REMARKS OF THE CHAIRMAN

Dr. V.N. Sharda, Director, CSWCRTI, Dehradun and Chairman, Staff Research Council Meeting welcomed all the Heads of Centers / Divisions, members of the SRC and the participants. He also welcomed Dr. K.D. Singh, Ex-Head, CSWCRTI Research Centre, Kota.

The Chairman emphasized the need to critically analyze the role of the Institute in the national perspective in view of its mandate and achievements in the past 50 years and identify the gaps for our future research endeavours. It is necessitated as such questions are frequently asked at national level by the Planning Commission. The contribution of the Institute in national development needs to be systematically documented covering salient research achievements of the past 50 years and the extent to which the generated technologies have been adopted in the field. This is imperative as the Institute's mandate clearly establishes its role as a national organization to tackle the problems of soil and water conservation in the country by devising appropriate measures. There is urgent need of reliably quantifying the extent of land degradation in the country under different categories, which is reported to vary from 53 m ha to 175 m ha by different agencies. Strong linkages should be established with other research organizations and state development agencies for developing location specific technologies under different agro-ecological situations. Our research efforts should not remain confined to our research farms and should extend well beyond into the programmes being implemented by various agencies including watershed development programmes. The Research Advisory Committee in its recently held meeting also impressed upon collection of relevant data from ongoing developmental works to devise suitable location specific vegetative/biological measures in different regions. Hence documentation of research accomplishments in terms of technology generation and its adoption, identification of soil and water conservation issues important for different regions of the country and research gaps thereof, steps needed to plug these gaps for tackling the problems of soil and water conservation in the next 50 years and prioritization of the issues identified are the major challenges which we need to meet emphatically in future.

The Chairman brought to the notice of the house that the Institute has been sanctioned a budget of Rs. 1810 lakhs in X^{th} 5-year plan. This budget, which is more than 5 ½ times of the expenditure in the last year of IX^{th} 5-year plan was sanctioned due to the active support of DDG (NRM) and DG, ICAR. He also stated that sanctioned posts of IX^{th} 5-year plan have been revived in which there is a provision of regularizing 60 TSLs, after approval from Finance Ministry and completion of codal formalities, filling of 8 posts of Assistant Finance and Accounts Officers (one for each Research Centre) and 2 posts of Assistant Administrative Officers for two Research Centres. In addition, 8 motor cycles (one for each Research Centre) and Rs. 292 lakhs have been sanctioned for office-cum-laboratory building and residential quarters at Koraput Research Centre.

The format for the Annual Assessment Report of scientists has been revised by the Council and was brought to the notice of all the scientists in the house by the Chairman. He informed that the reporting officer would assess the subordinate for 10 parameters on a 1-5 or 2-10 scale. The scientist shall be graded on the basis of cumulative score. For assessing the integrity of the officer being reported, the reporting officer may comment in either of the three ways: 'Beyond Doubt', 'Nothing Adverse Heard Against' or 'Doubtful'. For example, integrity may be 'Doubtful' in case a scientist publishes a research paper without taking formal approval of the Competent Authority as per established procedure. Similarly a revised format has been brought out for assessment of scientists at all levels by Departmental Promotion Committee

(DPC). Research contributions of a scientist shall be commented upon as per reporting in the proceedings of the SRC and the targets assigned to him/her.

The Chairman shared with the house the awards, honours and degrees won by Institute scientists during 2003 and felicitated the scientists concerned. Dr. U.S. Patnaik, Sh. P.R. Choudhary, Smt. Sushma Sudishri and Sh. Anchal Dass of the Research Centre, Koraput bagged the Vasant Rao Naik Award. Sh. Mangal Singh Rawat, a farmer adopted under Institute Village Linkage Programme (IVLP) was awarded the Krishak Shiromani Award. Dr. R.S. Kurothe won the Khosla Annual Research Prize for the best research paper. Dr. G.L. Bagdi, Dr. D.R. Sena, Dr. R.K. Panda and Dr. V.K. Bhatt were awarded Ph.D. degree in their respective disciplines. Dr. R.K. Panda was also awarded Gold Medal for the best Ph.D. thesis of Indian Agricultural Research Institute, New Delhi for the year 2003.

SUMMARY OF IMPORTANT RECOMMENDATIONS OF RAC – 2003

1) RAC in 2001 had made certain recommendations in respect of the research pursuits of the Institute as per its mandate to undertake research to develop appropriate technologies for integrated development of land and water resources in the country. These development programmes in the country are undertaken with the management of natural resources viz; water, soil and vegetation. The unit of development has rightly been accepted on "Watershed Basis". The prerequisite for preparing a development plan is based on the map of the watershed. It is observed that proper methodology is not available for delineation of operational agricultural watershed for different conditions, viz., hill terrain, plain land and coastal areas. Different States Govts. and other implementing agencies are doing this in their own way without following a standard procedure.

2) Experience gained so far has demonstrated that optimal size of watershed is approximately 500 ha for executing the integrated watershed development plan in a participatory mode. This land area unit may be called as operational agricultural watershed (OAW).

3) Hence, the first step in the planning exercise should be to undertake a scientific and systematic delineation (geographic) of such planning units (OAW) to cover the entire geographical area of the country. The codification and delineation of the country into operational agricultural watersheds of about 500 ha size is a stupendous task, which of course can be taken up if the proper methodology is available. It appears that the modern tools and procedures, viz. remote sensing (RS) and Geographical Information System (GIS) integrated with topographical sheets prepared by Survey of India (SOI) are available for this purpose. The toposheets, if digitized can help in delineation of watersheds and their integration with remote sensing data for subsequent applications.

4) Having delineated such units, the next step should be to appropriately characterize them in terms of physiographic and climatic features such as area, topography, climate, hydrology, land use etc.

5) After characterizing the planning units, they have to be classified into different categories on the basis of commonalities in biophysical attributes and conservation measures for preparing development plans for integrated watershed development as per national need and requirements.

6) Such delineated maps with requisite data on required scale (1:5000) should be available to developmental agencies for developing watershed plan as per their needs and resources.

7) The NRSA, Hyderabad and Survey of India, (SOI) Dehradun can play a lead role in this endeavour while CSWCRTI, Dehradun may maintain a strong liaison with these agencies to evolve procedures for delineating such micro-watersheds and making them available to implementing agencies.

8) The CSWCRTI, Dehradun has to play a key role in the geographical delineation, characterization and appraisal of these planning units (OAW's). Its research effort should therefore, be directed:

    a. To evolve procedures for the delineation of the country into suitable size geographical units (OAWs) in a scientific and systematic manner.

b. Characterize each of these units according to scientifically developed parameters after identifying the appropriate parameters.
c. Classify these units into scientific system of classification of watersheds so that information can be interpolated between watershed units nationally/internationally.
d. Appraise each unit in terms of adequacy of characterization for the purpose of preparation of development plans for various purposes and undertake research to generate requisite information to fill gaps in information required for characterization.
e. Plan and undertake research to develop suitable technologies for the development of soil and water resources of the watersheds of various types/categories/classes in response to the needs and requirements of development agencies.

9) Such a frame work of scientifically delineated, characterized, classified and appraised watersheds would pave the way for appropriately defining and prioritizing the research efforts of the CSWCRTI. A great deal of good work has been done and we can be legitimately proud of it but the road map for future progress requires a rigorous and rational approach. Perceptions and good intentions have played their role but there is a strong need for defining and prioritizing the research efforts. Presentations made by the Institute regarding the watershed development works going on in the various States have revealed that different agencies are operating in their own way without appropriate delineation and characterization of the OAWs.

10) Delineation of these watersheds is an enormous task but is crucial and basic for any efficient developmental effort. It is apparent that it has to be phased depending on the availability of financial and technical resources. It is understood that this can be done easily with the use of existing toposheets already available with SOI provided these toposheets are digitized. The process of digitization of toposheets has already been initiated by SOI.

11) The RAC, therefore, recommends that

i) The CSWCRTI, Dehradun initiate a research programme for evolving procedures for delineation, characterization, classification and appraisal of watersheds for developmental purposes.
ii) All the regional stations and the Headquarters of the Institute may begin by using SOI digitized toposheets to delineate watersheds in their respective regions in a phased manner.
iii) CSWCRTI, Dehradun may also coordinate with regional research stations of the State Agricultural Universities (SAUs) established under NARP wherever needed.
iv) Collaborative effort with SOI may be initiated to expedite the work of digitizing the toposheets.

RAC SUGGESTIONS – 2003

1. Transfer of any proven technology to the users, beneficiaries/farmers is an important and specialized job. Transfer of soil and water conservation technology is all the more difficult, as it not only requires specialized skills but also high investment. The CSWCRTI with its limited resources may not be able to address this problem in a time bound manner. RAC, therefore, recommends that Institute may write to DDG (Extension), ICAR to address the problem on priority with the help of Institutions dealing with extension in association with CSWCRTI, Dehradun.

2. Restructuring the CSWCRT, Dehradun, both organizational and academic (scientific) has taken place in the last 10-15 years. It has been observed that the changes have brought positive impacts. RAC, therefore, recommends that the justification for restructuring and the relative advantages before and after the restructuring may be studied and documented.

3. RAC in detail discussed the RAC functioning and its linkages between RAC-SRC-IMC. The terms and references (Power and Functions) of these committees were also referred. RAC observed that there is overlapping of review of progress of research programmes between RAC and QRT. This at times may be a cause of concern to the Institute as there is a possibility of difference of opinion between QRT and RAC. RAC, therefore, recommends that QRT may not be entrusted with the recommendations of research programmes. However, QRT may critically review the progress made and action taken on the RAC recommendations.

4. While reviewing the terms of reference (powers and functions) of various committees, viz; RAC, SRC, IMC & QRT, the RAC observed that RAC should remain as an advisory body at macro level as has already been laid out under powers and function of ***"RAC (71 C(i): To suggest research programmes based on national and global context of research in the thrust areas".***

SALIENT RECOMMENDATIONS OF SRC MEETING – 2003

1. Annual Report (2003-04) should be submitted by all Heads latest by the end of February, 2004. However, Research Centre, Bellary has to submit this report latest by 31st March, 2004.

