nutrient content, nutrient retention, effective soil depth for root penetration, salinity/Sodicity and physical characteristics like aeration, infiltration, compaction and crusting were discussed. Management strategies to reclaim the problem soils and improved land productivity were also discussed. He described the reasons of soil degradation and ways to control and manage the same in benefits of local

people.

In after lunch session, Sh. N. Bala, Scientist E, AFRI presented a lecture entitled "How to



conserve our soil and water resource and its benefits for local inhabitants". He focused on the needs, losses, utility pattern and demand of water and described the various ways to conserve and manage the water to increase the productivity of dry areas. Different ways to control sand drift and wind erosion were also highlighted in benefits of desert dwellers. He also highlighted the effects of climate change on melting glaciers and the rising sea level.

Dr. T. S. Rathore, Director, AFRI, Jodhpur described various techniques for raising quality planting material and its importance in increasing productivity in his lecture on 'Raising quality planting material and plantation technology'. In his deliberation, Dr. Rathore highlighted the basics of general growing stock, annual increments and forest productivity with particular reference to productivity in forests and plantation in Rajasthan. In his lecture he covered general methodology for plant propagation (both cuttings and micro-propagation) of different species including *Santalum album*, technology on composting, root trainers, seed technology and plantation of different species including temperate species like *Santalum album*, Casuarinas, Orchids etc. Micro-propagation techniques of different species like *Eucalypts*, *Comophora wightii* etc were also explained.



On 23rd February 2012, the participants were taken to Arboretum and Nursery of AFRI, Jodhpur and the participants were explained about the different activities and nursery experimentation on different species of dry region.

The first lecture was delivered by Dr. R.K. Goel, Senior Scientist from CAZRI, Jodhpur. He briefed the participants on 'Watershed concept and water management in dry areas' and highlighted the importance of watershed approach for conservation programme in dry areas. Because of inadequate surface and groundwater resources in dry area rainwater is going to plays

an important role in the survival and livelihood of arid zone dwellers. He explained about the



integration of different technologies and measures of watershed management as well as rainwater harvesting. If rainwater harvesting and its subsequent storage are properly designed, it is possible for a family to live for years in areas with rainfall as little as 100 mm per year as traditionally accepted measures in western Rajasthan. He stressed upon conservation/harvesting of up to 5% of the total run-off to maintain base flow.

Dr. J. C. Tewari, Principal Scientist CAZRI, Jodhpur delivered a talk on Agroforestry for natural resource conservation and livelihood improvement in dry areas '. In his lecture Dr. Tewari covered India's drylands emphasizing hot arid region of western Rajasthan. Different models of agri-horticulture, agri-silviculture, Silviculture etc were discussed and deliberated. He also emphasized the importance of *P. juliflora* its utilization in preparation of different wood and food products.



The participants were also taken to different laboratories of AFRI that includes tissue culture, forest protection, soil and water management, seed technology and Silvicultural operations and the interpretation Centre of AFRI.



A field visit was organized for village Salavas, Jodhpur in after lunch session on 23rd February 2012. At Salavas village, nursery technology, silvipasture work and

rainwater harvesting demonstration work has been carried out under demo village. Dr. Bilas Singh, Sh. G. R. Choudhary and Sh. Anil Sharma accompanied the participants during the field and nursery visit.

In last, valedictory function was organized, which was chaired by Director, AFRI, Jodhpur. Feedbacks of the participants were taken in the form of deliberations on the training course material, additional requirement for its incorporations in future programmes etc. Certificates were distributed to the trainees by Director, AFRI, Dr. T.S. Rathore, Group Coordinator, Research, Sh Ashok Kumar, Head, Agroforestry & Extension, Sh M.R. Baloach and Dr. G. Singh, Head, Forest Ecology, Division, AFRI, Jodhpur.



The training was ended with the vote of thanks by Dr. G. Singh, Head, Forest Ecology Division and Course Coordinator of this programme.

Table 1. Training schedule on 'Conserving natural resources for sustainable development of dry areas' at AFRI, Jodhpur.

