



ਸਲਾਨਾ ਪ੍ਰਬੰਧਕੀ ਰਿਪੋਰਟ

ANNUAL ADMINISTRATIVE REPORT

ਸਾਲ 2011-12

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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 2011-12

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 cms. annually and has reached a stage where farmers have to deepen their tubewells 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 problem 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 12949.35 lacs were utilized by the Department during the year 2011-12. Rs.6595.07 lacs were utilized under the Non plan, State plan, and Centrally sponsored schemes, Rs. 6354.28 lacs were utilized under other District level schemes such as Integrated Watershed Management Projects (IWDP/IWMP), Reclamation of Ravenous areas & Wetlands, Punjab Nirman Programme, Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) & Rashtriya Krishi Vikas Yojna (RKVY) of the Department of the Agriculture. Total 37081 hectare area was covered under various land development and water management works in 3115 villages benefiting 81857 farmers.

Under Watershed management works, 1500 hectares area was covered in 37 villages owned by 3330 farmers. Under land leveling and waste land development works, 14217 hectares area was covered in 404 villages benefiting 60332 farmers. Under water management works 488.235 km under ground pipeline was laid benefiting 15425 hectares owned by 10425 farmers of 251 villages. 1030 Hectares were covered under Water Harvesting Structures, Tapping of perennial flow and Small Lift Irrigation projects benefiting 3293 farmers of 19 villages. 4909 hectares were covered under Drip Irrigation scheme benefiting 4477 farmers of 2404 villages. Thus, the total of 37081 hectares area was covered under Soil Conservation and Water Management works benefiting 81857 farmers of 3115 villages.

Soil survey of detailed and semi detailed nature was conducted in 109300 hectares during the year 2011-12.

CRITICAL REVIEW OF THE WORKING OF THE DEPARTMENT OF SOIL & WATER CONSERVATION, PUNJAB FOR THE YEAR 2011-12

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.

Taking into view the depleting ground water and the stress on canal water availability, especially in the 104 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 26798 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 2011-12, Rs. 1937.81 lac (it includes Rs. 337.81 lacs unutilized balance of previous year) were released by GOI as 80% share and State Government released Rs. 227.60 lac as 20% share. During 2011-12, Rs. 1461.86 lacs were utilized benefiting 4909 hectares area of 4477 farmers in 2404 villages

In addition to above assistance, State Government also sanctioned funds under NABARD-RIDF project under which 25% additional subsidy is provided on Drip/Micro Sprinkler Irrigation system. During 2011-12, Rs. 1068.35 lacs (84.02 under RIDF-XIII+ 984.33 under RIDF-XVI) were sanctioned under this project out of which only Rs. 7.52 Lac were released by the treasuries and utilized. In addition to it 50% subsidy was provided on 24 water storage tanks in south-western Districts during the year under report.

Another 100% Centrally Sponsored Scheme of pilot project for reclamation of ravines and gullied lands was sanctioned during the year 2011-12. Rs. 135.97 Lac was utilized by reclaiming 915 hec. in Gurdaspur Distt.

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 2011-12, GOI did not release any fund under this programme.

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 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 2011-12, Rs 1500.00 Lac was sanctioned under this scheme out of which only Rs. 5.44 lac was utilized benefiting 24 Hect. due to non passing of Bills by the treasuries.

**ANNUAL ADMINISTRATIVE REPORT ON THE WORKING OF THE
DEPARTMENT OF SOIL AND WATER CONSERVATION, PUNJAB FOR
THE YEAR 2011-12 (1/4/2011-31/3/2012)**