2. Six monthly Targets & Achievements of individual scientists should be submitted by all Heads by 24th June and 24th December every year.

3. Quarterly meetings should be held at respective centers to review the progress of on-going projects and their proceedings should be submitted regularly by all Heads to the Director.

4. Computerized information on RPFs in MS-ACCESS format should be submitted by all Heads by 30th June, 2004.

5. Diary should be filled up by each technical staff and checked by the respective Head of Centre/Division regularly. It would be used as a mechanism to assess their performance while commenting in their career assessment/annual assessment reports.

6. Scientists/technical staff should visit Research Farm regularly to get better research outputs and ensure timely operations and better watch and ward.

7. RCM Unit will also function as PME Unit (Prioritization, Monitoring & Evaluation Unit) to review the progress of projects periodically.

8. Schedule for data collection should be prepared and submitted along with each new extension project proposal for approval by RAC/SRC. No project would be considered for approval without questionnaire/schedule.

9. For revenue generation, each centre should take more consultancies/trainings in addition to devising ways for enhancing revenue generation from farm produce.

10. It is the responsibility of every Head of Centre/Division that all the data should be taken over on retirement/transfer of a scientist before he is relieved. The entire data set should be properly compiled and documented for each concluded project.

11. As majority of Institute's on-going projects are of Programme P-2 Heads of Divisions/Centres may give preference towards formulation of new projects in other programmes that are not adequately represented in a given centre/division.

12. Standardization of procedure/methodology for delineation of watersheds needs to be evolved. Coding of area within digital watershed data also needs to be standardized.

13. Checklist of data is needed for implementing a watershed management project. Ways to collect the required data as well as its codification should also be documented for systematically planning and executing a watershed management plan.

14. Digitized Survey of India toposheets on 1:25,000 and even 1:12,500 scale are available on payment basis from Survey of India. These can be purchased for few selected

watersheds. For any consultancy work to be carried out for state agencies, the same may be procured by the state agency for planning various conservation measures.

15. The assignment(s) given to an individual scientist or a group of scientists should be completed within the stipulated period and any delay in completion would be viewed seriously.

16. For dissemination purpose, research should be conducted to develop a complete package of practices for a given technology rather than following a piecemeal approach, which is generally misleading.

ACTIONS ASSIGNED IN THE SRC MEETING – 2003

1. 50 Years Research in Soil and Water Conservation:

Revised document on "50 Years Research Achievement in Soil and Water Conservation" as per the new format given during SRC meeting 2003 should be submitted by all Heads latest by 31st March, 2004. Following points may be taken care of while preparing the revised document :

- Any analysis of data reported in the document must be referred with period during which it is collected.
- Research findings of other institutions in the state/region should be reported. Any such finding reported should be a published one, with authors duly acknowledged in the text.
- Reasons for non-adoption of technology should also be given technology wise and not in a general way while assessing the diffusion of a given technology.
- Research gaps should be specific to the region in which the research centre is located and not be reported in a generalized manner.
- Consolidated reports of 20-30 years are available in the state departments, which may be made use of while preparing the document (Point D of the new format).
- Annotated bibliographies (Samra *et al*) can also be used for thorough review of literature pertinent to a given topic/programme (Point B of the new format).
- Only the technologies relevant to our mandate/agenda need to be reported while referring to the work of other Institutions (Point C of the new format).
- A workshop may be conducted and state development agencies/officials may be invited for participation to take stock of the problems, needs and requirements of soil and water conservation aspects in different regions wherever needed (Point F of the new format).

2. National Watershed Atlas:

"National Atlas on Watershed Programme in the Country" should be submitted by all Heads latest by 29th February, 2004 and district wise data should be given. Following points may be kept in mind while preparing the reports :

- Agency wise picture of treated area and area to be treated need to be provided.
- District wise maps on a larger sheet needs to be prepared by compiling micro-watershed maps.
- Watersheds upto 2000 ha may be taken as a micro-watershed for the district/state map. Details of the area treated/covered may be presented in text form separately.
- Micro watersheds undertaken for development may be well presented on the drainage map of the district/state.

3. Dr. A.S. Mishra, I/c Head, HRD&SS Division, Dehradun may hold a meeting with state representatives for discussing about syllabus, duration of regular courses and future programmes for soil and water conservation regular training programmes by 30th April, 2004 .

4. Pending component of intangible benefits should be worked out by Dr. B.L. Dhyani, Sr. Scientist, Dehradun and the format for evaluation and calculation of intangible benefits from any watershed to be submitted by 31st January, 2004.

5. Data of runoff, soil loss, infiltration etc. generated in the concluded project entitled "Studies on the rates of annual water and sediment yield from denuded Shiwaliks to the reservoirs and ponds" should be analysed by Dr. A.K. Tiwari, Principal Scientist, Chandigarh. The same should be presented in the next quarterly SRC meeting at the Centre and report to be submitted to the Director.

6. Dr. R.C. Yadav, Dr. N. Loganandam, Dr. Y. Agnihotri, Dr. Om Prakash, Mr. P.R. Choudhary, Dr. S.V. Singh, Dr. P. Sundarambal and Mr. Bankey Bihari will modify the already provided schedule of Dr. G.L. Bagdi and send back to Dr. G.L. Bagdi by the end of February, 2004. Dr. G.L. Bagdi will submit the modified schedule to the Director by 15th April, 2004.

7. Although the project entitled "Successional trends in ravine enclosures and line transect" has been completed, the observations on this study may be taken and reported by the Head of Research Centres and concerned scientists at Agra, Kota and Vasad centres.

8. Action pertaining to the projects concluded in 2003 as mentioned in "Projects Concluded in 2003" must be undertaken by the respective project leaders.

ACTION TAKEN ON RECOMMENDATIONS OF SRC MEETING – 2002

Sr. No.	Action Point	Action
1.	A standard schedule for collection of livestock data was prepared and presented by Dr. S.K. Verma, Scientist. As suggested by the SRC, revised schedule may be prepared by Dr. S.K. Verma and circulated to all the Heads of Divisions/Centres.	Action taken
2.	Procedure for calculating soil loss tolerance limits may be chalked out. Dr. D. Mandal, Scientist may circulate the proforma to all Heads of Divisions / Centres. All Heads may send the proforma back with their observations to Dr. K.S. Dadhwal, Head, SS&A Division by 31st March, 2003, for compilation and presentation.	Action taken
3.	It was desired by the SRC that all the work done on tillage studies, works in progress and future works on this aspect may be reviewed by Dr. H.C. Nitant, Principal Scientist, Research Centre, Agra, taking in to account the economic aspects in tillage studies. This assignment may be completed by 28th February, 2003.	Action taken
4.	Critical review of ongoing projects on agroforestry for collecting information related to Institutes' mandate at different Centres be taken up under the leadership of Dr. K.S. Dadhwal, Head, SS&A Division. Head, Research Centre, Chandigarh may prepare a map for the Himalayan region showing the extent of area under Aonla as well as other specific agroforestry systems.	Action taken
5.	Although the project entitled "Successional trend in ravine enclosures and line transect" has been completed, yet the observations on this study may be continued and reported after every five years.	Action is awaited
6.	The project entitled "Effect of supplemental irrigation and mulching on growth, yield and quality behaviour of Kinnow Mandarin in Doon valley" and "Effect of graveliness on growth, yield and quality behaviour of peach" have been completed however, recording of observations may be continued and reported by Dr. A.C. Rathore, Scientist in the year 2003.	Action taken
7.	At Research Centre, Chandigarh, Dr. Ram Prasad, Scientist (S.S.), may calculate vegetation density for the project entitled "Studies on the rates of annual water and sediment yield from denuded Shiwaliks to the reservoirs and ponds". Er. R.C. Bansal, Sr. Scientist, may handover all the data pertaining to this project to Dr. A.K. Tiwari, Principal Scientist, who will take the observations on runoff, soil loss, infiltration etc.	Action is awaited

Sr. No.	Action Point	Action
8.	In order to quantify the intangible benefits accruing under watershed development programme, Dr. B.L. Dhyani, Sr. Scientist may take test case of Fakot watershed with some parameters by 31st March, 2003. Subsequently, it will be extended to other watersheds. For Dehradun Headquarter, a core team comprising of following scientists has been formed for providing the basic data : (i) Dr. G.P. Juyal (ii) Mr. S.C. Mohan (iii) Dr. S.K. Dhyani and (iv) Dr. O.P.S. Khola	Action taken
9.	Dr. A. S. Mishra, I/c Head, HRD&SS Division, may hold a meeting with state representatives for discussing about syllabus, future programmes etc. for soil and water conservation training programmes by 31st March, 2003.	Action is awaited
10.	Mr. G.L. Bagdi, Scientist (SS) at Research Centre, Vasad may prepare a proforma for listing of participatory indices and circulate it to all Agril. Extension scientists with a copy to the Director by 31st March, 2003.	Action taken
11.	Dr. S.V. Singh, Sr. Scientist, Research Centre, Kota may do the analysis of the project entitled "Study of adoption behaviour of the farmers for various technologies in integrated watershed management programme in south-eastern Rajasthan" and send the results to the Director by 31st March, 2003.	Action taken
12.	The new project proposal entitled "Utilization of rainfall through in situ moisture conservation by growing cotton in deep alluvial soil region" by Om Prakash and R.C. Yadav was presented by Dr. Om Prakash, Principal Scientist, Research Centre, Agra in the SRC meeting, 2002 and was agreed by the house as **observational trial in farmers' field**, after thorough review of work done on this aspect.	Action taken
13.	The observational trial entitled "Studies on capacity building of land resources for sustainable productivity in ravine watersheds" by R.C. Agrinhotri, R.C. Yadav and Om Prakash was presented by Dr. R.C. Agnihotri, Principal Scientist, Research Centre, Agra in the SRC meeting, 2002 and the house decided that this study may be further continued as **observational trial** for one more year. Efforts should be made to segregate the effect of external factors such as shade / roots of trees and bushes on the boundary on crop production.	Action taken

