

CENTRAL SOIL SALINITY RESEARCH INSTITUTE

KARNAL – 132 001

A Note on Stake Holders' Meeting for XII Plan

For formatting the XII-Plan Document and final preparation of CSSRI EFC/SFC Memo, a rigorous exercise was made involving different stakeholders. Separate meetings were organized at headquarters and all the three regional stations. CSSRI headquarters involved stakeholders from Haryana, Punjab, Delhi and Rajasthan States. Regional stations involved the stakeholders in their jurisdictions i.e. Lucknow centre involved UP and Bihar, Bharuch centre involved Gujarat and Maharashtra, and Canning Town centre involved coastal areas of the country. In these meetings, proposed programmes of the institute in the XII-Five Year Plan were thoroughly discussed and feedback on the same was obtained from various stakeholders. Schedule of the meetings is given below.

Centre	Date of meeting	Jurisdiction
Bharuch (Gujarat)	11 November 2011	Gujarat, Maharashtra
Canning Town (West Bengal)	11 November 2011	Coastal areas
Karnal (Haryana)	15 November 2011	Haryana, Punjab, Delhi, Rajasthan
Lucknow (U.P.)	16 November 2011	Uttar Pradesh, Bihar

Location-wise discussions and points of consideration are given below.

Bharuch (Gujarat)

The ongoing programmes on database generation, enhancing water productivity, multiple uses of water, use of poor quality waters, screening of crop cultivars like wheat and cotton, role of microbes and halophilic bacteria in mitigating salinity, groundwater recharge and its effective use in crop production, use of industrial effluents and biological sludge in crop production have been detailed by Dr. Gururaja Rao, Head, RRS-Bharuch. Apart from the research activities undertaken, technological interventions developed by the Station and their further testing under farmer fields, other activities taken by the Station have been described. Points raised for discussion mainly include Technology Evolution, Impact of Technological Interventions, Inter-Institutional Collaborations, Imparting Training, Public-Private Partnership Mode of Working and Farmers' Participatory Approach in Groundwater Recharge

Dr. V.K. Charpot, Jt. Director, GSLDC, Gandhinagar while describing the interventions taken by GSLDC for mitigating salinity in the coastal Gujarat has urged a need for initiating programmes to

minimize the secondary salinization in the command area of the State. While appreciating the efforts made by CSSRI, RRS, Bharuch, on salinity management he suggested that the station to convene trainings to all the beneficiaries working in the area. Prof. M. S. Zaman, Joint Director, WALMI, Anand, has emphasized on technology dissemination through training and on farm demonstration and sought to have more interactions with the farmers groups, particularly at CSSRI. A detailed account of database on soils and water quality, which has not been prepared in details, needs to be given a priority. Prof. V I Patel, NAU, Bharuch, has suggested for developing controlled measures for arresting ingress of salinity in Hansot taluka through reclamation bunds. The salt tolerant cotton accession identified by the station need to be demonstrated on farmers fields. He has also urged a need for identifying suitable soil amendments for soil in Bara tract. Sri R. N. Patel, FES, Anand, while explaining his long association with CSSRI, RRS, Bharuch suggested for developing area-wise ecological profiles. Identifying proper horticultural crops with relevant package of practices need to be developed for coastal saline soils. Large scale biomass plantations are to be taken up in the coastal belt. Importance needs to be given for wetland ecology. Sri R K Khamkar, AGM, GNFC and Sri N. G. Pandya, Chief Manager, GNFC have stressed need for resource conservation and for effective use of industrial waste (liquid and as well as solid). As alternatives for maximizing production with different crop interventions. They have stressed need for taking up on farm trials by using the industrial effluent and biological sludge based on the results hitherto obtained from CSSRI, RRS, Bharuch experiments.

