



ਸਲਾਨਾ ਪ੍ਰਬੰਧਕੀ ਰਿਪੋਰਟ

ANNUAL ADMINISTRATIVE REPORT

ਸਾਲ 2012-13

(01-04-2012 to 31-03-2013)



ਭੂਮੀ ਅਤੇ ਜਲ ਸੰਭਾਲ ਵਿਭਾਗ, ਪੰਜਾਬ

Department of Soil & Water Conservation, Punjab

ਦਫਤਰ: ਮੁੱਖ ਭੂਮੀ ਪਾਲ, ਪੰਜਾਬ, ਐਸ.ਸੀ.ਓ. 92-94, ਸੈਕਟਰ 17-ਡੀ, ਚੰਡੀਗੜ੍ਹ 160017

ਫੋਨ: 0172-2704857, 2716158. ਫੈਕਸ: 0172-2725330.

ਈ-ਮੇਲ: dswcpunjab@gmail.com, ਵੈਬਸਾਈਟ: <http://dswcpunjab.gov.in>

REVIEW OF THE WORKING OF THE DEPARTMENT OF SOIL AND WATER CONSERVATION, PUNJAB FOR THE YEAR 2012-13

The Greed for maximizing economic returns from the two natural resources, Soil & Water, has put these resources under immense pressure and over exploitation, with the result that their degradation and depletion day by day has created an alarming situation. If immediate steps are not taken, these may further deteriorate to a level where it will be very difficult to revive these resources to sustain the agricultural production system.

The groundwater is depleting at very fast rate and water table is going down by approximately 50-100 cm. annually and has reached a stage where farmers have to deepen their tube wells and install new submersible pumping system with higher power requirements for Irrigation. The farmers are unaware of the fact that this may lead to a situation where no further deepening and pumping out of water will be economically feasible and even possible unless the groundwater is recharged for keeping up a balance between recharging and pumping out the same.

The over exploitation of soils by continuously following the wheat-paddy rotation has depleted the macro/micro nutrients, minerals and trace elements of the soils. The soil health is deteriorating day by day and the formation of hard crust layers below the plough depth, resulting in impeded local drainage that is harmful for crops growth. Soil structure has also been disturbed and organic contents in the soil have also been reduced to a low level.

In view of the above situation, the role of Department of Soil and Water Conservation, Punjab for conserving, saving and up gradation of the two vital natural resources of Soil & Water is most important in the present scenario of diversified uses and fast pace of development. Over the last few decades the Department is putting in its best efforts to check the further degradation of these resources and develop them for a sustainable, diversified agricultural system. Although the State Government is already seized of the problems of degradation of soil, sharp depletion of underground water in most parts of the State, a lot of efforts and funds are required for the activities for the sustainable development of these resources and check their further degradation.

To carry out soil conservation and water management programme Rs 15192.11 lacs were utilized by the Department during the year 2012-13. Rs.10746.95 lacs were utilized under the Non plan, State plan, and Centrally sponsored schemes, Rs.4445.16 lacs were utilized under other District level schemes such as Rashtriya Krishi Vikas Yojna (RKVY) , Integrated Watershed Management Projects (IWDP/IWMP), Reclamation of Ravenous areas & Wetlands,13th Finance Commission, Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS). Total 45025 hectares area was covered under various land development and water management works in 4253 villages benefiting 36752 farmers.

Under water management works 702.627 km underground pipeline was laid benefiting 20862 hectares owned by 19789 farmers of 852 villages. 2790 hectares were covered under Drip Irrigation scheme benefiting 2707 farmers of 1999 villages. 2523 Hectares were covered under Water Harvesting Structures, Tapping of perennial flow and Small Lift Irrigation projects benefiting 3116 farmers of 62 villages. Under Watershed management works, 9259 hectares area was covered in 179 villages owned by 4757 farmers. Under land leveling and waste land development works, 9591 hectares area was covered in 1161 villages benefiting 6383 farmers. Thus, the total of 45025 hectares area was covered under Soil Conservation and Water Management works benefiting 36752 farmers of 4253 villages.

Soil survey of detailed and semi detailed nature was conducted in 1,14,200 hectares during the year 2012-13.

CRITICAL REVIEW OF THE WORKING OF THE DEPARTMENT OF SOIL & WATER CONSERVATION, PUNJAB FOR THE YEAR 2012-13

Taking in to view the depleting ground water and the stress on canal water availability, especially in the 110 over-exploited blocks, modern conservation irrigation techniques are being deployed for saving the already stressed water resources. Though Conservation irrigation through drip, micro-sprinkler and sprinkler irrigation is being adopted for the last 17 years, About 29588 hectares have been covered under this scheme till date. During the year 2006-07, GOI introduced a new scheme of Micro Irrigation (Drip & Sprinkler irrigation) on 80:20 center state sharing basis, under which 50% subsidy is provided on Drip/Micro Sprinkler Irrigation. This assistance has been increased to 60% for small and marginal farmers from 2010-11.

During 2012-13, Rs. 1207.07 lacs were utilized benefiting 2790 hectares area of 2707 farmers in 1999 villages. In addition to it during 2012-13 under State Govt.'s NABARD-RIDF (13& 16) Projects, 25% additional subsidy under Drip/Micro Sprinkler Irrigation System. Rs. 1758.25 lac were utilized under these projects

During 2012-13, under NABARD-RIDF-18 "Community Micro Irrigation Project in Kandi-belt of Talwara and Hajipur blocks of District Hoshiarpur" is approved. Under this scheme there is a proposal to cover 658 Hect. of 14th Villages of Hajipur and Talwara blocks falling in Kandi area of Hoshiarpur District. At present, Irrigation water is not available in this area. Under this project the water from nearby kandi canal is to be lifted and carried to farmer's fields through underground pipeline systems and is to be utilized by automate micro irrigation system for agriculture. No expenditure is made under this scheme during 2012-13.

A 3-year "Project for Judicious use of available water and Harvesting of rainwater for enhancing irrigation potential in Punjab state" was approved by NABARD during FY 2011-12 under RIDF-17 for providing 90% assistance for Community Underground Pipeline System (UGPS) Projects and 100% assistance on Rainwater Harvesting Structures in Kandi area. During 2012-13 Rs. 2342.53 lac were utilized benefiting 11,293 hectares under this scheme.

A new 3-year (01-04-2012 to 31-03-2015) "Project for laying of Underground Pipeline for irrigation from Sewage Treatment Plants of various Towns/ Cities (NABARD-RIDF-18)" of Rs. 3157.80 Lac is approved by NABARD under which 95% is loan from NABARD to State Govt. & 5% is State Share. Under this project, treated water from completed/ running savage treatment plants will be provided to nearby fields of the farmers. Under this Scheme there is a proposal to cover 33 cities/ towns falling 14 Districts. During 2012-13 no funds was release under this project.

A new scheme for assistance on UGPS for promotion of on-farm water conservation was introduced in 2010-11. 50% subsidy is provided to farmers on lying of underground pipe line system (UGPS) from individual tube wells and canal outlets During 2012-13, Rs. 876.66 lac were utilized benefiting 3380 Hect.

The department is putting in a lot of efforts for the sustainable development of soil & water resources according to the need of the day and new trends in agricultural production. Proper soil & water conservation measures and irrigations techniques are being undertaken, especially in rainfed areas i.e., the Kandi Area of Punjab. Water Harvesting Technology is being used extensively in Kandi area and has proved to be very effective in the rehabilitation of the degraded Shivaliks by checking soil erosion, providing life saving irrigation, and recharging of ground water in the command areas. Water harvesting from perennial sources for providing irrigation and recharging in command area is most economical and beneficial. An area of 25702 hectares have been brought under life saving irrigation in Kandi area from different types of water management works like water harvesting dams, hill seepage taping projects, small water harvesting structure, lift irrigation schemes and ground water recharging projects.

Under the Centrally sponsored Macro Management Works Plan, two sub schemes namely, National Watershed Development Programme for Rainfed Area (NWDPRA) and Treatment of Catchment area of river Ghaggar (FPR), innovative technologies have been introduced to check soil erosion and for water harvesting and conservation in Kandi area districts of Mohali, Ropar, Nawanshahar, Hoshiarpur & Gurdaspur. Such technologies can easily be replicated through people's participation and this aspect has been given the main thrust by involving the people in the planning and implementation of the programme under these schemes. During 2012-13 Rs. 2.55 lac were utilized , GOI did not release any fund under this programme.