RESEARCH PROGRAMMES AND SUB-PROGRAMMES

P-1 WATER EROSION APPRAISAL IN DIFFERENT AGRO-ECOLOGICAL REGIONS (P.I. – Dr. K.S. Dadhwal)

1.1 Inventory and database of erosion status using modern tools and procedures
1.2 On-site and off-site effects of erosion
1.3 Soil erosion processes and models

P-2 CONSERVATION MEASURES FOR SUSTAINABLE PRODUCTION SYSTEMS (P.I. – Dr. O.P.S. Khola)

2.1 Resource conservation measures for arable lands
2.2 Resource conservation measures for non-arable lands

P-3 HYDROLOGICAL BEHAVIOUR OF WATERSHEDS FOR CONSERVATION PLANNING (P.I. – Er. C. Prakash)

3.1 Rainfall, runoff, vegetation, soil characteristics and management practices
3.2 Effect of conservation measures and landuse on ground water recharge
3.3 Water harvesting

P-4 REHABILITATION OF AREAS AFFECTED BY MASS EROSION (P.I. – Er. K.P.Tripathi)

4.1 Refinement of technologies for torrent training, landslide control and minespoils rehabilitation

P-5 PARTICIPATORY INTEGRATED WATERSHED MANAGEMENT (P.I. – Dr. S.K. Dhyani)

5.1 Methodologies for development of watersheds and decision support systems for interventions
5.2 Landuse planning
5.3 Impact on production, environment and bio-diversity
5.4 Farming system approach.
5.5 Watershed technologies (Strategic research)

P-6 SOCIO-ECONOMIC ANALYSIS AND POLICY DEVELOPMENT FOR WATERSHED MANAGEMENT (P.I. – Dr. B.L. Dhyani)

6.1 Resource economics
6.2 Institute village linkage programme for Technology assessment and refinement
6.3 Common property resource management

P-7 HUMAN RESOURCE DEVELOPMENT AND TECHNOLOGY TRANSER (P.I. – Dr. A.S. Mishra)

7.1 Training methodology, need assessment, gender neutrality and evaluation
7.2 Organizational infrastructure & motivational parameters
7.3 Participatory approaches, dissemination of technology and adoption

STATUS OF PROGRAMME WISE ON-GOING PROJECTS

P-1 : WATER EROSION APPRAISAL IN DIFFERENT AGRO ECOLOGICAL REGIONS

1.1 : INVENTORY AND DATABASE OF EROSION STATUS USING MODERN TOOLS AND PROCEDURES

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
1.	Assessment, monitoring and mapping of erosion hazards and developing a database for conservation planning.	K.S. Dadhwal S.C. Mohan S.S. Shrimali S.K. Dhyani	Soil Science & Agronomy, Dehradun	2000	2004	To be concluded
Comments : Project is extended till the year 2004. Satellite and onground data of landuse may be compared and presented. Ways to reduce dependence on ground truthing for the assessment of erosion hazards by remote sensing may be found for use in ungauged areas. (Action : Dr. K.S. Dadhwal)						
2.	Reflectance libraries for development of soil sensors for periodic assessment of soil resources.	CCPI: S.C. Mohan	Soil Science & Agronomy, Dehradun	1999	2004	To be concluded **NATP** **(Mission Mode)**
Comments : Project is extended till the year 2004. Reflectance value of a site may be correlated to its condition for its assessment (Action : Mr. S.C. Mohan)						
3.	Surface hydrology response estimation using GIS.	S.S. Shrimali	Hydrology & Engineering, Dehradun	2002	2007	To be continued

1.2 : ON-SITE AND OFF-SITE EFFECTS OF EROSION

4.	Soil erosion under prominent medicinal and aromatic plants in Nilgiris.	D.V. Singh V. Selvi M. Madhu Subhash Chand	Udhagamandalam	1997	2004	To be concluded
Comments: Data for pH for T-5 treatment and biomass yield data for the year 2003 may be checked. Economics may be worked out for different species. (Action : Dr. D.V. Singh)						

1.3: SOIL EROSION PROCESSES AND MODELS

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
5.	Assessing crop cover influence on runoff and soil loss for red soils of Bundelkhand.	Brij Lal Dev Narain V.S. Katiyar	Datia	2002	2006	To be continued
Comments: In case of castor, canopy cover should be taken for the whole year. Soil loss data may be presented with runoff data. (Action : Dr. Brij Lal)						
6.	Study of rill and inter-rill erosion processes.	P.R. Ojasvi V.N. Sharda D. Mandal	Hydrology & Engineering, Dehradun	2002	2006	To be continued
7.	Development and validation of runoff and erosion prediction models in different agro-ecological regions.	V.N. Sharda P.R. Ojasvi	Hydrology & Engineering, Dehradun	2003	2007	To be continued **(Core Project)**
		A.K. Tiwari	Chandigarh			
		V.S. Katiyar	Datia			
		Shakir Ali	Kota			
		R.S. Kurothe	Vasad			

Comments :

- C value should be developed only for the single landuse (monoculture) which can be utilized for similar landuse at other locations. In case of multiple landuse, C value may be found for each of its component individually and then a weighted sum may be taken. (Action : Dr. A.K. Tiwari)
- Datia Centre has not reported any progress, which is viewed seriously by the Chairman. (Action : Dr. V.S. Katiyar)
- Event based models may be worked out to identify the best method for estimating curve numbers. (Action : Er. Shakir Ali)
- Literature may be reviewed for better prediction of runoff and soil loss. (Action : Dr. R.S. Kurothe)

P-2: CONSERVATION MEASURES FOR SUSTAINABLE PRODUCTION SYSTEMS

2.1: RESOURCE CONSERVATION MEASURES FOR ARABLE LANDS

8.	**Tillage and surface cover management for resource conservation and productivity**					
(a)	Tillage practices for erosion control and crop productivity.	H.C. Nitant Om Prakash	Agra	1998	2005	To be continued
Comments: Weeding may be done by using chemicals only. (Action : Dr. H.C. Nitant)						

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
(b)	Soil surface management for erosion control.	Ratan Singh S.S. Shrimali N.K. Sharma	Soil Science & Agronomy, Dehradun	1998	2005	To be continued
Comments: Date of start has been changed from the year 1995 to 1998 and the project is extended upto the year 2005. (Action : Dr. Ratan Singh)						
9	**Biological and mechanical measures for resource conservation and crop productivity**					
(a)	Evaluation of mechanical and vegetative measures on field size runoff plots.	M.L. Gaur Brij Lal	Datia	2002	2006	To be continued
Comments: Date of start has been revised from the year 1996 to 2002 and the project is extended upto the year 2006. Crop sowing and imposition of treatment were not done on time by Dr Dev Narain and his name is deleted from the project. Data may be analyzed properly by excluding the period when treatment was not imposed. (Action : Dr. M.L. Gaur)						
(b)	Development of suitable land and crop management practices for the Nilgiris.	P. Murlidharan D.C. Sahoo M. Madhu P. Sundarambal	Udhagamandalam	2002	2006	To be continued
Comments: The word "Participatory" may be removed from first objective as project is being conducted at research farm. (Action : Dr. P. Murlidharan)						
(c)	Vegetative measures for conservation and production on reclaimed land of Mahi ravines.	H.B. Singh R.S. Kurothe S.P. Tiwari V.C. Pande	Vasad	2003	2006	To be continued

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
10.	**Integrated nutrient management for rehabilitation and productivity**					
(a)	Integrated nutrient supply system for rainfed semi-arid tropics.	S.L. Patil	Bellary	2000	2010	To be continued
Comments : The observations/recommendations made in SRC 2002 on page 11 of the proceedings were not acted upon and no data was presented, which is viewed seriously by the House. Project will be reviewed again by the SRC next year for its continuation, as integrated nutrient management is not an Institute mandate. (Action : Dr. S.L. Patil)						
(b)	Bio-fertilizer for integrated nutrient management for rehabilitation of eroded Shiwaliks.	Pawan Sharma Pratap Singh Ram Prasad	Chandigarh	2000	2004	To be concluded
Comments : Project will be reviewed again by the SRC next year for its continuation, as integrated nutrient management is not an Institute mandate.						
(c)	Effect of landuse manipulation and moisture conservation practices on nutrient dynamics in soil and productivity.	S.P. Tiwari H.B. Singh V.C. Pande	Vasad	2003	2006	To be continued
Comments : Project will be reviewed again by the SRC next year for its fitness into Institute mandate.						
(d)	Studies on capacity building of land resources for sustainable productivity in ravine watersheds.	R.C. Agnihotri R.C. Yadav Om Prakash	Agra	2004	2005	To be continued **(New Project)**
11.	**Cropping systems for resource conservation**					
(a)	Evaluation of some suitable minor millets for production and conservation of resources.	Harsh Mehta P.C. Tyagi	Plant Science, Dehradun	2000	2004	To be concluded
(b)	Carbon balance in soil for resource conservation under different crops on 2% slope.	B.N. Ghosh O.P.S. Khola K.S. Dadhwal	Soil Science & Agronomy, Dehradun	2003	2006	To be continued
(c)	Evaluation of inter-cropping system for delayed on set of monsoon in south-eastern Rajasthan.	S.N. Prasad R.K. Singh Ashok Kumar	Kota	2003	2006	To be continued
(d)	Evaluation of conservation measures with prominent cropping systems for medium black soils.	R.K. Singh S.N. Prasad Ashok Kumar B.K. Sethy	Kota	2003	2007	To be continued
(e)	Utilization of rainfall through in-situ moisture conservation by growing cotton in deep alluvial soil region	Om Prakash R.C. Yadav	Agra	2004	2006	To be continued **(New Project)**