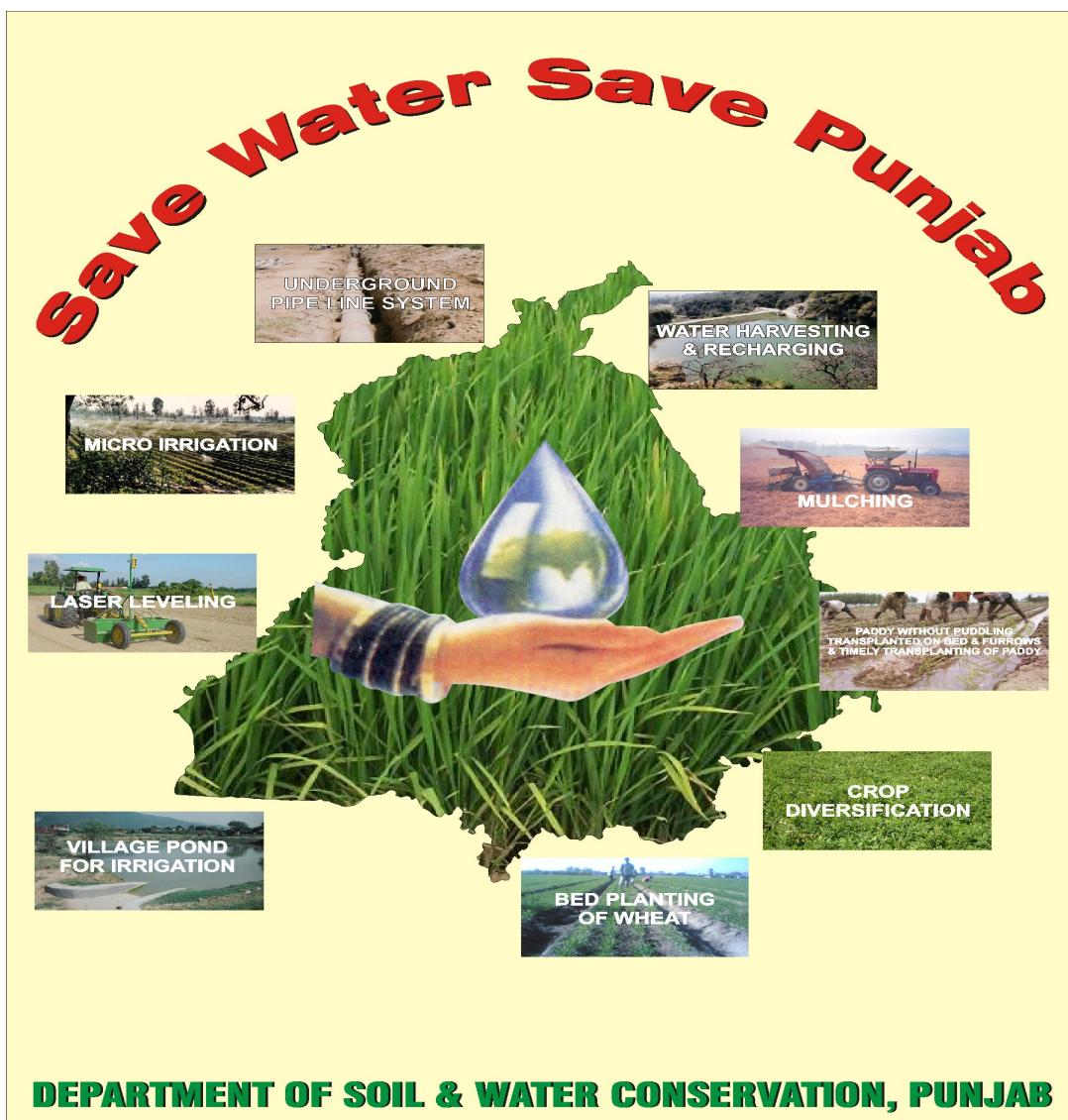
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CHAPTER 1

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. The name of the department was changed as "DEPARTMENT OF SOIL AND WATER CONSERVATION AND WASTE LAND DEVELOPMENT, PUNJAB" by the government in February 1993. During 2000 the name of the department was again changed as "DEPARTMENT OF SOIL AND WATER CONSERVATION, PUNJAB" This is the 43rd Annual Report on the working of this department. **Sh. Anil Kumar Sondhi** held the charge of Chief Conservator of Soils, Punjab during the year 2011-12.



The Annual Report highlights activities & achievements of the department during the year 2011-12 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 and Gurdaspur districts. Soil erosion due to flash floods and droughts are common features of this zone.



Photograph: Water Scarcity in Kandi area

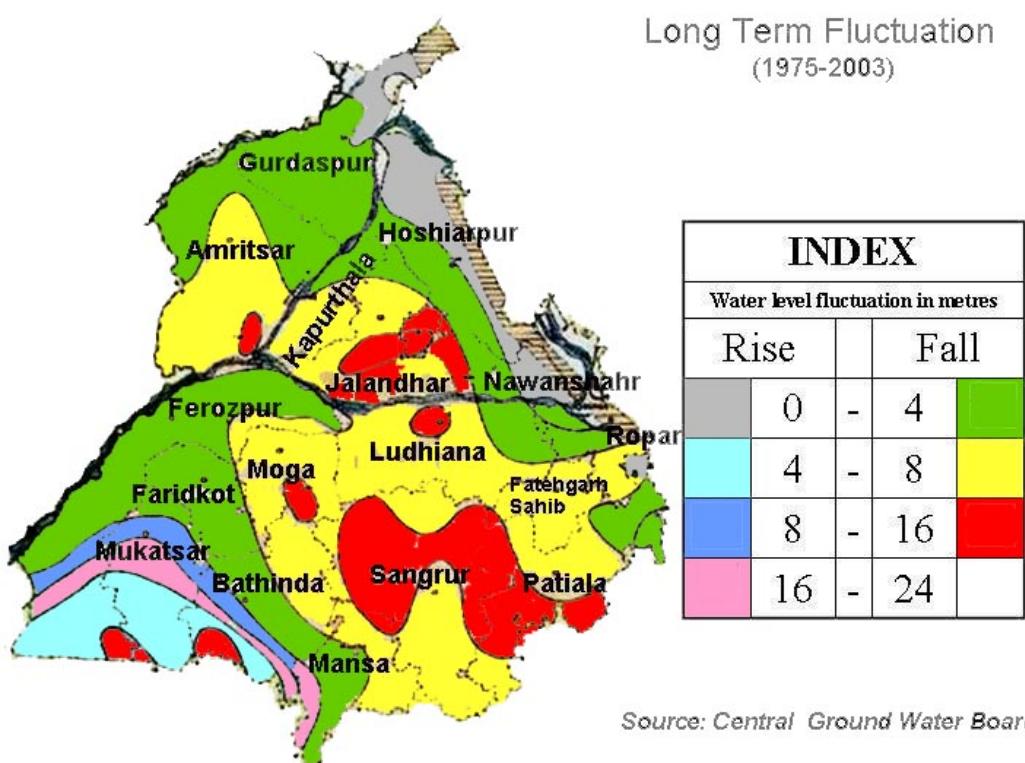
The following Soil and Water Conservation works are undertaken in this region:

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 and Amritsar 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. Reclamation of degraded land and Ravine reclamation works are being carried out in area affected by river Beas, Ravi, Sutlej and many other tributaries which join these rivers.
5. Budha Nullah and Kali Bein projects of utilizing treated sewage water for irrigation through under ground pipeline system.