**ANNUAL ADMINISTRATIVE REPORT ON THE WORKING OF THE
DEPARTMENT OF SOIL AND WATER CONSERVATION, PUNJAB FOR
THE YEAR 2012-13 (1/4/2012-31/3/2013)**

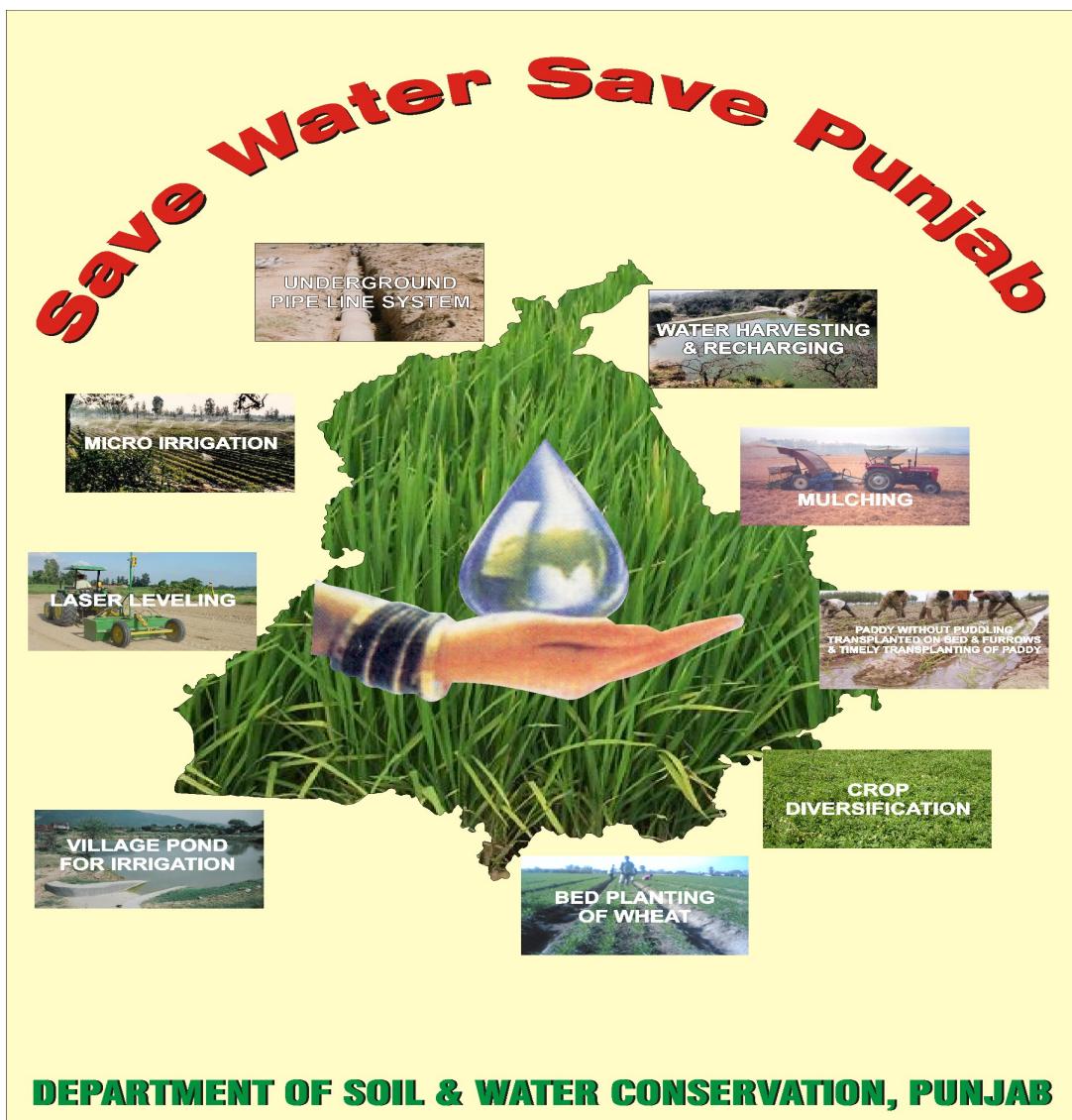
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CHAPTER 1

INTRODUCTION

Prior to the year 1969, Soil Conservation works in the state were carried out by the Soil Conservation Wing of the Agriculture Department. Then its status was raised and was made an independent Department by the Punjab Government. It was named as "SOIL CONSERVATION AND ENGINEERING DEPARTMENT" and the head of the department was designated as "Chief Conservator of Soils Punjab". As per need of time, during 2000 the name of the department was changed as "DEPARTMENT OF SOIL AND WATER CONSERVATION, PUNJAB". This is the 44th Annual Report on the working of this department. Dr. Balwinder Singh Sidhu held the charge of Chief Conservator of Soils, Punjab during the year 2012-13.



The Annual Report highlights activities & achievements of the department during the year 2012-13 which are summarized as follows:-

A. Field Divisions

Soil and Water are two natural resources and the successful crop production depends upon the way, how best we utilize these two resources. The main objective of the Department is to conserve Soil and Water resources for their judicious use to obtain optimum returns agricultural land on sustained basis. On the basis of Soil and Water management programme, the State can be divided in to 3 Agro-climatic zones.

1. NORTHERN ZONE:

This is located in the foothills of Shivaliks and extends from Derabassi block of Mohali district to Dhar block of Gurdaspur district falling in Roopnagar, S.A.S. Nagar, S.B.S. Nagar, Hoshiarpur , Gurdaspur and Pathankot districts. Soil erosion due to flash floods and droughts are common features of this zone.



Photograph: Water Scarcity in Kandi area

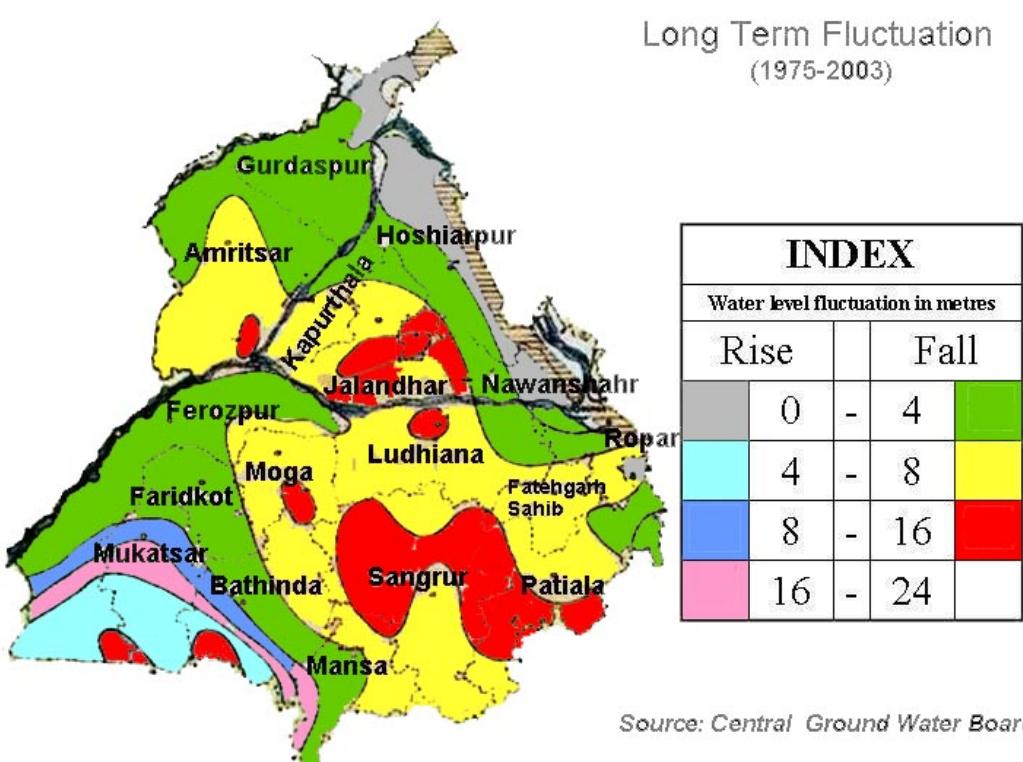
The following Soil and Water Conservation works are undertaken in this region:

1. In the rainfed areas of Kandi, Centrally Sponsored Scheme of National Watershed Development Program for Rainfed Area (NWDPRA) is being executed.
2. Treatment of Catchment area of Flood Prone River (FPR) Ghaggar in S.A.S. Nagar District.
3. Ground Water Recharge through Rain Water Harvesting structure/low dams.
4. Micro Irrigation (Drip & Sprinkler Irrigation System).
5. Assistance to farmers on laying of Under Ground Pipeline System (UGPS) from Individual tube wells and canal outlets.
6. Water harvesting structures are constructed to control flash flood and supplementary irrigation is provided to command area.