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
12.	**Agroforestry systems for arable lands**					
(a)	Aonla based agro-forestry system for moisture conservation and soil productivity in degraded ravine lands.	H.C. Nitant Om Prakash	Agra	2001	2006	To be continued
Comments: Dr. H.C. Nitant will be the leader of this project and name of Dr. B. Balaji is deleted.						
(b)	Study on runoff and soil loss behaviour of different land configurations.	S.K. Srivastava R.C. Yadav	Agra	2002	2004	To be concluded
Comments : Runoff and soil loss data may be re-checked. Experimental layout may be rectified. (Action : Er. S.K. Srivastava)						
(c)	Compatibility of raising rhizomatic crops with Aonla in Shiwalik foothill region.	Pratap Singh Ram Prasad Y. Agnihotri Pratap Bhattaharya	Chandigarh	2002	2005	To be continued
(d)	Provenances evaluation study in *Grewia optiva.*	P.C. Tyagi Harsh Mehta	Soil Science & Agronomy, Dehradun	1995	2004	To be concluded
Comments: Project is extended upto the year 2004.						
(e)	Crop diversification through agro-forestry for productivity and sustainability on reclaimed land of Mahi ravines.	H.B. Singh S.P. Tiwari V.C. Pande	Vasad	2003	2006	To be continued
Comments : Data on cost of cultivation may be re-checked. . (Action : Dr. H. B. Singh)						
(f)	In-vitro micro propagation of elite provenances of Bhimal (*Grewia optiva)*	Harsh Mehta S.K. Dhyani	Plant Science, Dehradun	2004	2006	To be continued **(New Project)** **(DBT Funded)**
Comments : For assessing the performance of plants generated through in-vitro micro-propagation in field condition, these plants may be planted in different physiographic locations/conditions. (Action : Dr. Harsh Mehta)						

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
13.	Evaluation and improvement of indigenous methods of moisture conservation and run-off management.	CCPI: R.C. Yadav Co-CCPI : Om Prakash Associates: H.C. Nitant Bhanwar Singh	Agra	2000	2004	To be concluded **NATP (Rainfed)**
		CCPI: Shakir Ali Associates: S.N. Prasad Ashok Kumar	Kota			
Comments : Name of Dr. K.D. Singh is deleted from the project at Kota Centre. Project is extended till 2004.						
14.	Management strategies for improving *rabi* sorghum productivity.	CCPI: S.K.N. Math Associates: S.L. Patil	Bellary	2000	2004	To be concluded **NATP (Rainfed)**
Comments : Name of Ms R. Saraswathy is deleted. All good photographs may be sent to the Institute Hqrs. by 31st Dec., 2003. Project is extended till 2004 (Action : Dr. S.K.N. Math)						

2.2: RESOURCE CONSERVATION MEASURES FOR NON-ARABLE LANDS

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
15.	**Agroforestry systems for non-arable lands**					
(a)	Fuelwood and fodder production from densified plantations on old riverbed land.	Anurag Raizada Charan Singh B.N. Ghosh	Plant Science, Dehradun	1997	2016	To be continued
Comments : *B. purpurea* may be replaced by Subabul. (Action : Dr. A. Raizada)						
(b)	Evaluation of the agro-forestry systems for marginal lands in Doon valley.	S.K. Dhyani N.K.Sharma Ratan Singh Pradeep Dogra	Plant Science, Dehradun	2001	2010	To be continued
16.	**Agri-horticultural systems**					
(a)	Evaluation of mango and litchi based agri-horti systems on degraded lands in Doon Valley.	A.C. Rathore N.K. Sharma	Plant Science, Dehradun	1995	2005	To be continued
Comments : Performance of intercrops of cowpea and okra may be seen for one more year for their possible replacement. (Action : Dr. A.C. Rathore)						
(b)	Evaluation of comparative performance of Aonla based agri-horti systems at 2% slope in Doon Valley.	R.K. Dubey K.S. Dadhwal A.C. Rathore	Soil Science & Agronomy, Dehradun	2002	2012	To be continued
Comments : Maize intercrop in the close vicinity of Aonla plants may be removed manually to prevent any adverse affect on plant growth. (Action : Mr. R.K. Dubey)						

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
17.	**Silvi-pastoral systems**					
(a)	Silvipastoral systems under various management practices for degraded lands.	Charan Singh Anurag Raizada	Plant Science, Dehradun	1996	2012	To be continued
(b)	Silvipastoral approach to improve productivity of native pastures for livestock production in the hills.	C.C.P.I.: O.P.S. Khola	Soil Science & Agronomy, Dehradun	1999	2004	To be concluded
Comments: Project is extended till the year 2004 as Institute project. Runoff and soil loss data may be recorded. (Action: Dr. O.P.S. Khola)						

P-3: HYDROLOGICAL BEHAVIOUR OF WATERSHEDS FOR CONSERVATION PLANNING

3.1: RAINFALL, RUNOFF, VEGETATION, SOIL CHARACTERISTICS AND MANAGEMENT PRACTICES

18.	Soil conservation measures in red arable soils.	M.L. Gaur Dev Narain	Datia	2001	2005	To be continued
Comments: Vetiver may be replaced by Heteropogan. (Action : Dr. M.L. Gaur)						
19.	Hydrological behaviour of small watersheds and sustainability of production systems.	PI: V.N. Sharda Co-PI: C. Prakash Associates: A.Raizada N.K.Sharma	Hydrology & Engineering, Dehradun	1999	2004	To be concluded **NATP (H&M)**
Comments : Project is extended till the year 2004. A curve may be drawn between various levels of capacity utilization against command area of the irrigation tank. (Action Dr. V.N. Sharda)						

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
20.	Water balance studies of tea (*Thea sinensis*) crop (lysimetric studies).	V. Selvi M. Madhu	Udhagamandalam	1996	2005	To be continued
21	Hydrological evaluation of recommended forest trees in western Himalayas	S.K. Dhyani B.S. Naik Charan Singh B.N. Ghosh	Plant Science, Dehradun	2004	2018	To be continued **(New Project)**
Comments : Study area may be calibrated in the initial two years. A cleared area with pronounced effect on runoff and soil loss may be kept as control. Er. B.S. Naik is associated from engineering discipline. (Action : Dr. S.K. Dhyani)						
22.	Stochastic analysis of rainfall and runoff data for planning conservation measures	P.K. Das A.K. Khullar	Hydrology & Engineering, Dehradun	2004	2006	To be continued **(New Project)**
Comments : Rainfall data of Fakot watershed may also be used for analysis. (Action : Dr. P.K. Das)						
23.	Studies on hydrological behaviour and management of Jhola lands in Eastern Ghat Highland Zone of Orissa	R.K. Panda U.S. Patnaik A. Das P.R. Choudhary	Koraput	2004	2007	To be continued **(New Project)**
Comments : Untreated comparable Jhola land other than that of research farm may be taken for observation with treated Jhola land kept for one year under calibration. Stress need to be laid more on hydrological rather than agronomic aspects. Treatments may be implemented in the second year. (Action : Dr. R.K. Panda)						
24.	Hydrological implication of sequential alternation of land use covers in a ravinous catchment.	R.S. Kurothe D.R. Sena V.C. Pande S.P. Tiwari H.B. Singh	Vasad	2004	2012	To be continued **(New Project)**
Comments : One year may be kept as buffer period before imposing the treatment after clearance. (Action : Dr. R.S. Kurothe)						

3.2 : EFFECT OF CONSERVATION MEASURES AND LANDUSE ON GROUND WATER RECHARGE

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
25.	Effect of conservation structures on ground water recharge.	D.R. Sena R.S. Kurothe S.P. Tiwari V.C. Pande	Vasad	2001	2006	To be continued **(Core Project)**
		V.K. Bhatt A.K. Tiwari R.P. Yadav R.K. Aggarwal	Chandigarh			
		V.S. Katiyar M.L. Gaur	Datia			
		Shakir Ali R.K. Singh B.K. Sethy	Kota			
		S. Sudhishri R.K. Panda N.K. Paikaray	Koraput	2004	2006	To be continued **(New Project)**

Comments:

- An objective for studying water quality parameters may be included as one of the objectives of the core project. All leaders of this core project should interact with Dr. R.S. Kurothe to have a similar methodology and procedure for analysis of data subject to its variation as per local applicability.
  (Action : Dr. D.R. Sena/Dr. V.K. Bhatt/Dr. V.S. Katiyar/Er. Shakir Ali/ Er. (Ms) S. Sudhishri)
- Er. Shakir Ali and Dr. M.L. Gaur may visit Vasad Centre in first week of February for understanding all aspects of the project and their subsequent adoption.
  (Action : Er. Shakir Ali/Dr. M.L. Gaur)
- Dr. V.K. Bhatt will be the leader of the project at Chandigarh Centre. Number of more peizometric wells required for the project may be discussed with Dr. R.S. Kurothe and installed at the earliest possible. (Action : Dr. V.K. Bhatt)
- Name of Dr. K.D. Singh is deleted from Kota Centre.