Canning Town (West Bengal)

Dr. B. Maji, Head, CSSRI, RRS, Canning Town, highlighting the brief research achievements, on-going projects, mandate and future action plan of the station, initiated the discussion and invited the stakeholders in discussion. A general concern was expressed by the official of state agriculture department that crop variety seeds for waterlogging areas were not available in quality as well as quantity. Farmers were not well aware about the salt tolerant rice varieties available in the region. Also it was felt that income from mono cropped agriculture alone is not sufficient to provide livelihoods security to the farmers. Therefore, multi-enterprise agriculture should be a priority for the region. Efforts are needed to adding value to water i.e. increasing water productivity per unit volume of water through multiple use of water. Resource inventorization of the coastal areas should be conducted at regular interval in collaboration with other agencies involved in soil survey. Floating agriculture and agro-forestry based inter cropping for the coastal areas in the waterlogged soils can be tried. Drawing of under ground water in a controlled manner with limited power (up to 3 HP) so that saline water is not withdrawn to damage the soil and fresh surface water. More research is needed to confirm this findings. Concerned was expressed whether or how the fragile ecosystem can absorb the intensive cropping system with improved/HYVs crop seeds. Is there any possibility of collapsing

the system – needs to be researched well. Signature of climate change in the benchmark sites of coastal areas should be obtained by inventorying the carbon stock with low cost technology. Keeping in view the excellent research work done at CSSRI, RRS, Canning Town, ATIC like centers may be established at this station to cater to the needs of line departments, extension personnel and farmers. Since coastal area covers a vast agro-climatic region and there is lot of challenges ahead for agriculture on the coastal areas, this station should be strengthened in terms of infrastructure, manpower and other resources to generate technologies and convert them for livelihood improvement programmes. Considering the need of the farmers the programme for the next five year plan may be focused on 4 or 5 and accordingly be prioritized. Need based training to farmers, strong linkage with fishery institutions located in the eastern region such as CIFE, CIFRI etc and fishery resources inventory is required for best utilization of resources and conservation. Promotion of scientific pisciculture without hampering the indigenous species, adding value to fishery resources, (e.g. small and commercial utilization of under-utilised or unwanted fish spp.) and successful model on integrated farming system should be developed. Development of sustainable technologies fine-tuning of technologies including documentation and utilization of ITK for improving the productivity of coastal areas. Like rice varieties, categorizing the tolerance limit to salinity for vegetable cultivation in salt affected coastal areas is required. Developing a common platform for dissemination of technologies developed by various institutions in the coastal areas to avoid duplication is needed. Integrated farming system models for 1.0, 1.5, 2.0 and 3.0 *bigha* of land involving quantity of water harvested, livelihood improved and environmental data to be generated for coastal areas. Reclamation of saline water at low cost (like reverse osmotic) for providing life saving irrigation to *rabi* crops. Study on surface water pollution/contamination including Arsenic, Climate change and Carbon sequestration on the coastal areas is an urgent need. Awareness on scientific brackish water aquaculture, animal husbandry and disease management including viral infections in crops, fishes and animals should be enhanced.

Karnal (Haryana)

An overview about research works and activities were presented by Dr. D. K. Sharma, Director, CSSRI, Karnal highlighting mission, mandate and thrust areas of CSSRI, Karnal and planning to work for 12th Five year plan. The emphasis of Director was to pay further attention on the resource conservation technologies and coping-with climatic variability/change problems with the technologies developed by CSSRI.

Dr. VK Sharma, expert of Fishery and a stakeholder reported that in Haryana wherever low lying areas are there, farmers may opt/ rather are interested to have aquaculture with fish, but they need regular guidance, monitoring, infrastructure and market support. He further stressed that now few farmers are trying to grow pisciculture as a permanent enterprise, provided they get subsidy and other technical supports from State Departments. He also shared his experiences