7. Tapping of perennial flow (Makkowal Type) and lift irrigation for expanding Irrigational potential.
8. Undulating lands are being leveled for enhancing cultivated area
9. Drainage line treatment works.
10. Reclamation of degraded land in affected pockets of ecologically handicapped areas.

2. CENTRAL ZONE:

It comprises of Patiala, Ludhiana, Jalandhar, Nawanshahar, Kapurthala Amritsar and Tarntarn districts. This zone is the most developed area of the State. The lands are leveled and under ground water are available for irrigation. Moreover the over exploitation of sub-soil water is causing ground water depletion in this zone at the most alarming rate.



Photograph: Long Term fluctuation of ground water level in Punjab

In this zone, following works are being undertaken:-

1. Micro Irrigation (Drip & Sprinkler Irrigation System).
2. Assistance to farmers on laying of Under Ground Pipeline System (UGPS) from Individual tube wells and canal outlets.
3. Technical advice to farmers for Modernization of irrigation conveyance system on individual tube wells using underground pipeline system to reduce water losses.
4. To provide treated sewage water of cities for irrigation to farmers through under ground pipeline system.

3. SOUTHERN ZONE

This comprises Sangrur, Barnala, Bathinda, Mansa, Mukatsar, Moga, Faridkot and Ferozepur districts. In this region, the sub soil water is generally brackish and unfit for irrigation in many pockets. Though Irrigation water is available from a network of canal system which has been carried to the fields by constructing lined water courses but not sufficiently available at tail end Sand dunes in this region have been reclaimed by scrapping of sand to bring out the good soil below it for agricultural purposes.



Photograph: Salinity problem in South-western districts

In this zone, following works are being undertaken:-

1. community underground pipeline system under Rashtriya Krishi Vikas Yojna (R.K.V.Y.)
2. Micro Irrigation (Drip & sprinkler).
3. Assistance to farmers on laying of Under Ground Pipeline System (UGPS) from Individual tube wells and canal outlets

B Soil Survey Division:-

The Soil Survey wing of the Department is engaged in collection of field information of soils, mapping of soils and in preparing the recourse inventory in the state. Different type of Soil Survey i.e Detailed soil survey, semi-detailed survey, reconnaissance survey etc. are conducted. The reports of these surveys are used as bench marks for planning of Soil & Water Conservation Works.

C Machinery Division:-

The Department has a fleet of 5 bulldozers, 1 Excavator cum Loader, 5 Tractors, 1 Trencher and 6 Laser levelers for undertaking various soil and water conservation works in the state. There is separate division for running & maintenance of machinery working under Divisional Soil Conservation Officer

with its head quarter at Mohali. This machinery is not only used for Departmental works but also provided to farmers on subsidized rates.



Photograph: A Bulldozer of Machinery division in action

D Training Institute

There is Training Institute (with Hostel) at Mohali to impart training to farmers and Technical staff up to the level of Soil Conservation Officers. The courses cover all the practical aspects of Soil & Water Conservation works such as land leveling, Construction of open channels, laying of Under Ground Pipelines, contour bounding, bench terracing, gully reclamation, water harvesting dams Field drainage etc and practice in preparation of plan & estimates etc. Approximately 150-200 trainees are imparted training every year.

E State Land Use Board

A nucleus cell i.e. State Land Use Board has been created to carryout studies to assess the land resources like soil, water & vegetation and for generating awareness for optimum & judicious use of soil & water resources in the State. This Board under the control of a Director (technical) SLUB has been carrying out the activities under a new state plan scheme.

CHAPTER-II

ORGANISATION AND ACTIVITIES

The Soil and Water Conservation Department, Punjab is headed by the Chief Conservator of Soils, Punjab. During the year, 3 Circles and 14 works Divisions were covering the entire State. The 14 works divisions have 43 works Sub Divisions with supporting staff. For the in-service training of the subordinate staff, there is Training Institute at Mohali under the charge of a Divisional Soil Conservation Officer(T.I). Besides this, there is one Soil Survey Division for Soil Survey work in the State under the charge of Divisional Soil Conservation Officer (Soil Survey) with headquarters at Mohali. Under Divisional Soil Conservation Officer (Soil Survey), there are three Soil Survey Officers with head quarters at Ludhiana, Hoshiarpur and Mohali. There is a separate Division for running & maintenance of machinery like Bulldozers, Tractors and Laser Levelers under the charge of a Divisional Soil Conservation Officer (Machinery) with head quarter at Mohali. One Conservator works as Director (Technical) SLUB (State Land Use Board) at Mohali.



Photograph: Soil Conservation Complex building, Phase-6, Mohali

Organization chart of the Department for the year 2012-13 is given at **Annexure 'A'**.

ACTIVITIES OF THE DEPARTMENT:

As explained earlier, the alarmingly depleting ground water in the Central Punjab, the soil degradation due to soil erosion in shivalik foothills, water logging and salt affected soils in the south-western Punjab and micro-nutrient imbalance in most parts are the important focused areas in Punjab state. This implies that there is great need for soil and water conservation & management works. Water management works conserve water by checking seepage evaporation losses, thus creating more irrigation potential by which further area can be brought under irrigation. There is impetus on providing assistance on laying of under ground pipe line in fields for irrigation in the Southern and Central Districts. For efficient use of irrigation water, the Micro Irrigation (Drip/Sprinkler) system is being promoted in all districts. In addition to it Rain Water Harvesting structures, Makowal type structures and small lift irrigation projects are constructed for ground water storage, supplementary irrigation and erosion control in kandi area.

The following types of works are executed by the department under various schemes of Soil Conservation and Water Management works:-

1. Promotion of Sprinkler/Drip irrigation system.
2. Laying of underground pipe line for irrigation on tube wells/canal outlet.
3. Gully reclamation and soil erosion control works on watershed basis.
4. Rain Water Harvesting & Ground Water Recharging through dams.
5. Lift irrigation/Perennial Flow tapping Structure.
6. Improvement of ecological & degraded lands.
7. Land leveling/land grading/Chisling of soil.
8. Tapping of treated sullage water for irrigation.
9. Soil survey works.

Land Development & water management works are being executed by the department under the State Plan Schemes and centrally sponsored schemes mentioned below.

