

## 5. IRRIGATION AND FLOOD CONTROL

*11<sup>th</sup> Plan Outlay - Rs. 374620.32 lac*

*Annual Plan 2007-08 - Rs. 65000.00 lac*

5.1.1 Punjab is predominantly an agrarian economy and irrigation plays an important role in sustaining its growth. The canal system in Punjab with a length of 14500 Km is one of the oldest and largest systems in India. 96% of agricultural land is covered under irrigation. Despite these developments Punjab still continues to face shortage of water for irrigation. The increase in Irrigation intensity has contributed to the growth in the overall cropping intensity, which is 188% (including rain fed crops). The nature of irrigation development has much to do with cropping intensity. Expansion of tube wells and availability of surface water from storage type irrigation projects has enabled the production of Rabi and kharif crops. In 10<sup>th</sup> Plan period 2002-07, an expenditure of Rs. 96726.00 lac was incurred as compared to the approved outlay of Rs.261151.00 lac. The financial performance is less due to financial constraints of State's resources. On the physical side, irrigation potential was 120.379 thousand hectares of created against the target of 353 thousand hectares. The less physical progress is due to the fact that major portion of outlay approved was for new projects, which are yet to be completed.

5.1.2 In the Annual Plan 2006-07, the expenditure incurred was Rs 26930.00 lac and the irrigation potential of 36.439 thousand hectares created. The main thrust remained on AIBP assisted projects, which include the Shahpur Kandi Dam Project, Kandi Canal Stage II Project, rehabilitation of channels of Patiala feeder and Kotla branch and completion of remodeling of Upper Bari Doab Canal (UBDC) system. Besides, project for enhancing the capacity of the main branch of the Eastern Canal, lining of the Mamdot and Ladhuka distributaries, installation of 100 tube wells in Kandi area and construction of low dam at village Thana in Hoshiarpur district and flood protection works on river Ravi, Beas and Satluj to save agricultural land of Gurdaspur and Amritsar districts with financial assistance from NABARD through Rural Infrastructure Development Fund (RIDF) were initiated. Similarly, the lining of water courses in the commands of UBDC, Eastern Canal and Kotla branch was undertaken under Command Area Development and Water Management Programmes. The state's priorities will be:

- (1) The main thrust will be to create an additional potential by ensuring the authorized carrying capacity of existing canals and distributaries.
- (2) In order to ensure irrigation water supply at the tail end lining and remodeling of unlined canals/distributaries will be completed.
- (3) To stop the wastage of irrigation water lining/restoration of field channels/water courses will be completed.
- (4) To regulate the water flow of river Ghaggar during rainy season by erecting the earthen dam.

- (5) The water allowance in the different parts of the State varies from 1.95 Cusecs per thousand acre to 7.00 Cusecs per thousand acre. On account of excessive withdrawal of ground water, the water table in the State is depleting at an alarming rate. In order to reduce the stress on tube wells and other sources of irrigation, various projects are being executed/proposed for execution by Irrigation Department.

5.1.3 During the 11<sup>th</sup> Plan about 286 thousand hectares of additional irrigation potential is proposed to be created. The additional Irrigation potential of about 42000 hectare shall be created in the year 2007-08.

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## **MAJOR AND MEDIUM IRRIGATION**

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### **Ongoing Schemes**

#### **Centrally Sponsored Scheme**

#### **IR-1/IR 1.1(iii) Extension of Phase-II of Kandi Canal-from Hoshiarpur to Balachaur (RD 59.50 Km. to RD 130 Km.)(AIBP)**

*11<sup>th</sup> Plan Outlay - Rs. 20146.00 lac*  
*Annual Plan 2007-08 - Rs. 8000.00 lac*

5.1.4 Kandi Canal Stage-II Project from Hoshiarpur to Balachaur i.e from RD 59.500 Km to RD 130 Km is an extension of Kandi Canal Stage-I, which has already been constructed. The total cost of this project was Rs.14713.00 lac (at 5/97 price level) stands cleared by the Technical Advisory Committee of CWC, Ministry of Water Resources, New Delhi in August 1999. The revised Administrative approval of Rs. 17942.00 lac (7/04 price index) has been granted by State Government. The expenditure incurred during 9<sup>th</sup> Plan was Rs.1336.00 lac. This project has been undertaken under Accelerated Irrigation Benefit Programme (AIBP) since 2001-2002 .The sharing pattern of this scheme is to be 67:33 between Government of India and State Government as central loan assistance. The GOI further approved this project under fast track programme of AIBP with balance cost of Rs. 14478.00 lac (75% Loan raised by GOP and 25% grant by GoI). The target date of the project is revised to 30/3/2011 from 31/3/2008. The revised project estimates of Kandi Stage-II stands submitted for an amount of Rs. 27109.00 lac. So far the funds released are Rs. 6315.00 lac, out of which GoI share is Rs. 3843.00 lac and GoP share is Rs.2472.00 lac. A provision of Rs.13780.00 lac had been provided for 10<sup>th</sup> Plan and the expenditure incurred was Rs. 10890.64 lac. On physical side after the completion of Kandi Canal Phase –II the additional potential will be created of about 29527 hectares falling in 218 villages. The expenditure incurred in the Annual Plan 2006-07 was Rs.5225.96 lac. On physical side, a length of 25 Km was lined in 2006-07.