3.3: WATER HARVESTING

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
26.	Rainwater management on watershed (micro) basis in sub-montane region.	PI: R.P. Yadav Co-PI: R.K. Aggarwal Associates: Pratap Singh, Ram Prasad, A.K. Tiwari, S.L. Arya, Pratap Bhattacharya	Chandigarh	2000	2004	To be concluded **NATP (Rainfed)**
Comments : Cost of POL for the project interventions shall be borne by the farmers and is not to be provided by the Institute. The project is extended till 2004. (Action : Dr. R.P. Yadav)						
27.	Effect of interventions on small watershed hydrology.	M.L. Gaur Brij Lal Dev Narain	Datia	2001	2006	To be continued
Comments: Proper correlations have not been worked out inspite of last year's SRC recommendations. Project's progress needs to be improved and the leader should come prepared with more detailed and analytically sound presentation next time. (Action : Dr. M.L. Gaur)						
28.	Water harvesting and recycling for sustainable production in red arable soils in Bundelkhand.	Dev Narain V.S. Katiyar H. Biswas	Datia	2002	2005	To be continued
Comments : Very low crop yields due to extraneous factors may be reported as crop failure rather than misleading the House. (Action : Dr. Dev Narain)						
29.	Hydrological evaluation of recommended conservation measures on mildly sloping lands.	V.N. Sharda S.S. Shrimali O.P.S. Khola	Hydrology & Engineering, Dehradun	1995	2004	To be concluded
30.	Effective utilization of waterways for conservation and production.	B.P. Joshi B.N. Ghosh Harsh Mehta Charan Singh	Hydrology & Engineering, Dehradun	2003	2006	To be continued
Comments : Year of start has been revised to 2003 as lot to land shaping work is involved. Plants on the middle of the side slopes may be relocated and data may be collected again after renovation. (Action : Er. B.P. Joshi)						

P-4 REHABILITATION OF AREAS AFFECTED BY MASS EROSION

4.1 REFINEMENT OF TECHNOLOGIES FOR TORRENT TRAINING, LANDSLIDE CONTROL AND MINESPOILS REHABILITATION

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
31.	Development of cost – effective technology for treatment of choes (rainy season torrents).	PI : A.K. Tiwari Co-PI : R.K. Aggarwal Associates : S.L. Arya, Ram Prasad Pawan Sharma	Chandigarh	2001	2004	To be concluded **NATP (H&M)**
		CCPI : G.P. Juyal Associate : Bankey Bihari B.N. Ghosh, A.C. Rathore	Hydrology & Engineering, Dehradun			
Comments : • Area affected by the torrent may be worked out as a test case for its extrapolation to other torrent areas in Uttaranchal to meet the first objective. Infiltration study may be taken at Narainpur watershed. Botanical name of "Papri" may be used in the report. (Action : Dr. A.K. Tiwari) • Cost analysis of *kutta crate* may be done and compared with gabion structures. (Action : Dr. G.P. Juyal)						
32.	Evaluation of efficacy of full scale models of stone jetty along river Yamuna.	R.C. Yadav	Agra	2003	2004	To be concluded
33	Cost effective conservation measures for management of medium and deep ravineous lands	B.K. Sethy Shakir Ali Ashok Kumar J. Somasundaram	Kota	2004	2012	To be continued **(New Project)**
Comments : First year may be kept for calibration of the watersheds. For mechanical measures, first the size and then the number of trenches and check dams may be optimized. (Action : Er. B.K. Sethy)						

P-5: PARTICIPATORY INTEGRATED WATERSHED MANAGEMENT

5.1 : METHODOLOGIES FOR DEVELOPMENT OF WATERSHEDS AND DECISION SUPPORT SYSTEMS FOR INTERVENTIONS

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
34.	Methodologies for development and analysis of watersheds and decision support systems for interventions.	PI: B.L. Dhyani Co-PI: A. Raizada Associate: Pradeep Dogra	H.R.D. & S.S., Dehradun	1999	2004	To be concluded **NATP (H&M)**
Comments : The project is extended till the year 2004 to meet the objectives finalized by SAP. (Action : Dr. B.L. Dhyani)						
35.	Development of regional scale watershed plans and methodologies for identification of critical areas for prioritized land treatment in the watersheds.	CCPI: S. Sudhishiri Co-CCPI: Anchal Das Associates: U.S. Patnaik N.K. Paikaray	Koraput	2000	2004	To be concluded **NATP (Rainfed)**
Comments : The project is extended till the year 2004.						

5.2 : LANDUSE PLANNING

36.	Landuse planning for management of agricultural resources.	PI: Ratan Singh Co-PI: S.K. Dhyani Associate: B.L. Dhyani D. Mandal	Soil Science & Agronomy, Dehradun	2001	2004	To be concluded **NATP (H&M)**
		CCPI : S.K.N. Math Associates : S.L. Patil A.K. Singh	Bellary			
		CCPI : D.V. Singh Co-CCPI : P. Murlidharan Associates : V. Selvi, M. Madhu, Subhash Chand	Udhagamandalam			

Comments :

- Project is extended till 2004. All three centers may use land suitability criteria developed by FAO as well as by Bangalore centre of NBSSLUP, Nagpur and compare the results. (Action : Ratan Singh/Dr. S.K.N.Math/Dr. D.V. Singh)
- Name of Dr. D. Mandal is included as second associate. As numbers of parameters are very large, their numbers need to be reduced to develop good nomographs, thumb rules etc. for applicability at field level. (Action : Dr. Ratan Singh)

5.3: IMPACT ON PRODUCTION, ENVIRONMENT AND BIODIVERSITY

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
37.	Integrated land and rainwater management for sustainable production in Shiwalik foothills in Mandhala village, Distt. Solan (H.P.).	A.K. Tiwari Pratap Singh R.K. Aggarwal Y. Agnihotri Pawan Sharma Ram Prasad Pratap Bhattacharya	Chandigarh	2003	2006	To be continued **TDET (MoRD)**
Comments : The plan of Mandhala watershed may be re-casted with major focus on aonla (horticulture) and agroforestry based cropping systems and the measures may be implemented before the onset of monsoon in 2004. The pond needs to be excavated at bottom to enhance its storage capacity so as to bring remaining area under its command. (Action : Dr. A.K. Tiwari)						

5.4 FARMING SYSTEM APPROACH

38.	Improvement of productivity of migratory buffalo herds.	CCPI : S.K. Verma Associate : P. Dogra	Soil Science & Agronomy, Dehradun	2001	2004	To be concluded **NATP (H&M)**
Comments : Project is extended till 2004.						
39.	Development and evaluation of integrated farming system in middle Himalayas	M. Muruganandam V.N. Sharda C. Prakash S.K. Verma	Hydrology & Engineering, Dehradun	2001	2004	To be concluded
Comments : Further efforts to find local cheaper and viable feed alternatives for pigs may be made to bring the technology within the reach of the farmers. Economics of all the components may be worked out individually as well as collectively (Action : Mr. M. Muraganandam)						

5.5 : WATERSHED TECHNOLOGIES (STRATEGIC RESEARCH)

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
40.	Watershed Technology (Mission Mode).	PI: K.P. Tripathi Co-PI: S.K. Dhyani Associates: O.P.S. Khola Pradeep Dogra	Hydrology & Engineering, Dehradun	1999	2004	To be concluded **NATP (H&M)**
		CCPI: V.Selvi Associates: M.Madhu D.V. Singh, P. Sundarambal, Subhash Chand	Udhagamandalam			
Comments: Project is extended till 2004.						

P-6: SOCIO-ECONOMIC ANALYSIS AND POLICY DEVELOPMENT FOR WATERSHED MANAGEMENT

6.1: RESOURCE ECONOMICS

41.	Impact of soil and water conservation measures on productivity and socio-economic conditions of Kuberpur ravine watershed.	Bhanwar Singh R.C. Yadav Om Prakash	Agra	2002	2004	To be concluded
Comments : Observations on various soil parameters affecting the increase in yield in terrace land are yet to be recorded and may be completed in the next year. (Action : Mr. Bhanwar Singh)						
42.	Market and policy incentives for soil and water conservation : A study in Mahi ravine of Gujarat.	V.C. Pande R.S. Kurothe H.B. Singh S.P. Tiwari	Vasad	2002	2004	To be concluded

6.2 : INSTITUTE VILLAGE LINKAGE PROGRAMME FOR TECHNOLOGY ASSESSMENT AND REFINEMENT

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
43.	Institute Village Linkage Programme. (Technology Assessment and Refinement – for Hill and Mountain Agro-Eco-System).	Leader: A.S.Mishra Associates: S.C.Mohan, D.S.Tomar, B.L.Dhyani, S.K.Verma	H.R.D. & S.S., Dehradun	1999	2004	To be concluded **NATP (H&M)**
Comments : Project is extended till the year 2004 and observations of the World Bank Mission may be complied with. (Action : Dr. A.S. Mishra)						

6.3 : COMMON PROPERTY RESOURCE MANAGEMENT

44.	Impact analysis of joint forest management on sharing and management of common property resources in Shiwalik foothill region.	S.L. Arya	Chandigarh	2002	2004	To be concluded
Comments : Perception of the forest department about the decline of revenue from sale of bhabar of the Hill Resource Management Societies (HRMS) in Haryana may be taken into consideration. Impact of closures of societies, created for sale of bhabar, on environmental degradation may also be assessed. Comparison of functioning of societies in HP and Haryana may be studied based on their strengths and weaknesses. (Action : Dr. (Ms) S.L. Arya)						
45.	Study on pastoral migratory graziers in relation to watershed projects in Shiwalik foothill villages in Haryana.	S.L. Arya Y. Agnihotri	Chandigarh	2004	2007	To be continued **(New Project)**
Comments : Questionnaire/schedule for data collection need to be submitted by 31st January, 2004. The Questionnaire prepared by Dr. S.K. Verma may be utilized for preparing this schedule. (Action : Dr. (Ms) S.L. Arya)						

P-7 HUMAN RESOURCE DEVELOPMENT AND TECHNOLOGY TRANSER

7.1 TRAINING METHODOLOGY, NEED ASSESSMENT, GENDER NEUTRALITY AND EVALUATION

46.	An action research project of informal training programme on soil and water conservation for ravine reclamation for farmers of Mahi ravine area.	G.L. Bagdi R.S. Kurothe H.B. Singh V.C. Pande	Vasad	2002	2006	To be continued
Comments : The most effective training method may be identified. (Action : Dr. G.L. Bagdi)						

