

Centrally Sponsored Programme for Reclamation and Development of Alkali & Acid Soils (As on March 2009)

1. BACKGROUND:

The Centrally Sponsored Scheme for Reclamation of Alkali Soils (RAS) was launched in the Seventh Five Year Plan for reclamation of Alkali Soils, which contain Exchangeable Sodium Percentage (ESP) more than 15 and pH more than 8.2. From November, 2000 this scheme was subsumed under Macro Management of Agriculture (MMA) Scheme along with other Centrally Sponsored Schemes of Department of Agriculture & Cooperation and is being implemented as one of the programme of MMA scheme. During the X Five Year Plan, the programme of development of Acid Soils was also initiated by different States under MMA as a new intervention to develop the Acid Soils which are highly leached, generally poor in fertility and water holding capacity, pH value less than 5.5 and with severe deficiencies of phosphorus, calcium, magnesium and molybdenum and toxicities of aluminum and iron. From the XI Five Year Plan, these programmes have been expanded for reclamation and development of both Alkali & Acid Soils and renamed as “**Reclamation and Development of Alkali & Acid Soil (RADAS)**”.

2. OBJECTIVES

The main objectives of the revised programme are to:-

- a) reclamation and development of the lands affected by alkalinity & Acidity;
- b) improvement of soil fertility by under taking, appropriate on farm Development, application of soil amendments and growing suitable crops and horticulture crops;
- c) plantation of suitable fuel wood and fodder trees as per local demand and suiting to soil capability;
- d) improving capacity of extension personnel and beneficiaries in various aspects of alkali and acid soils reclamation technology and
- e) Generate employment opportunities & thereby reduce rural urban migration.

3. EXTENT OF ALKALI AND ACID SOILS

3.1 As per Indian Council of Agricultural Research (ICAR- 2005), an area of 3.77 million ha. is suffering from the problem of Alkalinity, mainly exists in 11 States. However, presently RAS programme is being taken up by 8 States namely, Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Tamil Nadu and Rajasthan through Micro Management of Agriculture (MMA).

3.2 An area of about 16.03 million ha. is affected by Soil Acidity falling in 18 States namely, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura & West Bengal. The State-wise extent of Alkali & Acid Soils are given in Annexure-I.

4. STRATEGY

The strategy inter-alia comprises:-

- a) adoption of projectised approach for the reclamation and development of Alkali & Acid soils in contiguous manner,
- b) integration of sectoral measures for comprehensive development and maintenance on soil fertility on sustainable basis,

- c) emphasis on sustainability of reclamation & development measures,
- d) construction of strategically located structures, and adoption of measures for efficient soil, water and crop management.

5. FINANCING PATTERN

The financing pattern of the programme is as of Macro Management of Agriculture(MMA) Scheme of DAC, Govt. of India, which is 90% Centre's share and 10% State's share, except in case of the North-Eastern States and Union Territories where the Central share would be 100% as at present. The central assistance from 2007-08 onwards would be provided as 100% grant to the States / UTs.

6. MONITORING MECHANISM:

The Programme is being implemented by the Multidisciplinary team of Officers of State Governments. The progress in prescribed proforma are collected at project and State level and periodically reported to Government of India.

At national level, the programme is reviewed by holding Annual Desk Review/Quarterly Desk Review to assess the actual implementation and suggest future plan of action for the improvement in the implementation.

7. COMPONENTS OF PROGRAMME:

The main components/activities to be covered under programme are:-

Alkali Soils: From XI Plan three Models have been recommended for reclamation of Alkali Soils. The details of the components permissible under different Models and upper cost limits along with cost of Rs.11000.00 per ha. as GOI share. The main components/activities for reclamation of Alkali soils are:-

- Survey, planning and awareness campaign and training of beneficiaries & staff.
- Formation of Water User Group & Site Implementation Committee (SIC)
- On Farm Development (OFD) – land shaping, construction of field channels, Bunding, construction of Field Drains Link Drain etc.
- Providing soil amendment (Gypsum/Pyrite) at the average rate of 5 tonnes per ha. and it's mixing with soil when temperature is around 40 degree centigrade.
- Growing of suitable crops/ horticultural crops including fuel & fodder plantation depending upon soil and slope conditions; and
- Organisation of Capacity Building & Training camps for farmers on sustainability of the reclaimed/ developed area.

Acid Soil: Acid soils are having productive potential and addition of lime to these soils neutralizes soil acidity and creates favorable environment for microbial activity, nutrient release and increases crop production. The acid soils have poor supply of calcium and magnesium and more concentration of iron & aluminum. The soils, therefore, suffer due to deficiencies of phosphorous, calcium, magnesium, molybdenum and boron and toxicities of aluminum and iron. Such soil can be managed in two ways viz. either by growing a crop suitable for a particular soil pH or by ameliorating the soil through the application of soil amendment.

- (A) Crop suitable for acid soils: Pigeon pea, soya bean, Groundnut, Lentil, Gram, Pea, Cotton, Maize, Sorghum, Wheat, Linseed and Mustard etc. are suitable for acid soils. These crops could be grown according to their responses to acidity.