Detail Of Scheme/Projects

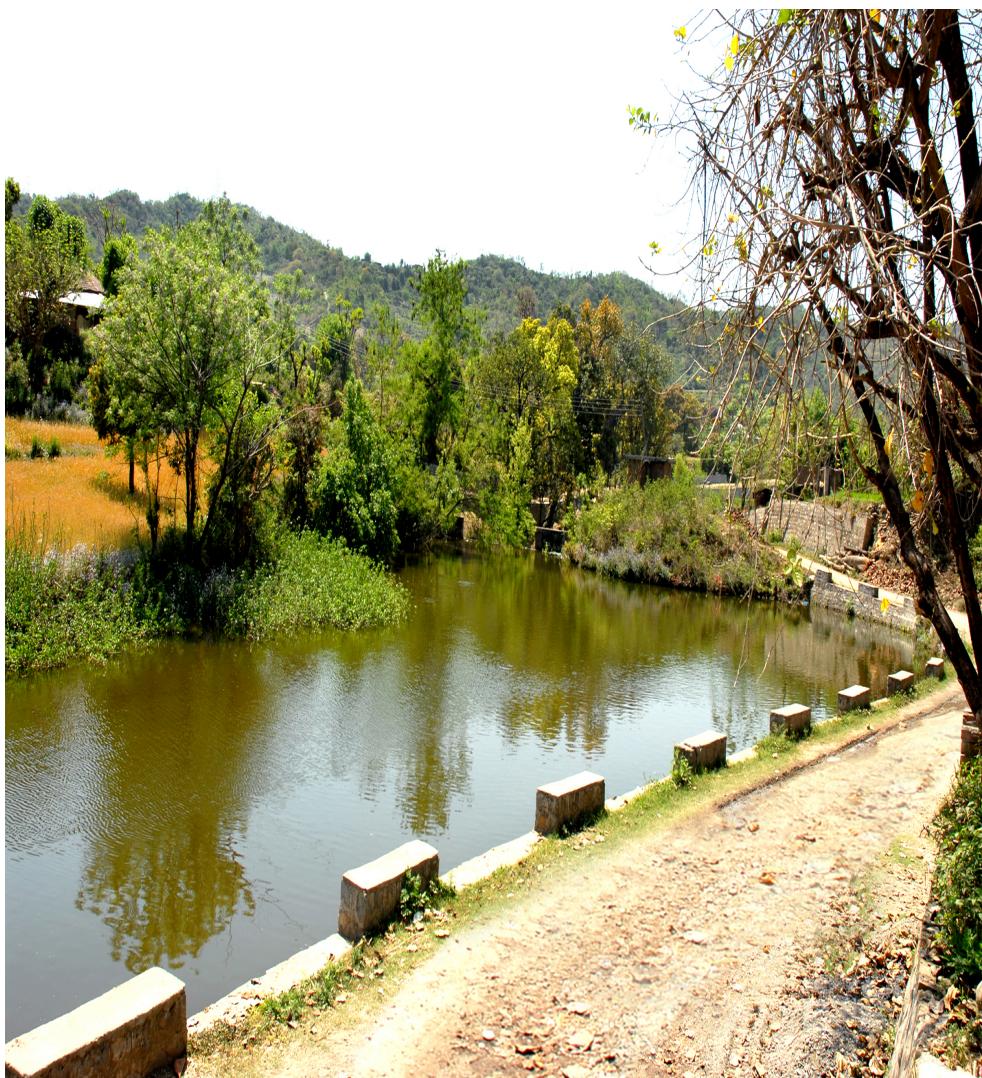
Centrally Sponsored Schemes

1. Macro-Management Work Plan for Soil Conservation

This scheme is mainly implemented in the Kandi area of the state in which there is a sharing of GOI & State Govt. on 90:10 basis. Following 2 sub-Schemes are being implemented under this program.

(a) National Watershed Development programme for rainfed area (NWDPRA)

The Kandi area of the state covers 10% of the geographical area and battles with problems like High Runoff, Flash floods, Soil Erosion, minimum yield levels, deeper aquifers, small land holdings etc. For 11th Plan period, a Strategic Plan of 36.00 Crores is being implemented in 26 watersheds falling in the districts of Mohali, Ropar, Nawansaher, Hoshiarpur, Gurdaspur and Pathankot districts. This programme is implemented by the village level Watershed Committees involving the beneficiaries and has played a major role in improving the socio-economic condition of the villagers in kandi area. . During 2012-13 only Rs.2.55 lacs were utilized under this scheme.



Photograph: Lift Irrigation Project, under NWDPRA

(b) **Treatment of Catchment of Flood Prone River (FPR)- Ghaggar**

Under the programme, Soil Conservation works are done in the catchment area of river Ghaggar falling in Punjab state to check Soil erosion in the sensitive identified watersheds of very high & high priority. This scheme is being implemented only in Mohali district. . During 2012-13 no funds were utilized under this scheme and progress was nil.



Photograph: Safe water disposal structure in fields under FPR-Ghaggar

(2) **Centrally Sponsored Scheme for Micro Irrigation**

Under this scheme, 50% subsidy is given to the farmers on Drip/ Micro sprinkler & Sprinkler irrigation systems for Horticulture as well as Non-horticulture crops.10% ect. Subsidy has been allowed by GOI for small and marginal farmers from 2011-12. The subsidy is provided by the GOI & State Govt. in 80:20 ratio. During 2012-13 Rs. 1207.07lacs(GOI Rs. 745.91lac+State Rs. 461.16 lac) were utilized for providing assistance on an area of 2790 hectares in all districts of the state.



Photograph: Drip Irrigation System

(3) Scheme for Special problematic & degraded soils under Technology Development, Extension and Training (TDET)

Under the GOI TDET programme for treatment of special problematic areas on Project basis, 60% funds are provided by GOI and the balance 40% by Beneficiaries. This Project is ongoing in Gurdaspur district. During 2012-13 no any funds were released by GOI under this Scheme.



Photograph: Reclamation of Ravine area under TDET

State Plan Schemes

(4) Project for Promotion of Micro Irrigation in Punjab (RIDF-XIII)

An RIDF (NABARD) Project, of 3 years duration for Promotion of Micro Irrigation (Drip & Sprinkler) in Punjab is being implemented since 2007-08. Under the Project, the Beneficiaries are given additional 25% subsidy on Micro Irrigation (Drip & Sprinklers), over & above the 50% subsidy under ongoing GOI Micro Irrigation Scheme. Apart from this, 50% subsidy to a ceiling of Rs. 1.00 lakh on Water Storage Tanks is also provided in Canal Command areas. During 2012-13, this project was completed by utilizing balance Rs.76.50 lac.



Photograph: Mini Sprinkler Irrigation System

(5) Project for Promotion of Micro Irrigation in Punjab (RIDF-XVI)

A new RIDF (NABARD) Project, of 3 years (2010-11 to 2012-13) duration for Promotion of Micro Irrigation (Drip & Sprinkler) in Punjab was sanctioned during 2011-12. Under the Project, the Beneficiaries are given additional 25% subsidy on Micro Irrigation (Drip & Sprinklers), over & above the 50% subsidy under ongoing GOI Micro Irrigation Scheme. Apart from this, 50% subsidy to a ceiling of Rs. 1.00 lakh on Water Storage Tanks is also provided in a few Districts. During 2012-13 Rs 1681.75 Lac were utilized under this Scheme.

(6) Soil & Water Conservation on watershed basis in Kandi Non-project Area

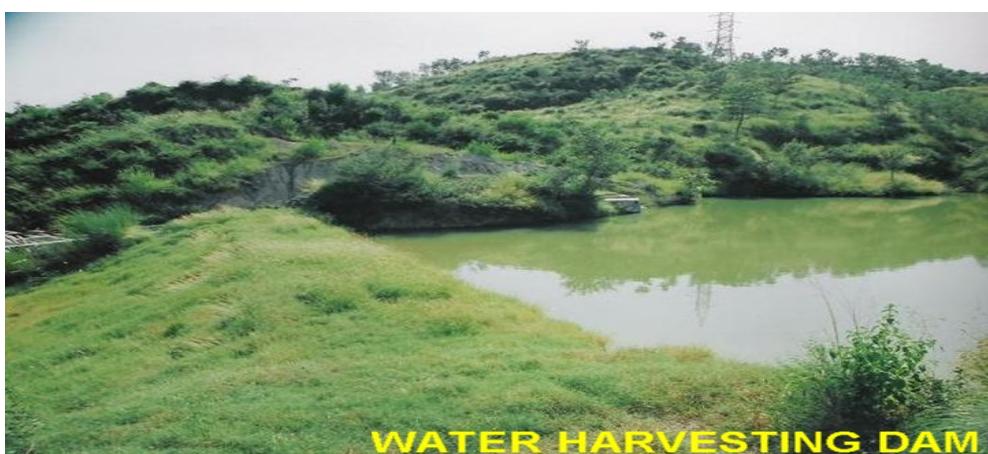
This scheme is being implemented in those areas of kandi zone where the GOI watershed development project is not implemented. The major interventions include Water harvesting Structures, Micro-lift irrigation schemes with the objectives of soil & water conservation, erosion control and livelihood support. During 2012-13 funds were not sanctioned under this Scheme.



Photograph: Diversion Drain for Soil erosion Control

(7) Scheme for Rainwater harvesting in the state

Punjab receives a good rainfall but in the absence of adequate rainwater harvesting structures, most of it goes waste as runoff, especially in northern belt. Construction of Rainwater Harvesting structures, Perennial Flow Harvesting structures etc. help not only in harvesting of rainwater to be used for irrigation but also in ground water recharge. These structures are handed over to the local User Groups who in turn utilize the harvested water for irrigation in lean season. Since 2008-09, a separate scheme has been proposed for Rainwater Harvesting in the state. During 2012-13 funds were not sanctioned under this Scheme.