## IR-2/IR 1.7 Construction of Shahpur Kandi Dam (Works and Salary) (AIBP)

11<sup>th</sup> Plan Outlay - Rs. 740000.00 lac  
Annual Plan 2007-08 - Rs. 9800.00 lac

5.1.5 The Shahpur Kandi Project is a sister concern project of Ranjit Sagar Dam Project (which is now completed). The construction of Shahpur kandi Dam Project is essential to get the optimum benefits of power and irrigation potential created by Ranjit Sagar Dam Project. The proposed Dam is situated on the river Ravi, down stream of the Ranjit Sagar Dam and 8 Km upstream of the Madhopur Head Works. The concrete dam is flanked by two Head Regulators on its Right and Left abutments falling in J&K and Punjab. Since 2001-02 this project has been covered under AIBP. The cost of this project was estimated at Rs.194500.00 lac at September, 2005 price index. An expenditure of Rs. 14300.00 lac has already been incurred upto March, 2006 on acquisition of land, preliminary design, investigation, development of infrastructural works, excavation of main dam, benches, left side head regulator, Hydel Channel and concreting of left side head regulator. The remaining funds of Rs. 177000.00 lac are required as follows:-

(Rs Crore)

Plan	Year	Funds required		Irrigation Share @ 12.61 %	PSEB Share @87.39%	Total
		Works	Estt.			
10 <sup>th</sup> Five Year Plan	2006-07	25	7	4.04	27.96	32.00
<b>Total</b>		<b>25</b>	<b>7</b>	<b>4.04</b>	<b>27.96</b>	<b>32.00</b>
11 <sup>th</sup> Five Year Plan	2007-08	421	34	57.38	397.62	455.00
	2008-09	365	35	50.44	349.56	400.00
	2009-10	324	41	46.03	318.97	365.00
	2010-11	275	40	39.72	275.28	315.00
	2011-12	163	40	25.60	177.40	203.00
<b>Total</b>		<b>1573</b>	<b>197</b>	<b>223.21</b>	<b>1546.79</b>	<b>1770.00</b>

5.1.6 Out of the total financial requirement, 12.61% shall be borne by Government of Punjab and the remaining 87.39% shall be provided by Punjab State Electricity Board by arranging loan from PFC/REC/other agencies.

5.1.7 During the 10<sup>th</sup> Plan period, an expenditure of Rs.8026.76 lac was incurred against a Plan provision of Rs. 59577.00 lac. The Government of India has released an amount of Rs.2985.00 lac upto 2004-05 as compared to the sanctioned amount of Rs.10800.00 lac. The expenditure incurred in the Annual Plan 2006-07 was Rs. 3195.21 lac.

**IR-3/IR 1.8 Providing irrigation facilities to Himachal area below Talwara (AIBP).**

*11<sup>th</sup> Plan Outlay - Rs. 2848.00 lac*  
*Annual Plan 2007-08 - Rs. 2848.00 lac*

5.1.8 This is an Inter-State project and is entirely meant for Himachal Pradesh. Punjab had to deposit its share of Rs. 8849.00 lac out of the total cost of Rs.14332.00 lac as compensation on account of disruption of the existing irrigation system of HP due to construction of Mukerian Hydel channel. The expenditure incurred during the 10<sup>th</sup> Plan period was Rs. 4446.85 lac against a provision of Rs. 5197.00 lac. Since 2001-02 the project has been covered under Accelerated Irrigation Benefit Programme (AIBP). The sharing pattern of the scheme was 67:33 between Government of India and Government of Punjab. Now the share pattern under AIBP is 25:75 i.e. 25% grant by GOI and 75% share of the State. During the year 2005-06, the GoP had taken up the matter with GoI since the project area falls in HP, the Central Loan Assistance should be made available to State Government under Special Category State Funding Pattern. The proposal is under consideration of GoI. An amount of Rs. 3810.00 lac has been released by Government of India upto 2006-07 against the sanctioned amount of Rs.5735.00 lac. The State Government has already paid Rs. 6001.00 lac to HP out of its share of 8849.00 lac. The Department of Irrigation has requested GoI to release the central grant of Rs. 2366.00 lac under Special Category State Funding Pattern so that the balance amount of Rs. 482.00 lac is provided by GoP to pay its entire share of Rs.2848.00 lac to HP.