7.3 PARTICIPATORY APPROACHES, DESSEMINATION OF TECHNOLOGY AND ADOPTION

Sl. No.	Title of the Project	Leader and Associates	Centre/Division	Start	Completion	Remarks
47.	Impact assessment and communication behaviour of farmers of already managed watershed and adjoining areas of Bundelkhand region.	Om Prakash	Datia	2002	2004	To be concluded
48.	Assessment of diffusion of Institute Village Linkage Programme (IVLP) interventions.	Bankey Bihari S.K. Verma	H.R.D. & S.S., Dehradun	2000	2004	To be concluded
Comments : A sample of farmers may be taken from those group of farmers to which interventions were directly provided for analyzing adoption continuance over the years. Number of farmers to whom interventions were not directly provided, but have actually adopted the interventions/technologies, may be assessed. The analysis may be done firstly intervention-wise, then major group-wise (cropping system, horticulture, livestock etc.) and lastly on the whole. Adoption in terms of number of farmers, acreage, production level for cropping system, horticulture and animal husbandry may also be included in the analysis. Project is extended till the year 2004. (Action : Mr. Bankey Bihari)						
49.	Participatory and integrated assessment of natural resources and evaluation of alternate sustainable land management options for tribal dominant watersheds.	PI: U.S. Patnaik Co-PI: P.R. Chaudhary Associates: Susama Sudhishri, Anchal Das, N. K.Paikaray	Koraput	2000	2004	To be concluded **NATP (Rainfed)**
Comments : Project is extended till 2004.						
50.	Extension methodology for transfer of soil and water conservation technologies for watershed management.	G.L. Bagdi	Vasad	2004	2006	To be continued **(New Project)**
Comments : Agreed in principle. Details of the project must be presented in the next SRC meeting. (Action : Dr. G.L. Bagdi)						

OBSERVATIONAL TRIAL APPROVED FOR 2004

Sl. No.	Title of the project	Leader and associate	Centre/Division	Remarks
1.	Soil loss tolerance limits for different agro-ecological regions of India	D. Mandal O.P.S. Khola B.L. Dhyani K.S. Dadhwal	Soil Science and Agronomy, Dehradun	The study may be taken up for one year with research farm data. Results may be presented in the next SRC meeting for taking up as Core Project.

PROJECTS CONCLUDED IN 2003

Sl. No.	Programme No.	Sl. No. of SRC Meeting Proc. 2002	Title of the Project	Centre/Division
1.	1.2	4	Impact of landuse pattern on runoff quality vis-à-vis fish production.	Hydrology & Engg., Dehradun
Comment: Economics may be re-calculated in terms of revenue earned which should be compared with agricultural economics with the help of Dr. B.L. Dhyani and presented in the next local SRC. Species wise economics of fish production need to be worked out. Recording of observations may be continued. Survey for finding the capacity of research farm's pond needs to be completed. Sufficient fish stock may be prepared on research farm pond for shifting to Sainji watershed during March 2004. (Action: Mr. M.Muruganandam)				
2.	1.3	6	Soil erosion studies using simulated rainfall in black soils.	Bellary
3.	2.1	10(b)	Tillage and surface cover management.	Datia
Comments: The very high runoff in zero tillage + no sorghum treatment may be examined. The highly remunerative sorghum + deep tillage treatment may be transferred to farmers' fields. Data of infiltration, bulk density and soil physical and chemical properties may be taken and presented in the local SRC meeting. (Action : Dr. Dev Narain)				
4.	2.1	10(d)	Conservation tillage and green manure mulching for optimizing productivity in maize wheat cropping system in the sub-mountainous Himalayan region	Soil Science & Agronomy, Dehradun
5.	2.1	13(a)	Inter-cropping studies in rainfed maize-wheat cropping system on slopping land in Doon valley.	HRD&SS, Dehradun
Comments : Analysis for available phosphorus needs to be re-examined. (Action : Mr. D.S. Tomar)				
6.	2.1	14(e)	Studies on tree crop association with *Acacia nilotica*, *Azadirachta indica* and *Albizzia lebbek*.	Kota
Comments : Remaining RPFs of this project may be submitted by Dr. Ashok Kumar, Scientist (S.S.) under his name only. Data of eleven years need to be analyzed from all aspects as done by Dr. Pratap Narain in agroforestry project. (Action: Dr. Ashok Kumar)				
7.	2.1	14(f)	Evaluation of different field crops under rainfed agri-horticulture system for resource conservation.	Kota
Comments : Remaining RPFs of this project may be submitted by Dr. Ashok Kumar, Scientist (S.S.) under his name only. (Action: Dr. Ashok Kumar)				
8.	2.1	17	Developing live fencing systems for soil and water conservation, crop diversification and sustaining productivity in rainfed regions.	Bellary/Koraput
9.	2.1	18	Development and evaluation of soil and water conservation measures and landuse systems for sustainable crop production in western ghats of coastal region.	Udhagamandalam
10.	2.2	19(a)	Production potential of several leguminous and non-leguminous tree species under different management practices.	Bellary
Comments : Head, Research Centre, Bellary should take steps to reclaim the area affected by salinity in consultation with CSSRI, Karnal. Lopping of trees should be got done and relevant data collected by the end of June, 2004. (Action : Er. R.N. Adhikari)				

Sl. No.	Progra-mme No.	Sl.No. of SRC Meeting Proc. 2002	Title of the Project	Centre/Division
11.	2.2	21(a)	Development of horti-pastoral land use system for degraded lands.	Chandigarh
Comments : Data of production and actual revenue generation (specie-wise) may be presented. (Action Dr. Ram Prasad)				
12.	4.1	33	Effectiveness study of the torrent training structures in outer Himalayas and Shiwalik foot hills of Doon valley.	Hydrology & Engg., Dehradun
13.	4.1	34	Development of geo-natural with its blend and large scale field trials for soil conservation and agro-horticulture applications.	Hydrology & Engg., Dehradun
14.	5.1	36	Methodologies for development and analysis of watersheds and decision support systems for interventions.	Chandigarh
Comments : Dr. Y. Agnihotri, Principal Scientist, Chandigarh should pass on the entire data of nine watersheds of this project in the prescribed format to Dr. B.L. Dhyani, PI, for development of MODSS. (Action : Dr. Y. Agnihotri)				
15.	5.4	42	Participatory assessment and refinement of traditional ragi cropping.	Koraput
16.	6.1	45	Economic evaluation and people's participation in watershed projects in Coimbatore and Nilgiri districts.	Udhagamandalam

PROGRAMME-WISE LIST OF PROJECTS

P-1 : WATER EROSION APPRAISAL IN DIFFERENT AGRO-ECOLOGICAL REGIONS

1.1: Inventory and database of erosion status using modern tools and procedures

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
1	1	Soil Sci. & Agronomy, Dehra Dun
2	2	Soil Sci. & Agronomy, Dehra Dun
3	3	Hydrology & Engg., Dehra Dun

TOTAL = 3

1.2: On-site and off-site effects of erosion

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
4	5	Udhagamandalam

TOTAL = 1

1.3: Soil erosion processes and models

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
5	7	Datia
6	8	Hydrology & Engg., Dehra Dun
7	9	Hydrology & Engg., Dehra Dun /Chandigarh/Datia/Kota/Vasad

TOTAL = 3

P-2: CONSERVATION MEASURES FOR SUSTAINABLE PRODUCTION SYSTEMS

2.1: Resource conservation measures for arable lands

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
8(a)	10(a)	Agra
8(b)	10(c)	Soil Sci. & Agronomy, Dehra Dun
9(a)	11(a)	Datia
9(b)	11(b)	Udhagamandalam
9(c)	11(c)	Vasad
10(a)	12(a)	Bellary
10(b)	12(b)	Chandigarh
10(c)	12(c)	Vasad
10(d)	New	Agra
11(a)	13(b)	Plant Science, Dehra Dun
11(b)	13(c)	Soil Sci. & Agronomy, Dehra Dun
11(c)	13(d)	Kota
11(d)	13(e)	Kota
11(e)	New	Agra
12(a)	14(a)	Agra
12(b)	14(b)	Agra
12(c)	14(c)	Chandigarh
12(d)	14(d)	Soil Sci. & Agronomy, Dehra Dun
12(e)	14(g)	Vasad
12(f)	New	Plant Science, Dehra Dun
13	15	Agra/Kota
14	16	Bellary

TOTAL = 22

2.2: Resource conservation measures for non-arable lands

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
15(a)	19(b)	Plant Science, Dehra Dun
15(b)	19(c)	Plant Science, Dehra Dun
16(a)	20(a)	Plant Science, Dehra Dun
16(b)	20(b)	Soil Sci. & Agronomy, Dehra Dun
17(a)	22(a)	Plant Science, Dehra Dun
17(b)	22(b)	Soil Sci. & Agronomy, Dehra Dun

TOTAL = 6

P-3: HYDROLOGICAL BEHAVIOUR OF WATERSHEDS FOR CONSERVATION PLANNING

3.1: Rainfall, runoff, vegetation, soil characteristics and management practices

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
18	23	Datia
19	24	Hydrology & Engg., Dehra Dun
20	25	Udhagamandalam
21	New	Plant Science, Dehra Dun
22	New	Hydrology & Engg., Dehra Dun
23	New	Koraput
24	New	Vasad

TOTAL = 7

3.2: Effect of conservation measures and landuse on ground water recharge

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
25	26	Vasad/Chandigarh/Datia/Kota/Koraput

TOTAL = l

3.3: Water harvesting

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
26	27	Chandigarh
27	28	Datia
28	29	Datia
29	30	Hydrology & Engg., Dehra Dun
30	31	Hydrology & Engg., Dehra Dun

TOTAL = 5

P-4: REHABILITATION OF AREAS AFFECTED BY MASS EROSION

4.1: Refinement of technologies for torrent training, landslide control and minespoils rehabilitation

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
31	32	Chandigarh / Hydrology & Engg., Dehra Dun
32	35	Agra
33	New	Kota

TOTAL = 3

P-5: PARTICIPATORY INTEGRATED WATERSHED MANAGEMENT

5.1: Methodologies for development of watersheds and decision support systems for interventions

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
34	36	HRD & SS, Dehra Dun
35	37	Koraput

TOTAL = 2

5.2: Landuse Planning

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
36	38	Soil Sci. & Agronomy, Dehra Dun /Bellary/Udhagamandalam