3. SOUTHERN ZONE

This comprises Sangrur, Barnala, Bathinda, Mansa, Muktsar, 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
4. Reclamation of degraded and ecologically handicapped area.
5. Technical advice to individual farmers on U.G.P.S. .

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 7 bulldozers, 1 Excavator cum Loader, 8 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 and the income deposited in state treasury.



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 upto the level of Soil Conservation Officers. The courses cover all the practical aspects of Soil & Water Conservation works such as land leveling, bench terracing, contour bounding, gully reclamation, water harvesting dams and drainage etc and also give lessons of 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 2011-12 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

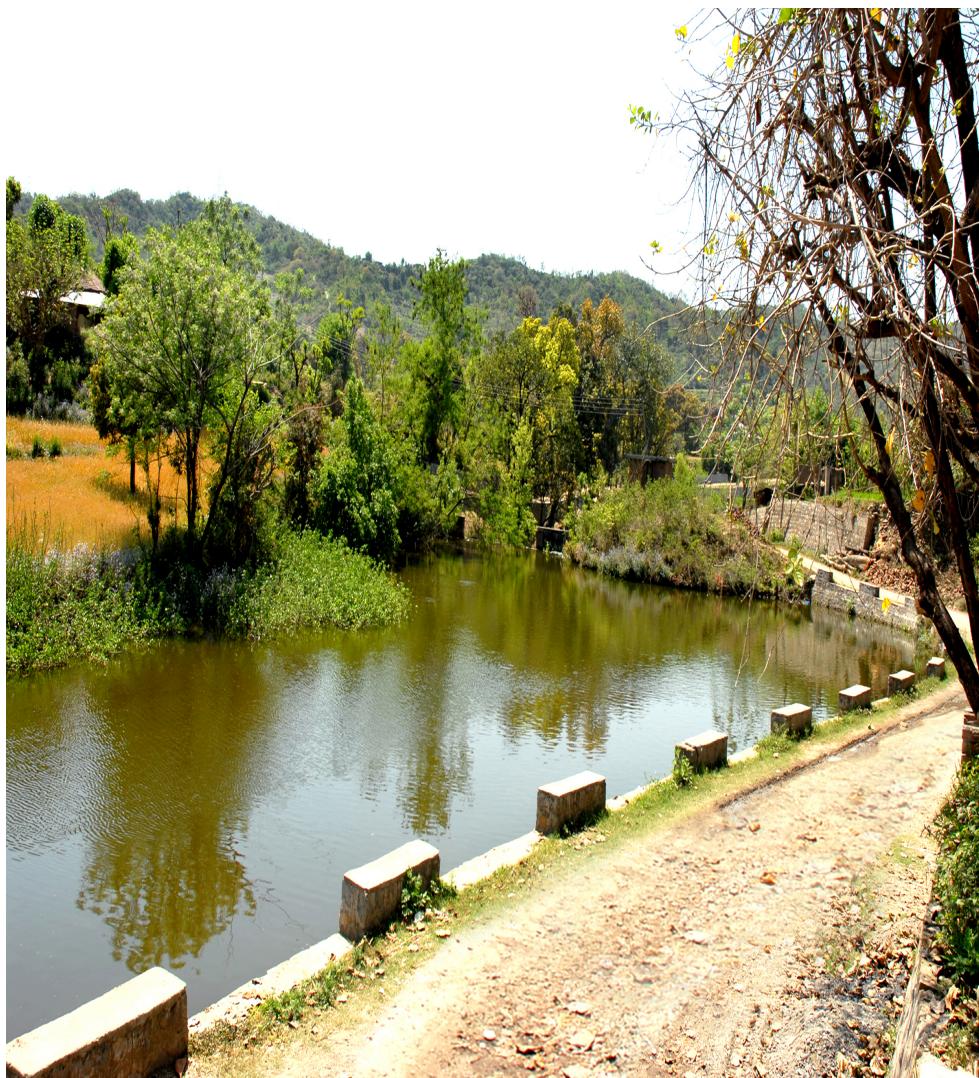
(A) Centrally Sponsored Schemes

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. During 2011-12, GOI did not release any funds under this scheme. Following 2 sub-Schemes are being implemented under this programm.

(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, Nawanshaher, Hoshiarpur & Gurdaspur 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 2011-12, GOI did not release any funds under this scheme.



Photograph: Lift Irrigation Project, Kot Block Dhar Kalan, Distt. Gurdaspur constructed 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 in Ropar & Mohali districts. . During 2011-12, GOI did not release any funds under this scheme.



Photograph: Safe water disposal structure in fields, Distt. SAS Nagar constructed 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. GOI released Rs. 1937.81 Lac as 80% share & state Govt. sanctioned Rs. 227.60 lac as corresponding 20% share. Thus total Rs.2165.41 lac was available during the year under report. During 2011-12, an amount of Rs 1461.86 Lac has been utilized for providing assistance on an area of 409.9hectares in all districts of the state.



Photograph: Drip Irrigation on Onion crop in the fields of S. Sewa Singh, Village Shadipur momian, Tehsil Patran, District Patiala

(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. 2 Projects are ongoing in Amritsar & Gurdaspur districts. An amount of Rs. 135.97 Lac was sanctioned during 2011-12. The whole amount has been utilized by treating 915 hectares in Gurdaspur District.