WATER HARVESTING DAM

Photograph: Water Harvesting Structure

(8) Provision for Machinery Division at Head Quarter

The Department has a Machinery Division at Mohali having 5 Bulldozers, 1 Excavator-cum-loader, 5 Tractors, 1 Trencher and 6 Laser Levelers which are not only used for departmental works but are also provided to the farmers on hire basis at rates lower than the market. During 2011-12, Rs. 17.39 Lac was utilized on developing about 3000 hectares. In addition to it, Rs.32.50 Lac was earned as revenue and deposited in the State Revenue head.



Photograph: A Laser Leveler of Machinery division

(9) Scheme for assistance on UGPS for promotion of on-farm water conservation.

This is new scheme. 50% subsidy is proposed to be provided to farmers on laying of underground pipe line system (UGPS) from individual tube wells and canal outlets. This is Additional Central Assistance (ACA) scheme with 70% grant and 30% loan. During 2012-13, Rs 876.61Lac was utilized benefiting 3380 Hect.



Photograph: A UGPS in operation on farmer's fields

(10) Scheme for Strengthening of State Land use Board.

The main objective of the scheme is to create awareness among farmers and other land user for optimum use of soil & water resources through Awareness Campaigns, Seminars, Publications, and Studies etc. During 2012-13, Rs.3.99 lac was utilized under this Scheme.

(11) Project for judicious use of available water and harvesting of rain water for enhancing irrigation potential in Punjab state (NABARD-RIDF-17)

A new 3-year "Project for Judicious use of available water and Harvesting of rainwater for enhancing irrigation potential in Punjab state" has been approved by NABARD during 2011-12 under RIDF-17 for 90% assistance for Community Underground Pipeline System (UGPS) Projects in 10 districts and 100% assistance on Rainwater Harvesting Structures in Kandi area. During 2012-13, Rs 2342.53Lac was utilized benefiting 11293 Hect.

(12) Community Micro Irrigation Project in Kandi-belt of Talwara and Hajipur blocks of District Hoshiarpur (NABARD-RIDF-18)

This is a new plan Scheme During 2012-13, under NABARD approved project, there is a proposal to cover 658 Hect. of 14th Villages of Hajipur and Talwara blocks falling in Kandi area of Hoshiarpur District. At

present, Irrigation water is not available in this area. Under this project the water from nearby kandi canal is to be lifted and carried to farmer's fields through underground pipeline systems and is to be utilized by automation micro irrigation system for agriculture. No expenditure is made under this scheme during 2012-13.

(13) Project for laying of Underground Pipeline for irrigation from Sewage Treatment Plants of various Towns/ Cities (NABARD-RIDF-18)

A new 3-year (01-04-2012 to 31-03-2015) "Project for laying of Underground Pipeline for irrigation from Sewage Treatment Plants of various Towns/ Cities (NABARD-RIDF-18)" of Rs. 3157.80 Lac is approved by NABARD under which 95% is loan from NABARD to State Govt. & 5% is State Share. Under this project, treated water from completed/ running sewage treatment plants will be provided to nearby fields of the farmers. Under this Scheme there is a proposal to cover 33 cities/ towns falling 14 Districts. During 2012-13 no funds was release under this project

OTHER SCHEMES

Rashtrya Krishi Vikas Yojna (RKVY)

This is scheme of Agriculture Department. The objective of the scheme is to enhance agricultural production in rainfed area by efficient use of surface and sub-surface water. This scheme is implemented allmost in all Districts especially in south-western districts. The main activities under the scheme are conservation of irrigation water through laying of community under ground pipeline system & reclamation of degraded soil. Under this scheme for community under ground pipeline system GOI assistance is 90% and balance 10% is borne by the farmers in cash//labour form For reclamation of degraded soil GOI assistance is 100%. During 2011-12, Rs. 2924.20 lacs were utilized under this scheme benefiting 11570 hectares.



Photograph: A Community UGPS Canal Lift Project

Integrated Wasteland Development Project (IWDP/IWMP)

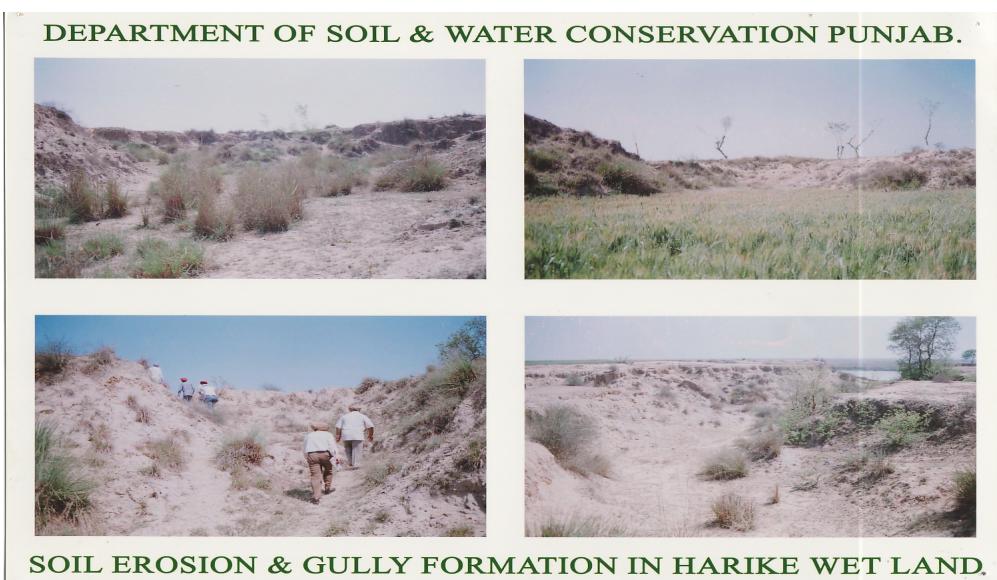
This scheme is implemented on District level funded by Rural Development Department. Under this programme, schemes for Soil & Water Conservation works in special problematic areas of different districts are proposed to GOI through the respective Deputy Commissioners & implemented in the field. The field Officers of this Department are the Project implementing Agencies (PIAs) for these Projects. Rs 722.94 lacs were utilized under this scheme benefiting 11477 hectares during 2012-13.



Photograph: Bouli under Entry Point Activity under IWDP

Scheme for Improvement of Wet Land

To control the soil erosion, water harvesting & other land development works are executed in Ropar and Nangal wet land and Harike wet land of Tarntaran district. Funds are provided by Punjab State council for Science & Technology (PSCST). Rs.67.23 lacs were utilized by benefiting 460 hectares during 2012-13.



Photograph: Conservation of Wetland

Scheme for utilizing treated Sullage Water of city /towns for Irrigation

To improve environment and to control pollution, Individual projects for using treated sullage water of city/towns for irrigation are formulated and implemented. Funds are provided by other Departments and agencies like Punjab State council for Science & Technology (PSCST) & Local Bodies Department. Rs. 258.82 lacs were utilized on laying under ground pipe line from STP Anandpur Sahib and Nangal project benefiting 2105 hect.during 2012-13.

Under GOI National River Cleaning Programme (NRCP), the Department has submitted the projects of laying of UGPL for irrigation from STPs for 35 towns/cities of Punjab draining in to river Sutlej, Beas, Ghaggar and Sirhind Canal etc. to Punjab Pollution Control Board. Work has been started on 2 projects during financial year 2012-13.



Photograph: Utilizing Industrial Treated Effluent for Irrigation

Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)

This Central Government scheme is implemented on district level for which Funds are provided by concerned Deputy Commissioner. During 2012-13, it is being implemented in Nawanshahar, Gurdaspur, Mohali & Hoshiarpur districts. The major works carried out under this scheme are renovation of ponds, repair of water harvesting structures, land protection works, Flood protection works, underground pipeline system & other soil moisture conservation activities. Rs.48.33 lacs were utilized benefiting 83 Hect. under this scheme during 2012-13.



Photograph: Land development works under MNREGS

MAJOR ACHIEVEMENTS DURING 2012-13

During the year under report a sum of Rs. 15192.11 lacs has been utilized on covering an area of 45025 hectares under various soil conservation and water management works. Rs. 4538.56 lacs were utilized under Non Plan, Rs.6208.39 lacs were utilized under State Plan and Centrally Sponsored Schemes. Rs.4445.16 lacs were utilized under other district level schemes i.e. Integrated Waste Land Development Projects (IWDP/IWMP), Reclamation of Ravenous & Wetland,13th Finance commission, MNREGS & Rashtriya Krishi Vikas Yojna (RKVY).