**IR-4/IR 1.23 Rehabilitation of Channels of First Patiala Feeder and Kotla Branch (AIBP)**

*11<sup>th</sup> Plan Outlay - Rs. 12330.00 lac*  
*Annual Plan 2007-08 - Rs. 6000.00 lac*

5.1.9 First Patiala Feeder and Kotla branch of Sirhind Canal system (off taking from Ropar head works) are unlined canals, which runs in heavy filling reaches through sandy tract zone in Punjab. First, Patiala Feeder is presently capable to carry 3600 cs supply against its authorize discharge of 4010 cs. After rehabilitation, the carrying capacity of First Patiala Fedder shall be 4914 cs. Similarly Kotla is presently capable to carry 2550 cs against authorized discharge of 3018 cs. After rehabilitation, the carrying capacity of Kotla Branch shall be 3304 cs. GOP has decided to rehabilitate both these canals with 20% enhanced capacity so that adequate irrigation supply may be provided to the cotton belt area of districts of Patiala, Sangrur and Mansa. Total cost of project is Rs.12330.00 lac and physical target is 154 kms. The implementation of this project shall provide better irrigation facilities to about 2.65 lac ha area and bring additional area of 68624 ha falling in Patiala, Sangrur, and Mansa districts under canal command. This project shall generate the work of 60 lac mandays. The project is yet to be started.

**IR-5/IR 1.14 Remodeling of Channels of UBDC System to meet the Revised Water Allowance(AIBP)**

*11<sup>th</sup> Plan Outlay - Rs. 800.00 lac*  
*Annual Plan 2007-08 - Rs. 800.00 lac*

5.1.10 This proposal envisages to remodel the channels of UBDC system to cater to enhanced discharge subsequent to the increase in water allowance in UBDC tract on account of surplus water available after the completion of Ranjit Sagar Dam on River Ravi. The funds for Remodeling UBDC Project, costing Rs. 177.80 crore, have been provided by the Government of India under AIBP. Of these, Rs. 160.00 Crore have already been released which include Rs. 99.33 crore provided by the Government of India and Rs. 60.67 Crore provided by the Government of Punjab. As a result, 1.18 lac hectares of agricultural area, falling in Districts of Amritsar and Gurdaspur would be benefited. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 10086.60 lac. In the annual plan 2006-07 the expenditure was Rs 1085.00 lac.

**IR-6/ IR 1.28 Lining of Ladhuka Distributory System(RIDF-XII)**

*11<sup>th</sup> Plan Outlay – Rs. 3928.00 lac*  
*Annual Plan 2007-08 – Rs. 1928.00 lac*

5.1.11 The lining of Ladhuka Distributory System as NABARD project comprises lining to 74 KM length of channels at a cost of 4095.00 lac (4/06 price index) and NABARD has sanctioned this project in 2006-07. An amount of Rs. 537.12 lac was incurred in the 10<sup>th</sup> Plan. The outlay provided for the Annual Plan 2006-07 was Rs.680.00 lac, while the expenditure incurred was Rs. 12.12 lac. The target date for completion of this project is 31/3/2008 and additional irrigation potential annually will be created of 9942 hectares.

**IR-7/IR 1.29 Raising capacity of Main Branch Canal from RD 18300 to 239000 RIDF-X**

*11<sup>th</sup> Plan Outlay - Rs. 350.00 lac*  
*Annual Plan 2007-08 - Rs. 350.00 lac*

5.1.12 The Main Branch Canal starts from RD 26300 of Eastern Canal . It is being fed at its RD 18300 from Ferozpur Feeder. The authorized capacity of Main Branch Canal is 2410 cusecs. It provides irrigation facilities to 102760 hectares of culturable command area but presently only 76641 hectares of area is being irrigated through its distributory network, mainly in the border area of Ferozpur District. The total cost of project is Rs.4109.00 lacs. The project has already completed from RD 18300 to RD 239000 with this, 102760 hectare area has been provided with better irrigation facilities and an additional area of 7473 hectares has been brought under Irrigation. NABARD has approved this project in the year

2005-06. A drawl application for Rs. 307.00 lacs has been submitted to NABARD for release of funds of the payment of pending liabilities. The expenditure incurred in the 10<sup>th</sup> plan was Rs. 3580.37 lac. In the Annual Plan 2006-07 the expenditure incurred was Rs. 1725.00 lac.

### **IR 8 Lining of various Canals/distributaries in the State under RIDF XIII**

*11<sup>th</sup> Plan Outlay - Rs. 2500.00 lac*  
*Annual Plan 2007-08 - Rs. 0.70 lac*

5.1.13 In order to undertake the work on new calans/distributories to be lined during the course of the 11<sup>th</sup> plan, this plan scheme has been included with a token provision in the Annual Plan 2007-08.