Photograph: Ravine Reclamation in Amritsar district 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 2011-12, Rs. 84.02 was sanctioned out of which only Rs. 7.52 Lac could be utilized due to non passing of Bills by the treasuries.



Photograph: Mini Sprinkler Irrigation on Potato crop in the fields of S. Sukhdev Singh, Village Bhai Roopa, Tehsil Phul, District Bathinda

(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 2010-11. 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 2011-12, Rs 984.33 Lac were sanctioned but could not be utilized due to non passing of Bills by the treasuries. In addition to it, 50% subsidy was provided on 24 water storage tanks in south-western Districts during the year under report

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

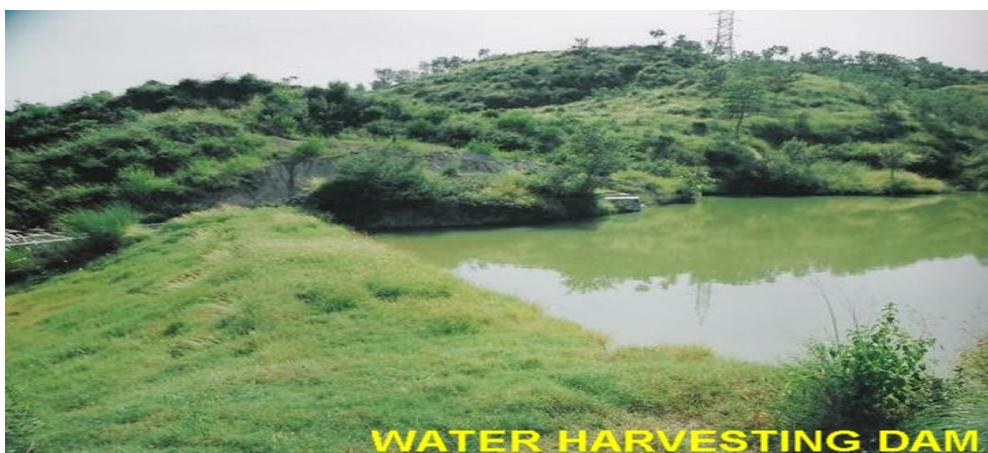
This scheme is being implemented in those areas of kandi zone where the GOI watershed development project is not implemented. The major interventions include Water harvesting Structures, Micro-lift irrigation schemes with the objectives of soil & water conservation, erosion control and livelihood support. An area of 1500 hectares was benefited by utilizing an amount of Rs. 150.00 Lac during 2011-12.



Photograph: Diversion Drain, Village Dhar Khurd, Distt. Gurdaspur

(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. An amount of Rs. 200.00 Lac was utilized to benefit an area of 1030 hectares during 2011-12.



Photograph: A Water Harvesting Structure in Hoshiarpur district.

(8) Provision for Machinery Division at Head Quarter

The Department has a Machinery Division at Mohali having 7 Bulldozers, 1 Excavator-cum-loader, 8 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. 50.00 Lac was sanctioned out of which Rs. 40 Lac was utilized on developing about 5000 hectares. In addition to it, Rs. 55.00 Lac was earned as revenue and deposited in the State Revenue head.



Photograph: A Laser Leveler of Machinery division in action

(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 2011-12, Rs 1500.00 Lac was sanctioned under this scheme out of which only Rs. 5.44 lac was utilized benefiting 24 Hect. due to non passing of Bills by the treasuries.



UGPS INLET

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 2011-12 Scheme was not sanctioned.

(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 2011-12, the scheme was not sanctioned.

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. 4602.37 lacs were utilized under this scheme benefiting 16133 hectares.



Photograph: A Community UGPS Canal Lift Project in District Muktsar

Integrated Wasteland Development Project (IWDP/IWMP)

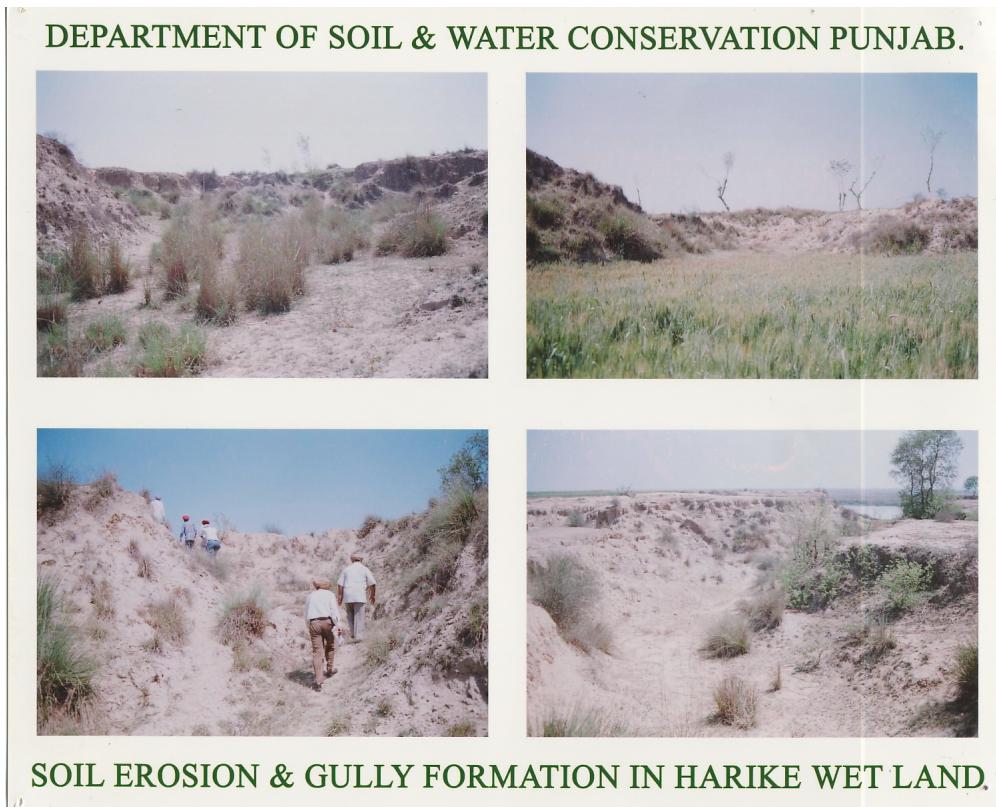
This scheme is implemented on District level funded by Rural Development Department. Under this programme, schemes for Soil & Water Conservation works in special problematic areas of different districts are proposed to GOI through the respective Deputy Commissioners & implemented in the field. The field Officers of this Department are the Project implementing Agencies (PIAs) for these Projects. Rs. 1090.08 lacs were utilized under this scheme benefiting 9689 hectares during 2011-12.