Under Water management works, laying of underground pipe line was carried out to a length of 702.627 kms benefiting an area of 20862 hectares owned by 19789 farmers of 852 villages. 2790 hectares were covered under Micro Irrigation Scheme benefiting 2707 farmers of 1999 villages. 2523 hectares were covered under water harvesting structures, tapping of perennial flow and small lift irrigation projects benefiting 3116 farmers of 62 villages. 9259 hect. were covered under Water management works benefiting 4757 farmers of 179 villages. 9591 hectares were covered under land leveling and wasteland development works benefiting 6383 farmers of 1161 villages . Thus, total 45025 hectares area was covered under various Soil Conservation and water management works in 4253 villages benefiting 36752 farmers.

In addition to it, an area of 1,14,200 hectares in different districts of state was covered under detailed and semi-detailed survey.

A fleet of 5 bulldozers, 1 excavator-cum-loader, 5 tractors, 1 trencher & 6 laser leveler were engaged in land development works for 2294 hours during the year 2012-13. During 2012-13, Rs.17.39 lac was utilized under the scheme "SWC-6 Machinery Division at Head Quarter" Machinery division earned Rs. 32.50 lacs from different soil conservation works which were deposited in the treasury. About 3000 hectares area was covered under land development works.

There is Training Institute at Mohali to impart training to farmers and Technical staff upto the level of Soil Conservation Officers. The courses cover all the practical aspects of Soil & Water Conservation works such as land leveling, Construction of open channels, laying of Underground pipe line, contour bounding, bench terracing,gully reclamation, water harvesting dams, Field drainage etc and also give lessons of practice in preparation of plan & estimates etc. 150 officers/officials and 82 farmers were trained under different courses at various GOI training institutes and the Departmental Institute at Mohali.

Benefits

The likely direct and indirect benefits from different Soil & Water Conservation Works are as under:-

- ✓ Assured/ Life-saving irrigation,
- ✓ Increase in yield / production
- ✓ Conservation of irrigation water.
- ✓ Increase in Land value.
- ✓ Farm land saving.
- ✓ Power Saving.
- ✓ Rain Water storage.
- ✓ Ground water recharge.
- ✓ Control of salt-accumulation and Erosion Control;
- ✓ Saving of Labor;
- ✓ Improvement of physical condition & structure of soil;
- ✓ Seasonal as well as permanent Water-logged area shall be reclaimed
- ✓ Ravinous and marshy land along the rivers shall be reclaimed
- ✓ Productive land having hard impervious pan shall be improved.
- ✓ Help in diversification to vegetable & horticulture crops.
- ✓ Training of Technical Officers/ Officials and Progressive farmers;
- ✓ Extension & Awareness generation among farmers & rural masses;
- ✓ Promotion & development of innovative field technologies through field demonstrations;
- ✓ Farm Production system shall be strengthened by assisting small/ marginal farmers.
- ✓ Livelihood of the landless families shall be improved through various income generating activities.
- ✓ Socio-economic upliftment of small/ marginal farmers and the landless;
- ✓ Environment shall be rehabilitated.

CHAPTER-III

WATER MANAGEMENT WORKS

The prosperity of the State depends upon the development of Agriculture through extension of irrigation facilities. At present 70% area is affected by depleting water table and water level is declining @50cm. Out of 141 Blocks 110 Blocks have been declared Dark Blocks due to extraction of more water than recharging. About 25% of irrigation water is lost in conveyance channels through seepage and evaporation. In addition, this seepage has created problem of water logging in many areas. This loss can be eliminated and water thus saved can be utilized for more irrigation facilities. In order to ensure the coverage of maximum area with available water, installation of underground Pipeline system (UGPS), Micro Irrigation (Drip & Sprinkler) along with proper land grading are necessary.

During 2012-13 an area of 26175 hectares was covered under water management works by benefiting 25612 farmers of 2913 villages of the state. During the year under report, laying of underground pipe line was carried out to a length of 702.627 kms benefiting an area of 20862 hectares owned by 19789 farmers of 852 villages of the State. On individual UGPS projects 50% and on community UGPS projects 90% subsidy is provided. In addition, 2790 hectares was covered under Micro Irrigation (Drip & Sprinkler) benefiting 2707 farmers of 1999 villages. 2523 hectares were brought under additional irrigation by constructing/renovating water harvesting structures, tapping of perennial flow and small lift irrigation projects by benefiting 3116 farmers of 62 villages

District wise progress of water management works is given in the following tables :-

Table 3.1 : District wise area covered under water management works in Punjab State up to 2012-13

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	(Area in hectares) Total upto 2012-13
1	Ropar	25059	0	2139	25059
2	Mohali	127	0	109	127
3	Nawanshahar	7339	78	438	7417
4	Patiala	33125	941	1004	34066
5	Fatehgarh Sahib	3269	0	215	3269
6	Hoshiarpur	39275	50	812	39325
7	Sangrur	32490	6471	4504	38961
8	Barnala	1099	542	1375	1641
9	Gurdaspur	22147	1518	243	23665
10	Pathankot	0	137	366	137
11	Jalandhar	32327	0	227	32327
12	Kapurthala	12947	12	226	12959
13	Amritsar	25906	0	158	25906
14	Taran Taran	1956	100	175	2056
15	Ludhiana	30338	7	290	30345
16	Ferozepur	42823	176	249	42999
17	Fazilka	0	330	895	330
18	Faridkot	97169	276	993	97445
19	Moga	4969	1041	1008	6010
20	Mukatsar	15723	2914	3295	18637
21	Bathinda	60964	160	389	61124
22	Mansa	7895	672	1752	8567
	Total	496947	15425	20862	512372

Table 3.2: District wise progress of underground pipe line laid in the Punjab State upto 2012-13

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	(Length in meters)
1	Ropar	1084988	26175	26724	1137887
2	Mohali	9350	1320	13319	23989
3	Nawanshahar	347567	0	28700	376267
4	Patiala	1670741	32416	47937	1751094
5	Fatehgarh Sahib	239093	0	14183	253276
6	Hoshiarpur	1816513	14489	46320	1877322
7	Sangrur	1279480	86841	96510	1462831
8	Barnala	53301	2570	29740	85611
9	Gurdaspur	995675	0	6330	1002005
10	Pathankot	0	0	5300	5300
11	Jalandhar	1629486	0	4780	1634266
12	Kapurthala	575815	1200	5080	582095
13	Amritsar	1280821	0	3000	1283821
14	Taran Taran	124940	0	2140	127080
15	Ludhiana	1597052	0	28510	1625562
16	Ferozepur	1218772	0	16699	1235471
17	Fazilka	0	0	76434	76434
18	Faridkot	459016	8035	24030	491081
19	Moga	254022	10814	28472	293308
20	Mukatsar	701826	179975	166456	1048257
21	Bathinda	632780	0	15808	648588
22	Mansa	601069	124400	16155	741624
	Total	16572307	488235	702627	17763169

Table 3.3 : District wise progress under Micro Irrigation (Drip and Sprinkler) Scheme on agriculture land upto 2012-13

(Area In hectares.)

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	Total upto 2012-13
1	Ropar	891	156	89	1136
2	Mohali	432	160	107	699
3	Nawanshahar	442	91	38	571
4	Patiala	1205	271	222	1698
5	Fatehgarh Sahib	365	108	46	519
6	Hoshiarpur	2947	442	238	3627
7	Sangrur	631	210	164	1005
8	Barnala	260	125	56	441
9	Gurdaspur	1758	435	144	2337
10	Pathankot	0	71	96	167
11	Jalandhar	1183	402	219	1804
12	Kapurthala	481	84	63	628
13	Amritsar	842	300	149	1291
14	Taran Taran	550	137	157	844
15	Ludhiana	833	297	163	1293
16	Ferozepur	4735	199	60	4994
17	Fazilka	0	455	249	704
18	Faridkot	729	246	44	1019
19	Moga	397	108	52	557
20	Mukatsar	1087	24	40	1151
21	Bathinda	1498	388	212	2098
22	Mansa	623	200	182	1005
	Total	21889	4909	2790	29588

Table 3.4: District wise Area covered, villages covered and cultivators benefited under Micro Irrigation (Drip & Sprinkler) scheme during 2012-13.