about common property ponds of villages and contract services of pisciculture on such lands. Mr B.K. Sood, Director, Fishery Department, Govt. of Punjab and persons from PAU, Ludhiana have given an overview about the latest policies and status of rice and fish agricultural practices in Southern Punjab especially under low-lying areas. They emphasized that now farmers need technologies, which can give short term, mid-term and long-term benefits. The factors such as climate, market, government policies and integration of scientific institutions (such as CSSRI) with line departments may boost-up the economic conditions as well as health of natural resources. There were cross-questions from CSSRI scientists about the current constraints and problems for adoption and adaptation of agricultural knowledge/practices and technologies with the stakeholders. Dr. A. Dhindwal, Head, Department of Agronomy HAU, Hisar gave his significant input with some highlights of research and developmental questions. His concerns were (i) whether we can use saline water for multipurpose use or not (ii) what would be performance of agrochemicals (especially weedicides, which are adopted by more than 85% farmers of rice and wheat crops of Haryana) if they are applied in salt affected soils and saline water? (iii) Whether the quality of nutritional parameters of fodder and forages are changed if they are cultivated in salt affected environment? (iv) What should be the role of CSSRI and activities to address problems of common property lands such as Panchayat? and (v) these days most of Panchayat lands are leased-out to individual farmers, whether these Panchayat can be used as hub or single window to transfer CSSRI technologies/follow-up of environmental management protocols, in accelerating adoption and management of marginal environments, etc. He further emphasized that priority in budget allocation be given to applied research and farmers' problems in sodic and saline environment.

Lucknow (Uttar Pradesh)

Dr. V. K. Mishra, Head, CSSRI-RRS, Lucknow, highlighted the achievements and action plan for next five year of the Station and initiated the discussion on the issues of regional importance i.e. Management of sodic soils (reclamation technology, alternate to gypsum, resodification and water logged sodic soils), Crop improvement, Livelihood generation for resource poor farmers, Poor quality water (Groundwater research and fluoride problem etc.), and Climate change mitigation/adaptation

Majority of the stakeholders especially UPBSN, Lucknow and Department of Agriculture laid emphasis on developing cost effective and environmental friendly technologies for reclamation of sodic lands. They also stressed the need to evaluate the feasibility of alternate sources of gypsum like industrial wastes (Phosphogypsum, fly ash etc.) as amendment and suitable endophytes for sodic soils. The farmers of the Canal Command areas have highlighted the problems of secondary salinization, waterlogging, wilting of the trees due to seepage and high water table conditions. During the discussion, the participants stressed the need to develop a suitable drainage mechanism and to extend the integrated farming system model developed by

CSSRI-RRS, Lucknow along the canal with the help of the different government programme like MNREGA, RKVY etc. The scientists of KVKs located in sodic areas raised the problems of re-sodification and low productivity of wheat and other winter crops in reclaimed sodic soils due to salt appearance on the surface. They have suggested for development of suitable management practices and efficient irrigation and drainage system to check resodifications in order to get sustainable crop production in the area. The low carbon content, nutrients availability and poor physical conditions in sodic soils are major concern of the majority of the farmers and extension workers. The scientists were in view for exploring the possibility of crop residue management through adoption of the advanced mechanization in wheat sowing and use of un-puddled mechanical transplanter for rice transplanting, brown manuring etc. for the improving physical conditions and increase of carbon and nutrient status in sodic soil. The majority of the farmers in the sodic areas are marginal and resource poor in Uttar Pradesh and Bihar. In order to get better livelihood and more profit per unit area, the farmers were interested for a cost effective package and practices to diversify the traditional rice–wheat cropping system through cultivation of fruit crops especially banana, vegetables and flower cultivation. The decline in groundwater table and groundwater pollution particularly through fluoride was major concern of Unnao and Raebareli farmers. The rain water harvesting recharge structures installed by CSSRI-RRS, Lucknow in Unnao may be extended to a number of places in the fluoride affected and low water table areas and need to be evaluated for fluoride alleviation and low water table related problems. The majority of the stakeholders also highlighted the effect of rise in temperature in winter season, particularly in *Rabi* crops and erratic rainfall effects on *Kharif* crops in recent past years. Stakeholders stressed the need for a detailed study on the climate change and development of temperature tolerant varieties, improved management practices to cope up the future situations. The farmers, KVKs and UPBSN emphasized the importance of the salt tolerant cultivars and requested to provide the cultivars. During the discussion, it was realized that the varieties could be made available to the farmers through multiplication of foundation seeds at government and KVK's farm in collaboration with CSSRI.