Photograph: Bouli under Entry Point Activity Village Kot, block Dhar Kalan, Distt. Gurdaspur 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. 156.04 lacs were utilized by benefiting 658 hectares during 2011-12.



SOIL EROSION & GULLY FORMATION IN HARIKE WET LAND.

Photograph: Conservation of Harike Wetland, Distt. Amritsar

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. 115.38 lacs were utilized on laying under ground pipe line from STP Nangal project and Rs. 8.67 lacs were utilized on laying under ground pipe line from STP Anandpur Sahib benefiting 1608 hect.during 2011-12.

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 2011-12



Photograph: Utilizing Industrial Treated Effluent of M/s Malwa Industries, Vill.-Hadian, Distt.-Ludhiana for Irrigation under Budha Nallah project

Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)

This Central Government scheme is implemented on district level. During 2011-12, it is being implemented in Nawanshahar, Gurdaspur, Mohali, Hoshiarpur, Sangrur & Faridkot district. The major works carried out under this scheme are renovation of ponds, repair of water harvesting structures, and land protection works, Flood protection works, underground pipeline system& other soil moisture conservation activities. Rs.98.87 lacs were utilized benefiting 48 Hect. under this scheme during 2011-12.



Photograph: Land development works in village Bazidpur, Nawanshaher under MNREGS

MAJOR ACHIEVEMENTS DURING 2011-12

During the year under report a sum of Rs. 12949.35 lacs has been utilized on covering an area of 37081 hectares under various soil conservation and water management works. Rs. 4594.28 lacs were utilized under Non Plan, Rs. 2000.79 lacs were utilized under State Plan and Centrally Sponsored Schemes. Rs. 6354.28 lacs were utilized under other district level schemes i.e. Integrated Waste Land Development Projects (IWDP/IWMP), Reclamation of Ravenous & Wetland, Punjab Nirman Programme, Rashtriya Krishi Vikas Yojna (RKVY). 1500 hectares were covered under Watershed Management works benefiting 3330 farmers of 37 villages. 14217 hectares were covered under land leveling and wasteland development works benefiting 60332 farmers of 404 villages and 4909 hectares were covered under Micro Irrigation Scheme benefiting 4477 farmers of 2404 villages. 15425 hect. were covered under Water management works benefiting 10425 farmers of 251 villages and 1030 hectares were covered under water harvesting structures, tapping of perennial flow and small lift irrigation projects benefiting 3293 farmers of 19 villages. Thus, total 37081 hectares area was covered under various Soil Conservation and water management works in 3115 villages benefiting 81857 farmers.

In addition to it, an area of 1,09,300 hectares in different districts of state was covered under detailed and semi-detailed survey.

A fleet of 7 bulldozers, 1 excavator-cum-loader, 8 tractors, 1 trencher & 6 laser leveler were engaged in land development works for 7259 hours during the year 2011-12. During 2011-12 Rs.50.00 lac was sanctioned under the scheme "SWC-6 Machinery Division at Head Quarter" out of which Rs. 40.00 lac was utilized. Machinery division earned Rs. 55.00 lacs from different soil conservation works which were deposited in the treasury. About 5000 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, bench terracing, contour bounding, gully reclamation, water harvesting dams and drainage etc and also give lessons of practice in preparation of plan & estimates etc. 89 officers/officials and 615 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 Labour;
- ✓ 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

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, Ropar, Mohali and S.B.S. Nagar district. 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 1500 hectare were covered benefiting 3330 cultivators of 37 villages and under land development works 14217 hectares were covered benefiting 60332 cultivators of 404 villages.