TOTAL = 1

5.3: Impact on Production, environment and biodiversity

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
37	39	Chandigarh

TOTAL = 1

5.4: Farming system approach

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
38	40	Soil Sci. & Agronomy, Dehra Dun
39	41	Hydrology & Engg., Dehra Dun

TOTAL = 2

5.5: Watershed technologies (Strategic research)

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
40	43	Hydrology & Engg., Dehra Dun/ Udhagamandalam

TOTAL = 1

P-6 : SOCIO-ECONOMIC ANALYSIS AND POLICY DEVELOPMENT FOR WATERSHED MANAGEMENT

6.1: Resource economics

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
41	44	Agra
42	46	Vasad

TOTAL = 2

6.2: Institute Village Linkage Programme for Technology assessment and refinement

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
43	47	HRD & SS, Dehraun

TOTAL = 1

6.3: Common property resource management

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
44	48	Chandigarh
45	New	Chandigarh

TOTAL = 2

P-7: HUMAN RESOURCE DEVELOPMENT AND TECHNOLOGY TRANSFER

7.1: Training methodology, need assessment, gender neutrality and evaluation

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
46	49	Vasad

TOTAL = 1

7.2: Organizational infrastructure and motivational parameters

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
Nil	Nil	Nil

TOTAL = Nil

7.3: Participatory approaches for dessemination of technology and adoption

Sl. No. of SRC Proc., 2003	Sl No. of SRC Proc., 2002	Centre/Division
47	50	Datia
48	51	HRD&SS, Dehra Dun
49	52	Koraput
50	New	Vasad

TOTAL = 4

GRAND TOTAL = 68

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CENTRE/DIVISION-WISE NUMBER OF ON-GOING PROJECTS

TOTAL NUMBER OF PROJECTS (CENTRE/DIVISION-WISE)

S. No.	CENTRE/DIVISION	SL. NO. OF ON-GOING PROJECTS	TOTAL
1.	Agra	8(a),10(d),11(e),12(a),12(b),13,32,41	**8**
2.	Bellary	10(a), 14,36,	**3**
3.	Chandigarh	7,10(b),12(c),25,26,31,37,44, 45	**9**
4.	Datia	5,7,9(a),18,25,27,28,47	**8**
5.	Dehra Dun		
	• Hydrology & Engineering	3,6,7,19,22,29,30,31,39,40	**10**
	• Soil Science & Agronomy	1,2,8(b),11(b),12(d),16(b),17(b),36, 38	**9**
	• HRD & SS	34,43,48	**3**
	• Plant Science	11(a),12(f),15(a),15(b),16(a),17(a),21	**7**
6.	Koraput	23,25,35,49	**4**
7.	Kota	7,11(c), 11(d), 13, 25,33	**6**
8.	Udhagamandalam	4,9(b),20,36,40	**5**
9.	Vasad	7,9(c), 10(c), 12(e),24,25, 42, 46, 50	**9**
	Grand Total		**81**

NUMBER OF NATP/TDET/DBT FUNDED PROJECTS (CENTRE/DIVISION-WISE)

S. No.	CENTRE/DIVISION	SL. NO. OF PROJECTS	TOTAL
1.	Agra	13	**1**
2.	Bellary	14,36	**2**
3.	Chandigarh	26,31,37	**3**
4.	Dehra Dun		
	• Hydrology & Engineering	19,31,40	**3**
	• Soil Science & Agronomy	2,36,38	**3**
	• HRD & SS	34,43,	**2**
	• Plant Science	12(f)	**1**
5.	Koraput	35,49	**2**
6.	Kota	13	**1**
7.	Udhagamandalam	36,40	**2**

NUMBER OF NEW PROJECTS (CENTRE/DIVISION-WISE) APPROVED IN SRC-2003

S. No.	CENTRE/DIVISION	SL. NO. OF PROJECTS	TOTAL
1.	Agra	10(d),11(e)	**2**
2.	Chandigarh	45	**1**
3.	Dehra Dun		
	• Hydrology & Engineering	22	**1**
	• Plant Science	12(f),21	**2**
4.	Koraput	23,25	**2**
5.	Kota	33	**1**
6.	Vasad	24,50	**2**

CENTRE/DIVISION AND PROGRAMME-WISE NUMBER OF PROJECTS

Sl. No.	CENTRE/ DIVISION	P-1	P-2	P-3	P-4	P-5	P-6	P-7	Total
1.	Agra	-	6	-	1	-	1	-	**8**
2.	Bellary	-	2	-	-	1	-	-	**3**
3.	Chandigarh	1	2	2	1	1	2	-	**9**
4.	Datia	2	1	4	-	-	-	1	**8**
5.	Dehra Dun								
	♦ Hydrology & Engineering	3	-	4	1	2	-	-	**10**
	♦ Soil Science & Agronomy	2	5	-	-	2	-	-	**9**
	♦ HRD & SS	-	-	-	-	1	1	1	**3**
	♦ Plant Science	-	6	1	-	-	-	-	**7**
6.	Koraput	-	-	2	-	1	-	1	**4**
7.	Kota	1	3	1	1	-	-	-	**6**
8.	Udhagamandalam	1	1	1	-	2	-	-	**5**
9.	Vasad	1	3	2	-	-	1	2	**9**
	Total	**11**	**29**	**17**	**4**	**10**	**5**	**5**	**81**

NUMBER OF PROJECTS WITH INDIVIDUAL SCIENTIST

In the Staff Research Council Meeting of 1995, certain norms regarding **maximum** number of projects that any scientist of CSWCRTI may hold, were decided as mentioned below:

A. Leadership in one projects with association in other four projects (1+4)

or

B. Leadership in two projects with association in other two projects (2+2)

or

C. Leadership in three projects without association in any other projects (3+0)

In the Staff Research Council Meeting of 2000, certain norms regarding **minimum** number of projects that any scientist of CSWCRTI may hold, were decided as mentioned below:

A. Leadership in one project with association in other one project (1+1)

or

B. Association in two projects (0+2).

The number of projects with each individual scientist of the Institute, after the SRC Meeting of 2003 is as follows:

Name	Designation	Leader	Associate	Total
Dr. V.N. Sharda	Director	3	2	5
Soil Science and Agronomy Division				
Dr. K.S. Dadhwal	Head of Division	1	2	3
Dr. P.C. Tyagi	Principal Scientist (Plant Breeding)	1	1	2
Mr. S.C. Mohan	Principal Scientist (Soil Fertility)	1	2	3
Dr. Ratan Singh	Principal Scientist (Soils)	2	1	3
Dr. O.P.S. Khola	Senior Scientist (Agronomy)	1	3	4
Dr. N.K. Sharma	Senior Scientist (Agronomy)	--	4	4
Dr. B.N. Ghosh	Senior Scientist (Soils)	1	4	5
Dr. R.K. Dubey	Scientist (S.S.) (Agronomy)	1	--	1
Dr. S.K. Verma	Scientist (SS) (Animal Nutrition)	1	3	4
Dr. D. Mandal	Scientist (Soils)	--	2	2
Hydrology and Engineering Division				
Dr. G.P. Juyal	I/c. Head of Division	1	--	1
Er. K.P. Tripathi	Principal Scientist (Engineering)	1	--	1
Dr. P.R. Ojasvi	Senior Scientist (Engineering)	1	1	2
Er. S.S. Shrimali	Senior Scientist (Computer Application)	1	3	4
Dr. P.K. Das	Sr. Scientist (Agril.Stat.)	1	--	1
Mr. M. Muruganandam	Scientist (SS) (Fisheries)	1	--	1
Er. B.S. Naik	Scientist (Engineering)	--	1	1
Plant Science Division				
Dr. S.K. Dhyani	Head of Division	2	4	6
Dr. Anurag Raizada	Senior Scientist (Forestry)	1	3	4
Dr. Harsh Mehta	Senior Scientist (Plant Breeding)	2	2	4
Mr. Charan Singh	Scientist (SG) (Forestry)	1	3	4
Dr. A.C. Rathore	Scientist (Horticulture)	1	2	3
Mr. K.P. Mohapatra	Scientist (Forestry)	--	--	NIL

Name	Designation	Leader	Associate	Total
Research Coordination & Management Unit				
Er. B.P. Joshi	Principal Scientist (Engineering)	1	--	1
Mr. A.K. Khullar	Scientist (S.G.) (Agril. Stat.)	--	1	1
Dr. Pradeep Dogra	Senior Scientist (Agril. Eco.)	--	4	4
Human Resource Development and Social Science Division				
Dr. A.S. Mishra	I/c Head of Division	1	--	1
Er. C. Prakash	Principal Scientist (Engineering)	--	2	2
Mr. D.S. Tomar	Senior Scientist (Agronomy)	--	1	1
Dr. B.L. Dhyani	Senior Scientist (Agril. Eco.)	1	2	3
Mr. Bankey Bihari	Scientist (Agril. Extn.)	1	1	2
Research Centre, Agra				
Dr. R.C. Yadav	Head of Centre	2	4	6
Dr. H.C. Nitant	Principal Scientist (Soils)	2	1	3
Dr. Om Prakash	Principal Scientist (Agronomy)	1	5	6
Dr. R.C. Agnihotri	Principal Scientist (Soils)	1	--	1
Mr. Bhanwar Singh	Scientist (SS) (Agril. Eco.)	1	1	2
Er S.K. Srivastava	Scientist (Engineering)	1	--	1
Dr. Pramod Jha	Scientist (Soils)	--	--	NIL
Research Centre, Bellary				
Er. R.N. Adhikari	I/c Head of Centre	--	--	NIL
Dr. S.K.N. Math	Principal Scientist (Soils)	2	--	2
Dr. S.L. Patil	Sr. Scientist (Agronomy)	1	2	3
Er. A.K. Singh	Scientist (Engineering)	--	1	1
Dr. B. Mondal	Scientist (Agril. Eco.)	--	--	NIL
Dr. N. Loganandham	Scientist (Agril. Extension)	--	--	NIL
Mr.D.Ramajayam	Scientist (Horticulture)	--	--	NIL
Research Centre, Chandigarh				
Dr. R.K. Aggarwal	Head of Centre	--	4	4
Dr. Y.K. Agnihotri	Principal Scientist (Agril. Stat.)	--	3	3
Dr. A.K. Tiwari	Principal Scientist (Engineering)	3	2	5
Dr. (Ms.) Pawan Sharma	Senior Scientist (Soil Micro-bio.)	1	2	3
Dr. R.P. Yadav	Senior Scientist (Soils)	1	1	2
Dr. Pratap Singh	Senior Scientist (Agronomy)	1	3	4
Dr. (Ms.) S.L. Arya	Senior Scientist (Agril. Eco.)	2	2	4
Dr.V.K.Bhatt	Scientist (S.G.) (Engineering)	1	--	1
Dr.Ram Prasad	Scientist (S.S.) (Horticulture)	--	5	5
Dr. Pratap Bhattacharya	Scientist (Soil Physics)	--	3	3