### **State Funded Schemes**

#### **IR -9/IR-1.26 Completion of Residual Works and Safety Related Works of Ranjit Sagar Dam**

*11<sup>th</sup> Plan Outlay - Rs. 25000.00 lac*  
*Annual Plan 2007-08 - Rs. 1000.00 lac*

5.1.14 Ranjit Sagar Dam Project has started generation of power w.e.f. 12/8/2000, but residual works like final plugging of Tunnel T-1, drilling and grouting of drainage hole in drainage galleries, curtain grouting foundation, rehabilitation of various instruments in the massive structure of dam, etc. and the works advised by the Dam Safety Advisory Committee and the Board of Consultants for ensuring safety and stability of the project are yet to be completed. Ranjit Sagar Dam Administration also has pending liabilities in respect of Land Compensatory Aforestation and the Catchment Area Treatment (CAT), etc.

5.1.15 Ranjit Sagar Dam Project is a very prestigious project and these works which are part and parcel of the project, are required to be completed on priority. After the project started generation of power, drastic cut in the flow of funds was made by the State Government in the 10<sup>th</sup> Five Year Plan, resulting in continuous delay in execution of these works.

#### **IR-10/ IR 1.21 Lining of Channels Phase-I(Land Compensation Liabilities)**

*11<sup>th</sup> Plan Outlay - Rs. 100.00 lac*  
*Annual Plan 2007-08 - Rs. 20.00 lac*

5.1.16 The lining of channels Phase-I project was carried out during 1976-77 to 1993-94 and a length of 5554 Km. was lined at a cost of about Rs.20000.00 lac, creating an irrigation potential of 1,29,000 Hectares. at a cost of Rs.19900.00 lac. During 10<sup>th</sup> Plan, an outlay of Rs.325.00 lac has been provided to meet the pending liability on account of land compensation cases. The expenditure incurred during 10<sup>th</sup> Plan was Rs. 108.67 lac The expenditure incurred during 2006-07 was

Rs. 5.75 lac. However, some cases are still pending in various Courts, for which award can be announced by them at any time.

### **IR-11/IR1.5 Sri Dashmesh Irrigation Project**

*11<sup>th</sup> Plan Outlay - Rs. 85700.00 lac*  
*Annual Plan 2007-08 - Rs. 0.10 lac*

5.1.17 Sri Dasmesh Irrigation Project (SDIP) for providing irrigation facilities the Ropar, Sialba Majri, Chamkaur Sahib, Kharar, Bassi Pathana, Rajpura, Ghanaur and Dera Bassi Blocks of District, Ropar, Mohali, Fatehgarh Sahib and Patiala. The new canal will take water from the tail end of Anandpur Sahib Hydrel Channel at Lohand Khud and carry water through a carrier canal of 1000 Cs. capacity running parallel to the existing Nangal Hydrel Channel/Bhakra Main Line upto Ropar. This additional carrier channel of 28 Kms. length was included in the detailed Project Report (DPR). The scheme envisages canal irrigation for 1.30 lac hectares culturable command area in above districts.

5.1.18 The project cost has been updated at January 2006 price index keeping in view the escalation and latest CSR rates etc. The tentative cost works out to Rs. 85700.00 lac. As per the guidelines by C.W.C. and the Planning Commission, Government of India, Sri Dasmesh Irrigation Project is a Major Irrigation Project, so the Detailed Project Report is required to be examined by C.W.C.

### **New Scheme**

### **IR-12 Rehabilitation of Bist Doab Canal System (AIBP)**

*11<sup>th</sup> Plan Outlay - Rs. 14048.00 lac*  
*Annual Plan 2007-08 - Rs. 3000.00 lac*

5.1.19 Bist Doab Canal off takes from the right bank of River Sutlej upstream of Ropar headworks with full supply discharge of 1452 Cs. The Bist Doab Canal System serves for Gross Culturable Area of 6.36 lac acres and Culturable Command Area of 4.90 lac acres of Nawanshahar, Hoshiarpur, Jalandhar and Kapurthala Districts. The authorised full supply discharge of this system is 1452 cusecs but at present, the system carries only 1000 cusecs and irrigates about 30240 hectares land. After the implementation of this Project, the Bist Doab System shall be able to carry 1832 cusecs discharge and existing Area of 39860 hectares shall be restored and an additional area of about 8100 hectares shall be brought under Irrigation.