District-wise progress of the soil erosion control works executed by the department in the Punjab state during 2011-12 has been given in the following tables:-

**TABLE 3.1 - District wise progress of gully reclamation and anti erosion watershed management works on agricultural land upto 2011-12
(Area in hectares).**

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	21682	1200	0	22882
2	Mohali	4337	1325	100	5762
3	Nawanshahar	2194	0	200	2394
4	Patiala	4060	0	0	4060
5	Fatehgarh Sahib	0	0	0	0
6	Hoshiarpur	41726	1818	700	44244
7	Sangrur	0	0	0	0
8	Barnala	0	0	0	0
9	Gurdaspur	0	1045	0	1045
10	Pathankot	12084	0	500	12584
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:	86373	5388	1500	93261

**TABLE 3.2: District wise progress of Land leveling/Ravine reclamation/Wasteland Development works done upto 2011-12
(Area in Hectares)**

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	8751	205	3054	12010
2	Mohali	1754	689	1056	3499
3	Nawanshahar	5257	1262	705	7224
4	Patiala	5780	0	0	5780
5	Fatehgarh Sahib	6	0	0	6
6	Hoshiarpur	14903	1370	4398	20671
7	Sangrur	5212	0	0	5212
8	Barnala	0	0	0	0
9	Gurdaspur	19072	975	915	20962
10	Pathankot	0	0	2810	2810
11	Jalandhar	5792	0	0	5792
12	Kapurthala	6144	491	220	6855
13	Amritsar	12828	172	97	13097
14	Taran Taran	980	30	12	1022
15	Ludhiana	6592	0	0	6592
16	Ferozepur	25070	480	290	25840
17	Fazilka	0	0	190	190
18	Faridkot	12766	487	470	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	140551	6161	14217	160929

Table 3.3 : District wise villages covered and cultivators benefited from the land development and watershed management works during 2011-12 (in numbers).

Sr. No.	District	Land Development		Watershed Management	
		Cultivators benefited	Villages covered	Cultivators benefited	Villages covered
1	Ropar	42951	87	0	0
2	Mohali	602	27	29	1
3	Nawanshahar	600	21	120	3
4	Patiala	0	0	0	0
5	Fatehgarh Sahib	0	0	0	0
6	Hoshiarpur	12552	141	2820	26
7	Sangrur	0	0	0	0
8	Barnala	0	0	0	0
9	Gurdaspur	943	15	0	0
10	Pathankot	2560	45	361	7
11	Jalandhar	0	0	0	0
12	Kapurthala	112	61	0	0
13	Amritsar	0	0	0	0
14	Taran Taran	7	2	0	0
15	Ludhiana	0	0	0	0
16	Ferozepur	0	0	0	0
17	Fazilka	5	5	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	60332	404	3330	37

CHAPTER-IV

WATER MANAGEMENT WORKS

The prosperity of the State depends upon the development of Agriculture through extension of irrigation facilities. 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 2011-12 an area of 21364 hectares was covered under water management works by benefiting 18195 farmers of 2674 villages of the state. During the year under report, laying of underground pipe line was carried out to a length of 488.235 kms benefiting an area of 15425 hectares owned by 10425 farmers of 251 villages of the State. Though only technical advice was provided for individual UGPS projects, subsidy was also provided for community UGPS projects. 1030 hectares were brought under additional irrigation by constructing/renovating water harvesting structures, tapping of perennial flow and small lift irrigation projects by benefiting 3293 farmers of 19 villages. In addition, 4909 hectares was covered under Micro Irrigation (Drip & Sprinkler) benefiting 4477 farmers of 2404 villages

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

Table 4.1 : District wise progress of underground pipe line laid in the Punjab State upto 2011-12 (Length in meters)

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	1074988	10000	26175	1111163
2	Mohali	9350	0	1320	10670
3	Nawanshahar	347567	0	0	347567
4	Patiala	1662461	8280	32416	1703157
5	Fatehgarh Sahib	239093	0	0	239093
6	Hoshiarpur	1810950	5563	14489	1831002
7	Sangrur	1269135	10345	86841	1366321
8	Barnala	52436	865	2570	55871
9	Gurdaspur	993105	2570	0	995675
10	Pathankot	0	0	0	0
11	Jalandhar	1629486	0	0	1629486
12	Kapurthala	573885	1930	1200	577015
13	Amritsar	1280821	0	0	1280821
14	Taran Taran	124940	0	0	124940
15	Ludhiana	1597052	0	0	1597052
16	Ferozepur	1218772	0	0	1218772
17	Fazilka	0	0	0	0
18	Faridkot	456860	2156	8035	467051
19	Moga	254022	0	10814	264836
20	Mukatsar	610602	91224	179975	881801
21	Bathinda	613020	19760	0	632780
22	Mansa	576469	24600	124400	725469
	Total	16395014	177293	488235	17060542

Area benefitted during 2011-12 is 15425 Hect.

Table 4.2 : District wise progress of Water Harvesting/Makowal type/Lift Irrigation work up to 2011-12 (Area in Hectares).

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	7999	0	90	8089
2	Mohali	1232	150	235	1617
3	Nawanshahar	371	0	180	551
4	Patiala	173	0	0	173
5	Fatehgarh Sahib	0	0	0	0
6	Hoshiarpur	8679	375	300	9354
7	Sangrur	0	0	0	0
8	Barnala	0	0	0	0
9	Gurdaspur	6218	225	0	6443
10	Pathankot	0	0	225	225
11	Jalandhar	0	0	0	0
12	Kapurthala	0	0	0	0
13	Amritsar	0	0	0	0
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	24672	750	1030	26452

Table 4.3 : District wise area covered under water management works in Punjab State up to 2011-12 (Area in hectares)