Name	Designation	Leader	Associate	Total
Research Centre Datia				
Dr. V.S. Katiyar	Head of Centre	2	2	4
Dr. Dev Narayan	Senior Scientist (Agronomy)	1	3	4
Dr. M.L. Gaur	Senior Scientist (Engineering)	3	1	4
Dr. Om Prakash	Sr. Scientist (Agril. Extn.)	1	--	1
Dr. Brij Lal	Scientist (SS) (Soil Fertility)	1	2	3
Dr. Hritik Biswas	Scientist (Soils)	--	1	1
Research Centre, Koraput				
Dr. U.S. Patnaik	Head of Centre	1	2	3
Dr.K.C.Dubey	Senior Scientist (Horticulture)	--	--	NIL
Dr. R.K. Panda	Senior Scientist (Engineering)	1	1	2
Mr. P.R. Chaudhary	Scientist (SS) (Forestry)	--	2	2
Er.(Ms) Susama Sudhishri	Scientist (Engineering)	2	1	3
Mr. Anchal Dass	Scientist (Agronomy)	--	3	3
Dr. N.K. Paikaray	Scientist (Soil Science)	--	3	3
Research Centre, Kota				
Dr. S.N. Prasad	I/C. Head of Centre	1	2	3
Dr. R.K. Singh	Senior Scientist (Soil Fertility)	1	2	3
Dr. S.V. Singh	Senior Scientist (Agril. Extn.)	--	--	NIL
Mr. A.K. Parandiyal	Sr. Scientist (Forestry)	--	--	NIL
Dr. Ashok Kumar	Scientist (SS) (Agril. Eco.)	--	4	4
Er. Shakir Ali	Scientist (Engineering)	3	1	4
Er. B.K. Sethy	Scientist (Engineering)	1	2	3
Dr. J. Somasundaram	Scientist (Soils)	--	1	1
Research Centre, Udhagamandalam				
Dr. M. Madhu	I/c Head of Centre	--	5	5
Mr. R. Ragupathy	Scientist(SS) (Forestry)	--	--	NIL
Dr. D.V. Singh	Scientist (S.S.) (Soil Fertility)	2	1	3
Dr. Subhash Chand	Scientist (S.S.) (Agril. Eco.)	--	3	3
Er. (Ms.) V. Selvi	Scientist (SS) (Engineering)	2	2	4
Dr.(Ms.) P.Sundarambal	Scientist (SS) (Agril. Extn.)	--	2	2
Dr. P. Murlidharan	Scientist (Soils)	1	1	2
Er. D.C. Sahoo	Scientist (Engineering)	--	1	1
Research Centre, Vasad				
Dr. R.S. Kurothe	Head of Centre	2	4	6
Dr. H.B. Singh	Principal Scientist (Agronomy)	2	4	6
Dr. S.P. Tiwari	Senior Scientist (Soil Fertility)	1	5	6
Dr. G.L. Bagdi	Scientist (SS) (Agril. Extn.)	2	--	2
Mr. V.C. Pande	Scientist (S.S.) (Agril. Eco.)	1	6	7
Dr. D.R. Sena	Scientist (Engineering)	1	1	2

LIST OF PARTICIPANTS

1.	Dr. V.N. Sharda	Director	Chairman
2.	Dr. K.D. Singh	Ex-Head, Research Centre, Kota	
CSWCRTI, DEHRADUN			
3.	Dr. K.S. Dadhwal	Head (SS&A Division)	Member
4.	Dr. S.K. Dhyani	Head (Pl.Sc. Division)	Member
5.	Dr. A.S. Mishra	I/c Head (HRD & SS Division)	Member
6.	Dr. G.P. Juyal	I/c Head (Hydrology & Engineering Division)	
7.	Er. K.P. Tripathi	Principal Scientist (Engg.)	
8.	Dr. P.C. Tyagi	Principal Scientist (Plant Breeding)	
9.	Mr. S.C. Mohan	Principal Scientist (Soils)	
10.	Er. C. Prakash	Principal Scientist (Engineering)	
11.	Dr. Ratan Singh	Principal Scientist (Soils)	
12.	Dr. A. Raizada	Senior Scientist (Forestry)	
13.	Dr. O.P.S. Khola	Senior Scientist (Agronomy)	
14.	Dr. Harsh Mehta	Senior Scientist (Plant Breeding)	
15.	Dr. P.R. Ojasvi	Senior Scientist (Engineering)	
16.	Dr. N.K. Sharma	Senior Scientist (Agronomy)	
17.	Mr. A.K. Khullar	Scientist (S.G.) (Agril. Stat.)	Member Secretary
18.	Er. S.S. Shrimali	Senior Scientist (CAA)	
19	Mr. Charan Singh	Scientist (S.G.) (Forestry)	
20.	Dr. B.N. Ghosh	Senior Scientist (Soils)	
21.	Dr. P.K. Das	Senior Scientist (Agril. Stat.)	
22.	Dr. Pradeep Dogra	Senior Scientist (Agril.Eco.)	Rapporteur
23.	Dr. R.K. Dubey	Scientist (S.S.) (Agronomy)	
24.	Mr. M. Muruganandam	Scientist (S.S.) (Fisheries)	
25.	Dr. S.K. Verma	Scientist (S.S.) (Animal Nutrition)	
26.	Mr. Bankey Bihari	Scientist (Agril.Extn.)	
27.	Dr. A.C. Rathore	Scientist (Horticulture)	
28.	Dr. D. Mandal	Scientist (Soils)	
29.	Mr. S.K. Sinha	Sr. Technical Assistant (T-4)	Rapporteur
RESEARCH CENTRE, AGRA			
30.	Dr. R.C. Yadav	Head of the Centre	Member
31.	Dr. H.C. Nitant	Principal Scientist (Soils)	
32.	Dr. Om Prakash	Principal Scientist (Agronomy)	
33.	Dr. R.C. Agnihotri	Principal Scientist (Soils)	
34.	Mr. Bhanwar Singh	Scientist (S.S.) (Agril. Eco.)	
35.	Er. S.K. Srivastava	Scientist (Engineering)	
36.	Dr. Pramod Jha	Scientist (Soils)	
RESEARCH CENTRE, BELLARY			
37.	Er. R.K. Adhikari	I/c Head of the Centre	Member
38.	Dr. S.K. Nalatwadmath	Principal Scientist (Soils)	
39.	Er. A.K. Singh	Scientist (Engineering)	
40.	Dr. B. Mondal	Scientist (Agril.Eco.)	

RESEARCH CENTRE, CHANDIGARH			
41.	Dr. R.K. Aggarwal	Head of the Centre	Member
42.	Dr. Y. Agnihotri	Principal Scientist (Ag. Stat.)	
43.	Dr. A.K. Tiwari	Principal Scinetist (Engineering)	
44.	Dr. Pratap Singh	Senior Scientist (Agronomy)	
45.	Dr. R.P. Yadav	Senior Scientist (Soils)	
46.	Dr. V.K. Bhatt	Scientist (S.G.) (Engineering)	
47.	Dr.Ram Prasad	Scientist (S.S.) (Horticulture)	
48.	Dr. Pratap Bhattacharya	Scientist (Soil Physics)	
RESEARCH CENTRE, DATIA			
49.	Dr. V.S. Katiyar	Head of the Centre	Member
50.	Dr. Dev Narain	Senior Scientist (Agronomy)	
51.	Dr. M.L. Gaur	Senior Scientist (Engineering)	
RESEARCH CENTRE, KORAPUT			
52.	Dr. U.S. Patnaik	Head of the Centre	Member
53.	Dr. R.K. Panda	Senior Scientist (Engineering)	
54.	Ms. Susama Sudhishri	Scientist (Engineering)	
55.	Mr. Anchal Dass	Scientist (Agronomy)	
56.	Dr. N.K. Paikaray	Scientist (Soils)	
RESEARCH CENTRE, KOTA			
57.	Dr. S.N. Prasad	I/c Head of the Centre)	Member
58.	Dr. R.K. Singh	Senior Scientist (Soil Fertility)	
59.	Dr. Ashok Kumar	Scientist (S.S.) (Agril. Eco.)	
60.	Er. Shakir Ali	Scientist (Engineering)	
RESEARCH CENTRE, UDHAGAMANDALAM			
61.	Dr. M. Madhu	I/c Head of the Centre	Member
62.	Mr. R. Ragupathy	Scientist (S.S.) (Forestry)	
63.	Dr. D.V. Singh	Scientist (S.S.) (Soils)	
64.	Dr.(Ms) P. Sundarambal	Scientist (S.S.) (Agril. Extension)	
65.	Dr. P. Muralidharan	Scientist (Soils)	
66.	Er. D.C. Sahoo	Scientist (Engineering)	
RESEARCH CENTRE, VASAD			
67.	Dr. R.S. Kurothe	Head of the Centre	Member
68.	Dr. S.P. Tiwari	Senior Scientist (Soils)	
69.	Dr. G.L. Bagdi	Scientist (S.S.) (Agril. Extension)	
70.	Dr. D.R. Sena	Scientist (Engineering)	