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## MINOR IRRIGATION SCHEMES

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### Ongoing Schemes

#### Centrally Sponsored Scheme

##### **MI-1/MI(I) 2.8 Converting Banur Canal from Non Perennial to Perennial-RIDF-XII**

*11<sup>th</sup> Plan Outlay - Rs. 5450.00 lac*  
*Annual Plan 2007-08 - Rs. 2000.00 lac*

5.1.20 Banur Canal is a non-perennial canal being fed from Ghagger river by construction katcha earthen bundh for the period from November to June. This project envisages of a pucca weir across for river Ghagger to feed Banur Canal with an assured supply of water through out the year in S.A.S. Nagar and Patiala districts. The total cost of the project is Rs.4927.00 lac, out of which NABARD share is Rs. 4556.00 lac and State share is Rs.371.00 lac. The updated cost of the project is Rs. 5815.00 lac and has also been sanctioned by the NABARD for funding under RIDF-XII. With the completion of this project, 36022 acres of agricultural area of 60 villages, falling in Derabassi, Rajpura and Ghanur blocks of District Patiala shall be benefited. New area of 3000 acres shall also be brought under the command of Banur Canal System. In the Annual Plan 2006-07 expenditure of Rs.365.00 lac. Target date for the completion of project is 31/3/2008.

##### **MI-2/MI(I)2.3(A) Tubewells and other Schemes for Deep Tubewells in kandi RIDF-X**

*11<sup>th</sup> Plan Outlay - Rs. 12687.00 lac*  
*Annual Plan 2007-08 - Rs. 3000.00 lac*

5.1.21 Under this scheme new tubewells are installed in the Kandi and Bet areas of Hoshiarpur District in the State. This is an on going scheme and is being implemented under RIDF. PSTC plans to install 510 deep tubewells with an estimated cost of Rs. 12687.00 lac during 11<sup>th</sup> Five Year Plan in various blocks of Kandi area. These tube wells will be installed keeping in view the following;

- (1) Availability of under ground water balance potential for installation of deep Tube wells.
- (2) Availability of compact chalk area for Tube well irrigation.
- (3) 16 Marla land free of cost to be given by the share holder for installation of Tube wells.
- (4) Panchayat resolution regarding persistent demand of Tube well water of irrigation purposes.

5.1.22 The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 5555.19 lac. In the Annual Plan 2006-07 expenditure was Rs.2586.68 lac. On physical side, the new



tubewells installed are 93 and under ground pipe lining of 20 tubewells has been completed.

### **MI-3/MI(I) 2.1(A) Constriction of Low Dam in Kandi Area (Thana) RIDF-X**

*11<sup>th</sup> Plan Outlay - Rs. 700.00 lac*  
*Annual Plan 2007-08 - Rs. 700.00 lac*

5.1.23 The construction of 28.40 m high Thana Dama in Hoshiarpur district under Dasuya Block was taken up in 2005. The total cost of the project is Rs.2776.00 lac, out of which NABARD share is Rs.2637.00 lac and State Share is Rs.139.00 lac under RIDF-X. With the completion of this Dam, the benefits will be;

- (1) Assured irrigation to an additional area of 1160 ha. of 8 villages.
- (2) 3.47 lac mandays will be created.
- (3) No threat of flash flood in the area. Rather flood prone area of about 358 acres will be reclaimed.
- (4) There will an increase of 1021 tones in yield of food grains per annum.
- (5) On the physical side 95% work has been completed.

The detail is –

(i) Excavation of earth work	105822 cum
(ii) Filling of earthwork	430949 cum
(iii) Concreting	1314.75 cum
(iv) Bolder work	13704 cum

5.1.24 The expenditure incurred in 10<sup>th</sup> Plan was Rs. 6830.55 lac. In the Annual Plan 2006-07 Rs. 1787.18 lac was spent. An outlay of Rs. 700.00 lac is being proposed for the Annual Plan 2007-08.

### **MI-4/MI 1.23 Lining of Delhon Distributory System-RIDF-XII**

*11<sup>th</sup> Plan Outlay - Rs. 662.00 lac*  
*Annual Plan 2007-08 - Rs. 175.00 lac*

5.1.25 This Project aims at lining of 19.97 km channels of Dehlon Distributory at a cost of Rs. 6.62 crore (Base Cost April, 2006) in Ludhiana District. An annual additional irrigation potential of 300 hectares will be created on completion of this Project. NABARD

As this channel is perennial, the work will be completed by taking closure from the respective Canal Authorities. Moreover, there is no supply beyond RD 30000 of this channel, so there will be no problem for the completion of this work. The work is proposed to be executed during 2007-08 and the target date of completion has been fixed as 31.03.2008. A provision of Rs.6.62 Cr. has been made in the 11<sup>th</sup> Five year Plan and also for the financial year 2007-08.