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	24759	300	0	25059
2	Mohali	127	0	0	127
3	Nawanshahar	7329	10	78	7417
4	Patiala	32924	201	941	34066
5	Fatehgarh Sahib	3269	0	0	3269
6	Hoshiarpur	39193	82	50	39325
7	Sangrur	30768	1722	6471	38961
8	Barnala	1068	31	542	1641
9	Gurdaspur	21211	936	1518	23665
10	Pathankot	0	0	137	137
11	Jalandhar	32327	0	0	32327
12	Kapurthala	12924	23	12	12959
13	Amritsar	25888	18	0	25906
14	Taran Taran	1956	0	100	2056
15	Ludhiana	30338	0	7	30345
16	Ferozepur	42257	566	176	42999
17	Fazilka	0	0	330	330
18	Faridkot	97078	91	276	97445
19	Moga	4969	0	1041	6010
20	Mukatsar	13843	1880	2914	18637
21	Bathinda	60361	603	160	61124
22	Mansa	7588	307	672	8567
	Total	490177	6770	15425	512372

Table 4.4 : District wise villages covered and cultivators benefited by water management work during 2011-12. (no.s).

Sr. No.	District	Water Management		Water Harvesting/Perennial flow/lift Irrigation	
		Cultivators benefited	Villages covered	Cultivators benefited	Villages covered
1	Ropar	36	1	85	1
2	Mohali	123	11	1851	2
3	Nawanshahar	370	3	200	3
4	Patiala	1119	18	0	0
5	Fatehgarh Sahib	0	0	0	0
6	Hoshiarpur	110	14	675	5
7	Sangrur	4216	36	0	0
8	Barnala	92	9	0	0
9	Gurdaspur	590	6	0	0
10	Pathankot	258	7	482	8
11	Jalandhar	0	0	0	0
12	Kapurthala	3	3	0	0
13	Amritsar	0	0	0	0
14	Taran Taran	30	11	0	0
15	Ludhiana	3	3	0	0
16	Ferozepur	105	5	0	0
17	Fazilka	194	9	0	0
18	Faridkot	22	3	0	0
19	Moga	585	2	0	0
20	Mukatsar	1849	35	0	0
21	Bathinda	142	40	0	0
22	Mansa	578	35	0	0
	Total	10425	251	3293	19

Table 4.5 : District wise progress under Micro Irrigation (Drip and Sprinkler) Scheme on agriculture land upto 2011-12 (Area In hectares.)

Sr. No.	District	Upto 2009-10	During 2010-11	During 2011-12	Total upto 2011-12
1	Ropar	733	158	156	1047
2	Mohali	297	135	160	592
3	Nawanshahar	349	93	91	533
4	Patiala	933	272	271	1476
5	Fatehgarh Sahib	235	130	108	473
6	Hoshiarpur	2522	425	442	3389
7	Sangrur	508	123	210	841
8	Barnala	175	85	125	385
9	Gurdaspur	1314	444	435	2193
10	Pathankot	0	0	71	71
11	Jalandhar	874	309	402	1585
12	Kapurthala	365	116	84	565
13	Amritsar	580	262	300	1142
14	Taran Taran	322	228	137	687
15	Ludhiana	474	359	297	1130
16	Ferozepur	4035	700	199	4934
17	Fazilka	0	0	455	455
18	Faridkot	550	179	246	975
19	Moga	286	111	108	505
20	Mukatsar	1043	44	24	1111
21	Bathinda	993	505	388	1886
22	Mansa	376	247	200	823
	Total	16964	4925	4909	26798

Table 4.6: District wise Area covered, villages covered and cultivators benefited under Micro Irrigation (Drip & Sprinkler) scheme during 2011-12.

Sr. No.	District	Area covered (Hectares.)	Cultivators benefited (Nos.)	Villages covered (Nos.)
1	Ropar	156	122	90
2	Mohali	160	137	100
3	Nawanshahar	91	87	60
4	Patiala	271	190	175
5	Fatehgarh Sahib	108	65	61
6	Hoshiarpur	442	361	319
7	Sangrur	210	198	105
8	Barnala	125	110	57
9	Gurdaspur	435	417	241
10	Pathankot	71	71	50
11	Jalandhar	402	389	267
12	Kapurthala	84	83	62
13	Amritsar	300	290	172
14	Taran Taran	137	114	92
15	Ludhiana	297	251	182
16	Ferozepur	199	151	20
17	Fazilka	455	352	9
18	Faridkot	246	241	55
19	Moga	108	102	30
20	Mukatsar	24	15	22
21	Bathinda	388	528	190
22	Mansa	200	203	45
	Total	4909	4477	2404

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 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, drainage etc. and are also given practice in the preparation of plan and estimates.

During the year 2011-12, total 89 officers/officials and 615 farmers were trained under different 31 courses at GOI training institutes and departmental training institute, Mohali. 5 officers got training on concept of watershed management regarding NWDPR & IWDP schemes at Hyderabad. 9 Officers got training regarding IWMP at Hyderabad and 3 Officers got training regarding National Action Plan for climatic change National water Mission at Hyderabad. 2 Officers got training on promotion of Agriculture in Rainfed regions at Hyderabad. 1 Officer got training on domestic enquiry at Bangalore. 6 Officers got training on Watershed Developments in Maharashtra. 2 Officers got training on Capacity Building at Noida. 1 Officer got training on Right to Information Act. (RTI) in Goa.

5 No. surveyor/ agriculture sub-inspector got training on micro irrigation. 14 draftsmen/junior draftsmen and surveyor/ agriculture sub-inspector got training under refresher course regarding Engineering survey Design planning and Estimates of different Soil & water conservation works. 2 No. clerks/Junior assistants/ senior assistants got training under Refresher course regarding Punjab Civil Services Rules. 39 No. Watershed Development Team members got watershed level training regarding IWMP Schemes. Farmer's awareness camps were organized for awareness on micro Irrigation, Watershed Development and Integrated Wasteland Development Project (IWDP) schemes in which about 615 farmers participated.