Sr. No.	District	Area covered (Hectares.)	Cultivators benefited (Nos.)	Villages covered (Nos.)
1	Ropar	89	71	60
2	Mohali	107	97	90
3	Nawanshahar	38	36	32
4	Patiala	222	262	186
5	Fatehgarh Sahib	46	58	47
6	Hoshiarpur	238	192	188
7	Sangrur	164	163	98
8	Barnala	56	55	90
9	Gurdaspur	144	136	100
10	Pathankot	96	95	76
11	Jalandhar	219	207	207
12	Kapurthala	63	59	52
13	Amritsar	149	149	147
14	Taran Taran	157	159	157
15	Ludhiana	163	157	121
16	Ferozepur	60	66	15
17	Fazilka	249	158	40
18	Faridkot	44	39	27
19	Moga	52	50	22
20	Mukatsar	40	39	24
21	Bathinda	212	266	181
22	Mansa	182	193	39
	Total	2790	2707	1999

Table 3.5: District wise progress of Water Harvesting/Makowal type/Lift Irrigation works up to 2012-13

(Area in Hectares).

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	Total upto 2012-13
1	Ropar	7999	90	1191	9280
2	Mohali	1382	235	100	1717
3	Nawanshahar	371	180		551
4	Patiala	173	0		173
5	Fatehgarh Sahib	0	0		0
6	Hoshiarpur	9054	300	944	10298
7	Sangrur	0	0		0
8	Barnala	0	0		0
9	Gurdaspur	6443	0		6443
10	Pathankot	0	225	288	513
11	Jalandhar	0	0		0
12	Kapurthala	0	0		0
13	Amritsar	0	0		0
14	Taran Taran	0	0		0
15	Ludhiana	0	0		0
16	Ferozepur	0	0		0
17	Fazilka	0	0		0
18	Faridkot	0	0		0
19	Moga	0	0		0
20	Mukatsar	0	0		0
21	Bathinda	0	0		0
22	Mansa	0	0		0
	Total	25422	1030	2523	28975

Table 3.6 : District wise villages covered and cultivators benefited by Water management works during 2012-13

(in numbers).

Sr. No.	District	Water Management		Water Harvesting/Perennial flow/lift Irrigation	
		Cultivators benefited	Villages covered	Cultivators benefited	Villages covered
1	Ropar	1317	32	835	17
2	Mohali	85	21	29	1
3	Nawanshahar	650	147		
4	Patiala	1157	82		
5	Fatehgarh Sahib	65	45		
6	Hoshiarpur	2348	90	989	38
7	Sangrur	1997	97		
8	Barnala	491	52		
9	Gurdaspur	4349	27		
10	Pathankot	301	22	1263	6
11	Jalandhar	18	13		
12	Kapurthala	15	15		
13	Amritsar	5	5		
14	Taran Taran	110	6		
15	Ludhiana	107	63		
16	Ferozepur	124	10		
17	Fazilka	635	20		
18	Faridkot	279	10		
19	Moga	264	10		
20	Mukatsar	2793	58		
21	Bathinda	1398	14		
22	Mansa	1281	13		
	Total	19789	852	3116	62

CHAPTER-IV

LAND DEVELOPMENT WORKS

Soil and water are two natural resources. Agricultural production depends upon the optimum utilization of these two resources. The top soil, (usually of 7" to 8" thickness) is the principal feeding zone for the growth of most agricultural crops. The loss of this valuable top soil by water and wind results in deterioration in the quality of land which if allowed, ultimately results in its turning out of cultivation completely. It can be replenished only with the appropriate soil conservation measures and can be improved further by suitable follow up practices.

The Punjab State in its northern region comprising of mountainous area is blessed with a good rainfall, but due to sloppy and undulating topography of land, there is a large scale soil erosion problem. To check this erosion, control measures are required to be taken in order to obtain sustained higher level of production. The area which suffers from soil erosion lies mostly in the district of Hoshiarpur, Gurdaspur, Pathankot, Ropar, Mohali and Nawanshahr districts. In order to protect this land against erosion and for making it more productive, soil conservation works such as gully reclamation and land development are being carried out.

Under watershed management works 9259 hectares were covered benefiting 4757 cultivators of 179 villages and under land development works 9591 hectares were covered benefiting 6383 cultivators of 1161 villages.

District-wise progress of the soil erosion control works executed by the department in the Punjab state during 2012-13 has been given in the following tables:-

TABLE 4.1 - District wise progress of soil erosion control and watershed management works on agricultural land upto 2012-13

(Area in hectares).

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	Total upto 2012-13
1	Ropar	22882	0	178	23060
2	Mohali	5662	100	0	5762
3	Nawanshahar	2194	200	3	2397
4	Patiala	4060	0	0	4060
5	Fatehgarh Sahib	0	0	0	0
6	Hoshiarpur	43544	700	8888	53132
7	Sangrur	0	0	0	0
8	Barnala	0	0	0	0
9	Gurdaspur	1045	0	0	1045
10	Pathankot	12084	500	190	12774
11	Jalandhar	97	0	0	97
12	Kapurthala	191	0	0	191
13	Amritsar	2	0	0	2
14	Taran Taran	0	0	0	0
15	Ludhiana	0	0	0	0
16	Ferozepur	0	0	0	0
17	Fazilka	0	0	0	0
18	Faridkot	0	0	0	0
19	Moga	0	0	0	0
20	Mukatsar	0	0	0	0
21	Bathinda	0	0	0	0
22	Mansa	0	0	0	0
	Total	91761	1500	9259	102520

TABLE 4.2: District wise progress of Land leveling/Ravine reclamation/Wasteland Development works done upto 2012-13

(Area in Hectares)

Sr. No.	District	Upto 2010-11	During 2011-12	During 2012-13	Total upto 2012-13
1	Ropar	8956	3054	360	12370
2	Mohali	2443	1056	6569	10068
3	Nawanshahar	6519	705	2359	9583
4	Patiala	5780	0	0	5780
5	Fatehgarh Sahib	6	0	0	6
6	Hoshiarpur	16273	4398	0	20671
7	Sangrur	5212	0	169	5381
8	Barnala	0	0	0	0
9	Gurdaspur	20047	915	0	20962
10	Pathankot	0	2810	34	2844
11	Jalandhar	5792	0	0	5792
12	Kapurthala	6635	220	0	6855
13	Amritsar	13000	97	0	13097
14	Taran Taran	1010	12	100	1122
15	Ludhiana	6592	0	0	6592
16	Ferozepur	25550	290	0	25840
17	Fazilka	0	190	0	190
18	Faridkot	13253	470	0	13723
19	Moga	137	0	0	137
20	Mukatsar	1344	0	0	1344
21	Bathinda	7868	0	0	7868
22	Mansa	295	0	0	295
	Total	146712	14217	9591	170520

Table 4.3 : District wise villages covered and cultivators benefited from the land development and watershed management works during 2012-13

(in numbers).

Sr. No.	District	Land Development		Watershed Management	
		Cultivators benefited	Villages covered	Cultivators benefited	Villages covered
1	Ropar	360	12	50	1
2	Mohali	2630	1053	0	0
3	Nawanshahar	2855	65	0	0
4	Patiala	0			
5	Fatehgarh Sahib	0			
6	Hoshiarpur	0	0	4565	160
7	Sangrur	186	4	0	0
8	Barnala	0			
9	Gurdaspur	0	0		
10	Pathankot	252	22	142	18
11	Jalandhar	0			
12	Kapurthala	0			
13	Amritsar	0			
14	Taran Taran	100	5		
15	Ludhiana	0			
16	Ferozepur	0			
17	Fazilka	0			
18	Faridkot	0			
19	Moga	0			
20	Mukatsar	0			
21	Bathinda	0			
22	Mansa	0			
	Total	6383	1161	4757	179

CHAPTER-V

TRAINING OF STAFF

In order to improve the technical skill and efficiency of the field staff, the personnel of Soil and Water Conservation Department, Punjab are sent for training at the various Training Centers of Government of India and also to the State Government Training Institute, Mohali. The State Government training institute was established in the year 1965 at Hoshiarpur and upgraded to Divisional level in 1975. It was shifted to Mohali during the year 1995-96. The official staff i.e. Clerks, Assistants, Draftsmen, Surveyors, Agricultural Sub Inspectors etc. and farmers are trained at the State Training Institute at Mohali while the gazetted officers, Soil Conservation Officers and Junior Engineers get training at the Govt. of India's training centers. Surveyors and Sub Inspectors are imparted 5½ months training and the course covers all practical aspects of Soil and Water Conservation works such as land leveling, construction of open channels, underground pipe line, contour bunding, bench terracing, gully reclamation, water harvesting dams, Field drainage etc. and are also given practice in the preparation of plan and estimates.