## **MI-5/MI(I) 2.2 (A) Lining of Pakhowal distributory System-RIDF-XII**

*11<sup>th</sup> Plan Outlay - Rs. 1155.00 lac*  
*Annual Plan 2007-08 - Rs. 1155.00 lac*

5.1.26 This Project aims at lining of 35.62 kms channels of Pakhowal Distributory at an estimated cost of Rs. 11.60 crore (Base Cost April, 2006) in Ludhiana District. An annual additional irrigation potential of 466 hectares will be created on completion of this Project. An outlay of Rs. 11.60 crore has been proposed in the 11<sup>th</sup> Five Year Plan and a provision of Rs. 11.60 crore has been made in the Annual Plan of 2007-08. This Channel is a perennial in nature so the work will be taken up by taking closure from the respective Canal Authorities in the year 2007-08.

## **MI-4/MI 2.10 Lining of distributaries in the State - RIDF IX, X and XI (Back log)**

*11<sup>th</sup> Plan Outlay - Rs. 5000.00 lacs*  
*Annual Plan 2007-08 - Rs. 0.10 lacs*

5.1.27 This scheme has been included in the 11<sup>th</sup> Five Year Plan as well as Annual Plan 2007-08 to clear the pending liabilities, if any, of projects covered under RIDF IX, X, XI .

## **MI-7/MI(I) 2.2 (A) Hydrology Project Phase-II (World Bank)**

*11<sup>th</sup> Plan Outlay – Rs. 4450.00 lacs*  
*Annual Plan 2007-08 – Rs. 1500.00 lacs*

5.1.28 Hydrology Project Phase-II proposed to be financed by World Bank through MOWR World Bank stands approved as per World Bank communication dated: 25-8-2004 to MOWR. 13 states including Punjab along with various central agencies will be executing the project. The total duration of the project will be six years and which started from Nov. 2003. The Punjab component of HP-II is Rs.4095.00 lacs only. The Main objectives of the project would be to improve the Institutional and Organisational arrangements, Technical Capabilities and Physical facilities available for measurements, validation, collection, analysis, transfer and dissemination of hydrological, hydro metrological and water quality data which is basic for water resources evaluation and to help in the development of the improved water resources and environmental planning and management. The completion date of the project is 31/3/2012.

## State Funded Schemes

### **MI-8/MI(I)2.5 Remodeling/Construction of distributaries/minors.**

*11<sup>th</sup> Plan Outlay - Rs. 5500.00 lac*  
*Annual Plan 2007-08 - Rs. 1100.00 lac*

5.1.29 Under this scheme remodeling/construction of Distributaries and minors will be undertaken to enhance their carrying capacity which with the passage of time has been reduced due to various reasons, like increase in co-efficient of rugosity in the various districts. For optimum utilization of the available surface water through the canal network, an efficient and well maintained canal system is of utmost importance. Punjab has made tremendous progress in development of canal network, which presently comprises of about 14500 kms of canals/distributaries/minors for utilizing existing water resources. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 2742.59 lac and in the Annual Plan 2006-07 expenditure of Rs.2185.00 lac was incurred. An outlay of Rs. 5500.00 lac and Rs. 1100.00 lac has been provided the 11<sup>th</sup> Five Year Plan and 2007-08 Annual Plan respectively.

### **MI-9/MI(I) 2.2 Integrated Utilization of Water Resources (Works and Salary)**

*11<sup>th</sup> Plan Outlay - Rs. 3400.00 lac*  
*Annual Plan 2007-08 - Rs. 625.00 lac*

5.1.30 This is a research scheme to collect, monitor and analysis the data regarding the depletion of ground water level in the state. The various works are being executed for recharging the ground water level. E-Bores are installed to determine the aquifer parameters of water bearing strata and its quality along soil characteristics in the entire state. This helps in estimation of static Ground Water Resources available for future utilization. During 10<sup>th</sup> Plan against the outlay of Rs.1575.00 lac, an expenditure of Rs. 1714.00 lac was incurred. In the Annual Plan 2006-07, expenditure was Rs. 407.00 lac. The proposed outlay for the year 2006-07 was Rs 500.00 lac.

### **MI-10/MI(I)2.3(B) Replacement/ Renovation of Existing Tubewells**

*11<sup>th</sup> Plan Outlay – Rs. 4000.00 lac*  
*Annual Plan 2007-08 - Rs. 100.00 lac*

5.1.31 Under this project the replacement/ renovation of existing tubewells installed by the Department of Irrigation is to be under taken. In this regard, PSTC has planned to install 160 alternate Tubewells, costing Rs. 4000.00 lac against the abandoned Tubewells to restore the irrigation potential already aerated by the PSTC Tubewells as well as to utilize the existing infrastructure of abandoned Tube

wells. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 55.00 lac and in the Annual Plan Rs.0.60 lac.