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 2011-12, an area of 1,09,300 hectares was surveyed for preparation & planning of different Soil & water Conservation Schemes of the Department. Semi detailed survey of 42,245 Hect. in block Kharar, 28043 Hect in Block majri and 39,012 hect in block Derrabassi, Disst S.A.S. Nagar was carried out for knowing for micro nutrient/ fertility status and sampling. In these Villages, recommendation were made for soil Conservation works to increase the yield in Agriculture sector.

CHAPTER-VII

FINANCES OF DEPARTMENT

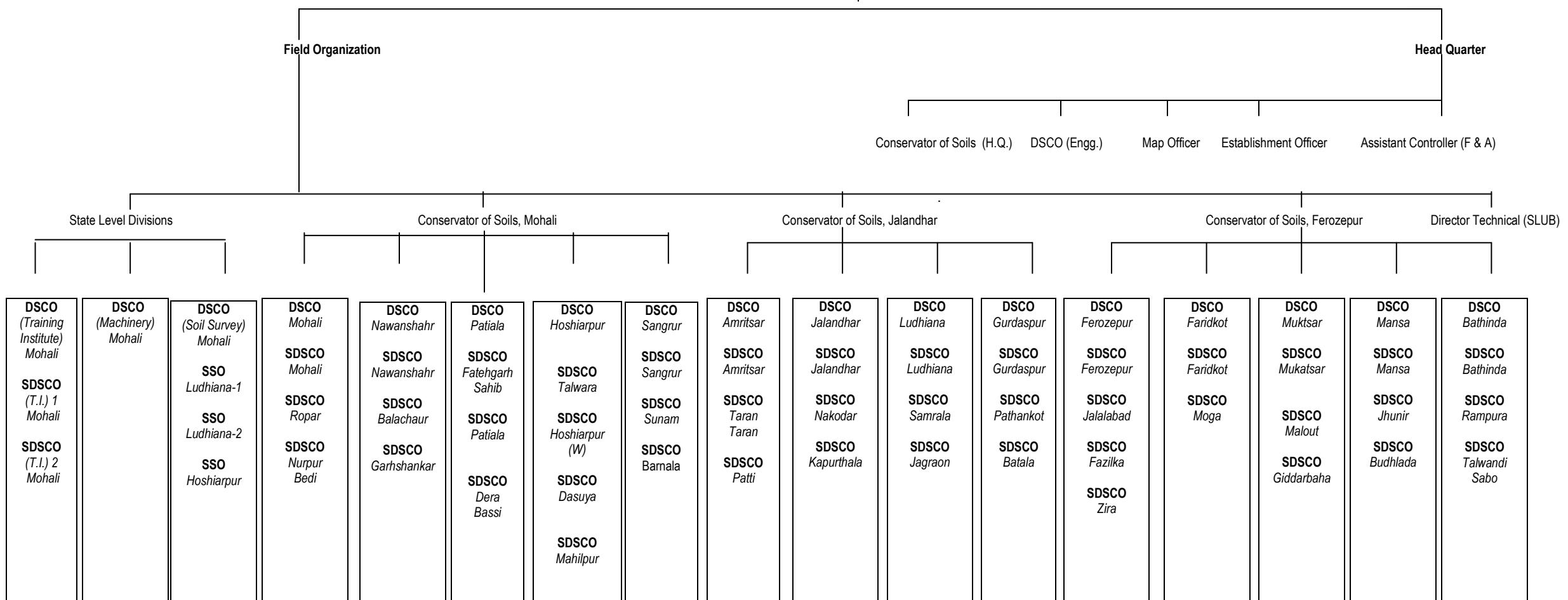
Soil Conservation and Water Management works in the State are mostly funded out of the State Budget and GOI schemes. Funds under non-plan schemes are sanctioned for salary & staff contingent needs and Funds under State plan & centrally sponsored schemes are sanctioned for works. In addition to it, some funds are raised and utilized from other Agencies/Departments like line Departments, District Rural Development Agencies, Science and technology department and DC 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	2009-10	2010-11	2011-12
A.	Non plan	354288668	383357457	459427740
B.	Plan			
	i) State plan	93539000	147904000	40296000
	ii) Centrally Sponsored	95130000	175089000	159783000
	Total plan (i + ii)	188669000	322993000	200079000
C.	Total (A+B)	542957668	706350457	65906740
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.	142689000	280208000	635428000
	Grand Total(C+D)	685646668	986558457	1294934740

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 2009-10,
2010-11 & 2011-12**

Sr. No.	Item of work	Unit	2009-10	2010-11	2011-12
1	Micro Irrigation (Drip & sprinkler)	Hect.	4528	4925	4909
2	Water use works (UGPL, Water Harvesting structures, tapping of Perennial flow and small lift irrigation schemes.)	Hect.	5464	7520	16455
3	Underground pipe line	Mtr.	128691	177293	488235
4	Watershed Management Works	Hect.	2178	5388	1500
5	Land leveling/Ravine Reclamation/Waste Land Development.	Hect.	8146	6161	14217
6	Soil Survey Works	Hect.	156778	126000	109300
7	Working of bulldozers/ Tractors.	Hours	5783	9911	7259