- (B) Soil Amendment for Acid Soil: As per recommendations of ICAR, application of soil amendment (lime), at the rate of 2 to 4 quintals per ha. in furrows depending on extent of acidity along with growing crops suiting to such soils are sufficient to enhance the productivity of Acid Soils. The salient features of the technology are as follows:-
- On Farm Development work as per need of the area
 - The application of soil amendment (Lime) at the rate of 2 to 4 quintals per ha. in furrows depending upon extent of acidity.
 - Propagation of conjunctive use of lime and fertilizers as it improves yields of crops further by 49 to 189 percent over the farmer's practice.
 - Adoption of promising crop varieties tolerant to soil acidity.

8. UNIT COST

The upper limit of Government of India share for Reclamation & Development of Acid and Alkali Soils(RADAS) have been fixed to Rs.11000.00 per ha. The Component-wise details of three different models along with unit cost for development of Acid & Alkali Soils for each model are given in Annexure-II. Out of three recommended models for Acid & Alkali Soil, the farmers will have choice to take benefit of only one model.

9. MONITORING MECHANISM

The Programme would be implemented by the multidisciplinary team of Officers of State Governments. At national level, the programme is reviewed by holding Annual Desk Review/Quarterly Desk Review to assess the actual implementation and suggest future plan of action for the improvement in the programme implementation. The progress in prescribed proforma are collected at project and State level and periodically reported to Government of India in the prescribed proforma.

10. IMPACT OF PROGRAMME:

The evaluation study was conducted by Central Soil Salinity Research Institute, Karnal, Haryana, for the area reclaimed in selected districts of Haryana and Uttar Pradesh. The study has reported following impacts:

- pH of reclaimed soil decreased from 9.4 – 10.5 to 8.9 – 9.2
- increased organic carbon from 0.15 to 0.38%
- increased paddy yield from 19-41 Q/ha.
- 76% increase in income of farming families in the reclaimed areas
- enhancement in land values, average crop yield and cropping intensity and
- created additional employment for the farmers in rural areas itself.

11. ACHIEVEMENT :

Under this programme upto IX Plan, an area of 5.82 lakh ha. was reclaimed with expenditure of Rs.76.39 crore and during X Plan (2002-07) an area of 1.546 lakh ha. has been reclaimed with expenditure of Rs.42.12 crore. Since inception upto X Plan, an area of 7.36 lakh ha. has been reclaimed with an expenditure of Rs.118.51 crore. The State-wise and Plan-wise progress including the progress of 2007-08 and programme of 2008-09 are given in Annexure-I.

Annexure-I

State-wise extent of Alkali area, Progress upto X Plan, during 2007-08 and Target & Outlay for 2008-09 for Centrally Sponsored Programme of Reclamation and Development of Alkali & Acid Soils (RADAS)

(Phy. in Lakh ha. & Fin. in Rs. Lakh)

S. No	Name of State	Alkali/Acid area	Progress upto IX Plan		Progress During X Plan (2002-07)		Progress upto X Plan		Progress of 2007-08		Programme for 2008-09	
			Phy.	Fin.	Phy.	Fin.	Phy	Fin.	Phy.	Fin.	Phy.	Fin.
1.	Andhra Pradesh	1.34	0.00	0.00	0.10	158.00	0.10	158.00	0.000	0.00	0.027	160.00
2.	Arunachal Pradesh	19.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.004	27.55
3.	Assam	6.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.010	350.00
4.	Bihar	0.28	0.00	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00
5.	Gujarat	4.31	0.05	300.08	0.441	1611.00	0.491	1911.08	0.194	852.65	0.048	434.63
6.	Haryana	2.31	1.67	1665.41	0.665	1482.29	2.335	3147.70	0.080	180.00	0.083	200.00
7.	Karnataka	1.06	0.00	0.00	0.030	432.13	0.030	432.13	0.001	47.88	0.016	150.00
8.	Madhya Pradesh	0.46	0.01	183.53	0.000	0.00	0.001	183.53	0.000	0.00	0.000	0.00
9.	Maharashtra	3.84	0.00	0.00	0.004	69.68	0.004	69.68	0.025	64.68	0.000	0.000
10.	Orissa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.000	0.000
11.	Punjab	2.54	2.75	3205.92	0.013	19.81	2.763	3225.73	0.000	0.00	0.084	200.00
12.	Rajasthan	6.43	0.06	128.20	0.217	300.40	0.277	428.60	0.036	24.17	0.080	50.00
13.	Tamil Nadu	1.95	0.00	0.00	0.061	129.21	0.061	129.21	0.000	0.00	0.000	0.000
14.	Uttar Pradesh	9.36	1.28	2155.58	0.015	9.92	1.295	2165.50	0.000	0.00	0.000	0.000
15.	West Bengal	0.00	0.00	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00
	TOTAL	59.50	5.82	7638.72	1.546	4212.44	7.357	11851.16	0.340	1169.38	0.352	1572.18

Note: The reduction in subsidy on the soil amendment from 75% of IX Plan to 25% during X Plan period resulted in poor allocation of funds under MMA by the States for this programme.