## **New Schemes**

### **MI-11 Rehabilitation of Bathinda Branch-RD 0-60000(AIBP).**

*11<sup>th</sup> Plan Outlay - Rs. 17500.00 lac*  
*Annual Plan 2007-08 - Rs. 1750.00 lac*

5.1.32 Punjab's share in Ravi and Beas water is fully utilized, but we are not utilizing full available share out of river Sutlej. The utilization share of Punjab from Sutlej water is about 57%. As the unutilized water is again distributed amongst the partner States in the following year, the State of Punjab is losing 43% of unutilized water, which can be exclusively used by Punjab. The Sutlej water is carried to the fields mainly by Sirhind Canal System and Bhakra Main Line System. The Sirhind Canal has its authorized capacity of 12620 Cs. but it is seen that this Canal has never run with the discharge more than 11500 Cs. Similarly, the Bist Doab Canal System is also not capable to carry additional water required as per demand of the area.

5.1.33 Keeping this in view, a project for rehabilitation of Bathinda Branch has been prepared with an estimated cost of Rs.175.00 crore to enable Punjab to use its full share of available water. The Designed discharge of Bathinda Branch is 2786 cusecs .The Gross Command Area (GCA) is 3.64 lac hectares. Due to less carrying capacity of the Canal, the existing irrigation under the Command of this Canal is 2.51 lac hectares. With the completion of the Project, the designed discharge of the Bathinda Branch shall be increased to 3332 cusecs and irrigation potential of 63000 hectares including will be restored and additional irrigation potential of 4900 hectares, will be created.

### **MI-12 Rehabilitation of Sidhwan Branch(AIBP).**

*11<sup>th</sup> Plan Outlay - Rs. 7700.00 lac*  
*Annual Plan 2007-08 - Rs. 800.00 lac*

5.1.34 The Sutlej water is carried to the fields mainly by Sirhind Canal System and Bhakra Main Line System. The Sirhind Canal has its authorized capacity of 12620 Cs. but this Canal has never run with discharge more than 11500 Cs. Similarly, the Bist Doab Canal System is also not capable to carry additional water required as per demand of the area.

5.1.35 With a view to ensure full utilization of our share in Sutlej water, a project for the rehabilitation of Sidhwan branch has been prepared with an estimated cost of Rs.77.00 crore. Sidhwan branch off-takes from tail RD194444/R of Sirhind Canal at Manpur Head. The authorised discharge of Sidhwan Branch is 1751 cusecs and it supplies water for irrigation to the districts of Ludhiana, Moga and Ferozepur. The Gross Culturable Area (GCA) of the system is 1.71 lac

hectares and Culturable Command Area (CCA) is 1.59 lac hectares. The existing area under Irrigation of this Canal is about 94638 hectares. The carrying capacity of the canal is not required to be increased. Only the sidelining of both sides of the canal is proposed. With the implementation of the Project irrigation potential of about 32500 hectares shall be restored and an additional area of about 6000 hectares shall be brought under irrigation.

**MI-13            Rehabilitation of Abohar Branch(AIBP).**

*11<sup>th</sup> Plan Outlay - Rs. 15800.00 lac*  
*Annual Plan 2007-08 - Rs. 1000.00 lac*

5.1.36            The share of Punjab from Ravi and Beas is fully utilized by Punjab, but we are not utilizing full available share out of river Sutlej. The share of Punjab from Sutlej water is about 57%. As the unutilized water is again distributed amongst partner States in the next years, the State of Punjab is losing 43% of unutilized water, which can be exclusively used by Punjab. The Sutlej water is carried to the fields mainly by Sirhind Canal System and Bhakra Main Line System. The Sirhind Canal has its authorized capacity of 12620 Cs. but this Canal has never run with a discharge more than 11500 Cs.

5.1.37            Keeping this in view, a Project aimed at rehabilitation of Abohar Branch with an estimated cost of Rs.158.00 crore has been proposed. The designed discharge of Abohar Branch is 3089 cusecs .The Gross Culturable Area (GCA) is 3.57 lac hectares with Culturable Command Area (CCA) of 3.19 lac hectares. Due to less carrying capacity of the Canal, the existing irrigation under the Command of this Canal is 2.55 lac hectares. With the completion of the Project. the designed discharge of the Abohar Branch shall be increased to 3230 cusecs and about 63923 hectare area shall be restored and an additional area of 1870 hectares shall be brought under the command of this canal.

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**COMMAND AREA DEVELOPMENT**

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**Ongoing Schemes**

**Centrally Sponsored Scheme**

5.1.38            In order to conserve substantial percentage of precious surface water being lost a seepage in katcha (unlined) watercourses in the Canal Command areas of the state and to make optimum utilization of the scarce water for maximum productivity, the work of Lining of Watercourses was entrusted to the Punjab State Tube well Corporation in 1974. Out of the total 1,20,000 Kms of watercourses in Punjab 84000 Kms(70%) are to be lined. The Corporation has lined 38871 Kms of water courses under the different schemes upto 31/3/2007. The Soil Conservation Department had also lined 2423 Kms of watercourses.