During the year 2012-13, total 150 officers/officials and 82 farmers were trained under different courses at GOI training institutes and departmental training institute, Mohali. 4 officers got training at Bangalore regarding vigilance matters. 31 officers got training at Hyderabad regarding IWMP. 6 officers got training at Chandigarh regarding Planning & designing of engineering structures under Watershed management. 31 officers got training at Hyderabad regarding IWMP. 3 officers got training regarding MNREGS at Jaipur. 51 officers got training on various subjects at Mahatma Gandhi training institute Chandigarh. 1 officer got 5½ training from Dehradun. 26 officers got training from PAU Ludhiana on ATMA & Natural Resource Management Subject etc. 9 Officers got training from Departmental training institute Mohali under refresher course regarding On Farm Water Conservation.

9 No. surveyor/ agriculture sub-inspectors were trained under 5^{1/2} Months departmental regular course at departmental training Institute Mohali & 10 surveyor/ agriculture sub-inspectors were trained under 5^{1/2} Months regular sub-assistant course. 82 farmers of Gurdaspur, Nawansher & Amritsar districts were trained under IWMP Scheme.



Photograph: Group Photograph of Trainees with Departmental officers

CHAPTER-VI

SOIL SURVEY

Different kinds of soil according to their physical and chemical properties need different levels of soil and water management practices and different level of inputs for optimum agriculture production. Soil Survey are thus crucial to suggest proper and optimum use of land according to its capability and also for formulation of suitable cropping pattern, proper soil and water management, land development, land reclamation and other management practices.

The purpose of the scheme is to carry out land use survey in the State. The Soil Survey is carried out, problems are investigated and solutions are suggested. The fertility status of the soil is evaluated so that every piece of land is put to the use for which it is best suited in order to get maximum production. In this context, the emphasis is laid on the detailed soil survey of problematic and command area. Soil survey is carried out using village cadastral maps, Toposheets, Aerial Photographs and Land set Imagery as base map to delineate soil boundaries of uniform groups having the same characteristics for similar management practices to work efficiently and profitably.

During the year 2012-13, an area of 1,14,200 hectares was surveyed for planning of different Soil & water Conservation Schemes of the Department. For preparing various Departmental Schemes, Semi detailed survey of 25,7,57 Hect. in block Amloh of Fathegarh Sahib district, 20,2,02 Hect in Block Khera ,30,4,88 hect in block Sirhind, 19663 hect in block Khamanu, 18090 hect in block Dera Basi was carried out for knowing micro nutrient/ fertility status and sampling. In these Villages, recommendation was made for suitable soil Conservation works to increase the yield in Agriculture sector.



Photograph: Departmental officers/ officials engaged in Soil Survey

CHAPTER-VII

FINANCES OF DEPARTMENT

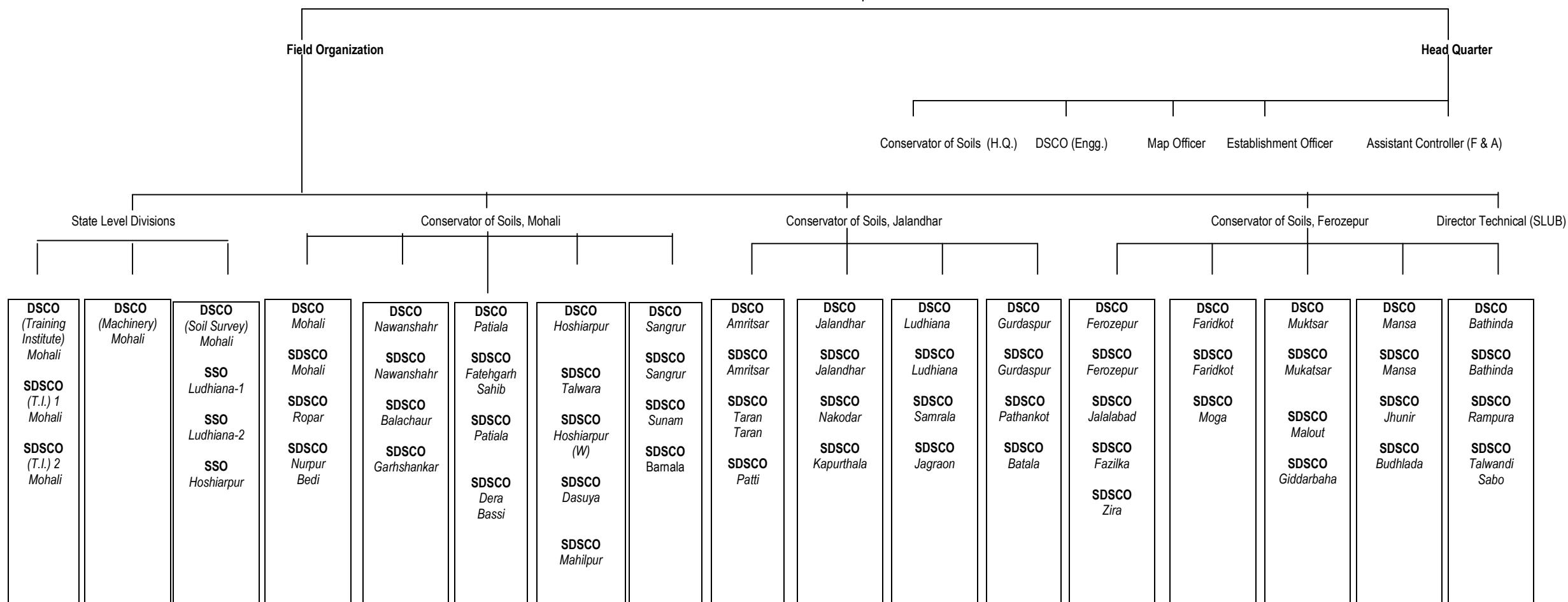
Soil Conservation and Water Management works in the State are mostly funded out of the State Budget and GOI schemes. Funds under non-plan schemes are sanctioned for salary & staff contingent needs and Funds under State plan & centrally sponsored schemes are sanctioned for works. In addition to it, some funds are raised and utilized from other Agencies/ Departments like line Departments, District Rural Development Agencies, Science and technology department and Deputy Commissioner funds etc.

Comparative figures of expenditure incurred in respect of Non-plan, State plan, centrally sponsored schemes and other district level schemes for the last three years are as under:-

(Amount in Rupees)				
S. No.	Item	2010-11	2011-12	2012-13
A.	Non plan	383357457	459427740	453856146
B.	Plan			
	i) State plan	147904000	40296000	546023000
	ii) Centrally Sponsored	175089000	159783000	74816000
	Total plan (i + ii)	322993000	200079000	620839000
C.	Total (A+B)	706350457	65906740	1074695146
D.	<u>Other Department's Schems.</u> Rural Development Board's, Science and Technology Department, District Rural Development Agencies/DC funds Rashtrya Krishi Vikas Yojna (RKVY) & 12 th Finance Commission etc.	280208000	635428000	439221000
	Grand Total(C+D)	986558457	1294934740	1519211146

DEPARTMENT's ORGANIZATION STRUCTURE

CHIEF CONSERVATOR OF SOILS, PUNJAB.



DSCO- Divisional Soil Conservation Officer
SDSCO- Sub-divisional Soil Conservation Officer
SSO- Soil Survey Officer
TI- Training Institute

ANNEXURE 'B'

Comparative progress statement of the Annual Administrative Reports for the year 2010-11,
2011-12 & 2012-13

Sr. No.	Item of work	Unit	2010-11	2011-12	2012-13
1	Water use works (UGPL, Water Harvesting structures, tapping of Perennial flow and small lift irrigation schemes.)	Hect.	7520	16455	23385
2	Underground pipe line	Mtr.	177293	488235	702627
3	Micro Irrigation (Drip & sprinkler)	Hect.	4925	4909	2790
4	Watershed Management Works	Hect.	5388	1500	9259
5	Land leveling/Ravine Reclamation/Waste Land Development.	Hect.	6161	14217	9591
6	Working of bulldozers/ Tractors.	Hours	9911	7259	2294
7	Soil Survey Works	Hect.	126000	109300	114200