Day -1

08.00-09:00 hr	:	Break Fast
10:00-10:30 hr	:	Registration of Trainees and Distribution of Training Kit
10:30-10:32 hr	:	Garlanding of Goddess Saraswati and lamp lighting
10:32-10:35 hr	:	Welcome address and about the course by Dr. G. Singh, AFRI
10.35-10.40 hr	:	General Introduction of Trainees
10:40-10:45 hr	:	Address by Director, AFRI
10:45-10:50 hr	:	Address by Chief Guest, Sh. A.K. Singh, CCF, Jodhpur
10:50-11:00 hr	:	Hi-tea
11:00-12:15 hr	:	Session I
12:15-13:30 hr	:	Session II
13:30-14:30 hr	:	Lunch
14:30-16:00 hr	:	Session III
16:00-17:30 hr	:	Session IV
20:00-21:00 hr	:	Dinner

Day -2

08.00-09:00 hr	:	Breakfast
09:00-10:00 hr	:	Visit of nursery and laboratories
10:00-11:30 hr	:	Session V
11:30-13:00 hr	:	Session VI
13:00-14:00 hr	:	Lunch
14:00-16:30 hr	:	Field Visit of NRM work
16:30-onwards	:	Valedictory function and dispersion of participants

Table 2. Details of resource persons and topic covered

Session No	Time	Name of Speaker	Topic
I	11:00-12:15 hr	Dr. G. Singh, AFRI	How to assess biodiversity and carbon stock? Based on a case study
II	12:15-13:30 hr	Dr. D. C. Joshi, CAZRI (Ret.)	Soils and their optimum utilization in enhancing land productivity
III	14:30-16:00 hr	Sh. N. Bala, AFRI	How to conserve our soil and water resource and its benefits for local inhabitants
IV	16:00-17:30 hr	Dr. T. S. Rathore Director, AFRI	Raising quality planting material and plantation technology
V	10:00-11:30 hr	Dr. R.K. Goel, CAZRI	Watershed concept and water management in dry areas
VI	11:30-13:00 hr	Dr. J.C. Tewari, Principal Scientist, CAZRI	Agroforestry for natural resource conservation and livelihood improvement in dry areas
VII	14:00-17:00 hr	Dr. Bilas Singh AF&E division	Field Visit/Demonstration plots of Salawas/Nursery/ Labs of AFRI

Table 3. List of participants in the training on 'Conserving natural resources for sustainable development in dry areas.

SNo	Name, Designation and Address
1.	Sh. Subhash Agarwal, DCF, Bharatpur
2.	Sh. Mohan Raj, IFS, ACF, Baran
3.	Dr. C. Sunil, IFS, ACF, Kota
4.	Dr. P. Ratha Krishnan, Sr. Sci., CAZRI, Jodhpur
5.	Dr. S.K. Chaudhuri, Sc. E, DRDO, Jodhpur
6.	Dr. Lalit Malodia, STA B, DRDO, Jodhpur
7.	Sh. Nawla Ram, RFO, Dhorimana, Barmer
8.	Sh.Lumram, Koduka, Barmer,JBF
9.	Sh.Ram Jan Khan, Barmer, JBF
10.	Sh.Jodha Khan, Barmer, JBF
11.	Sh. Joga Ram, Pali, JBF
12.	Sh. Bhema Ram, Pali, JBF
13.	Sh. Mirnal Roy Chaudhury, MPOWER, Mt. Abu, Sirohi
14.	Smt. Bhawana Sharma, Sci. B. AFRI
15.	Sh. Manish K. Singh, Sci. B, AFRI
16.	Sh. Shera Ram, Sc. B, AFRI
17.	Dr. Meeta Sharma, RO, AFRI
18.	Sh. Madan Gopal Vyas, Barmer
19.	Sh. Jagdish Choudhary, AEN, Osian, Jodhpur
20.	Dr. Neelam Verma, RO, AFRI
21.	Sh. Govind Singh Gangarana, Prog Farmer, Nagaur
22.	Sh. Mangal Dhan, JBF
23.	Sh. Ramesh Chandra, JBF
24.	Sh. Sompuri, JBF
25.	Dr. Abha Rani, Sci. D, AFRI
26.	Sh. A.K. Sinha, Sci. D, AFRI
27.	Sh. Jitesh Sharma, Prog. Farmer, Osian, Jodhpur
28.	Sh. Rakesh Ramawat, Bhawi, Bilara, Jodhpur
29.	Sh. Narsingh Ram, JBF