Hence, total 41294 Kms of watercourses length have been lined so far and 42706 Kms of kucha watercourses are yet to be lined.

The priority will be :

- (1) Where the area is water logged and underground water is not fit for irrigation;
- (2) Where the underground water is brackish i.e Kharamaja area; and
- (3) Sweet water zone.

**CAD-1/ MI( C ) 3.10( a) Construction of field Channels on UBDC system on matching grant basis (50:40:10)**

*11<sup>th</sup> Plan Outlay - Rs. 9624.32 lac*  
*Annual Plan 2007-08 - Rs. 1250.00 lac*

5.1.39 The lining of watercourses ensures assured irrigation facility is to the areas already being irrigated through canal water and it also generates additional irrigation potential @ 10 hectares per K.M. of length lined. This scheme is on 50:40:10 basis amongst GoI , State Government and beneficiary farmers. This is an on going scheme and is being implemented under Command Area Development Agency (CAD) wing of MOWR, GoI. The total cost of the project is 24304.00 lac. On physical side the target is 185.00 lac hectares. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 487.12 lac. In the annual plan 2006-07 the expenditure was Rs 302.92 lac. On physical side, the achievement was 87.62 Km as compared to the target of 100 KM .

**CAD-2/MI(C) 3.7 Construction of field Channels on Kotla Canal system on matching grant basis (50:40:10)**

*11<sup>th</sup> Plan Outlay - Rs. 1590.00 lac*  
*Annual Plan 2007-08 - Rs. 1590.00 lac*

5.1.40 The lining of watercourses provides assured irrigation facility to the area already being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per K.M. of length lined. This scheme is on 50:40:10 basis amongst GoI , State Government and beneficiary farmers. This is an ongoing scheme and is being implemented under Command Area Development Agency (CAD) wing of MOWR, GoI. The total cost of the project is 7824.00 lac. On physical side the target is 0.55 lac hectares. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 2419.78 lac. In the Annual Plan 2006-07 the expenditure was Rs 1182.83 lac. On physical side, the achievement was Rs 317.76 Km as compared to the target of 300 KM.

**CAD-3/MI (C)3.10 Construction of field Channels on Eastern Canal system on matching grant basis (50:40:10)**

*11<sup>th</sup> Plan Outlay - Rs. 730.00 lac*  
*Annual Plan 2007-08 - Rs. 730.00 lac*

5.1.41 The lining of watercourses ensure assured irrigation facility to the area already being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per K.M. of length lined. This scheme is on 50:40:10 basis amongst GoI , State Government and beneficiary farmers. This is an ongoing scheme and is being implemented under Command Area Development Agency (CAD) wing of MOWR, GoI. The total cost of the project is Rs 7326.00 lac. On physical side, the target is 0.51 lac hectares. The expenditure incurred in the 10<sup>th</sup> Plan was Rs. 3441.30 lac. In the Annual Plan 2006-07 the expenditure was Rs 1629.07 lac. On physical side, the achievement was 346.59 Km as compared to the target of 375 KM .

**CAD-4/MI(C ) 3.8 Construction of field channels on Abohar Canal System on matching grant basis ( 50:40:10).**

*11<sup>th</sup> Plan Outlay - Rs. 2000.00 Lac*  
*annual Plan 2007-08 - Rs. 1000.00 Lac*

5.1.42 The Lining of watercourses provides assured irrigation facility to the area being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per km. of length lined. This scheme is on 50:40:10 basis amongst Government of India, State Government and beneficiary farmers. This is a new scheme and will be implemented under Command Area Development & Water Management Agency (CAD) Wing of Ministry of Water Resources, Government of India. The total cost of the project is Rs. 31596.30 lacs. The Annual Plan Provision for the year 2007-08 is Rs. 1000.00 lacs.

**CAD-5/MI(C) 3.9 Construction of field channels on Sidhwan Canal System on matching grant basis ( 50:40:10).**

*11<sup>th</sup> Plan Outlay - Rs. 2000.00 Lac*  
*Annual Plan 2007-08 - Rs. 1000.00 Lac*

5.1.43 The Lining of watercourses provides assured irrigation facility to the area being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per km. of length lined. This scheme is on 50:40:10 basis amongst Government of India, State Government and beneficiary farmers. This is a new scheme and will be implemented under Command Area Development & Water Management Agency (CAD) Wing of Ministry of Water Resources, Government of India. The total cost of the project is Rs. 21843.95 lacs. The Annual Plan Provision for the year 2007-08 is Rs. 1000.00 lacs.

## New Schemes

### **CAD-6 Construction of field Channels on Sirhind Feeder Phase –II Canal System on matching grant basis ( 50:40:10).**

*11<sup>th</sup> Plan Outlay - Rs. 8000.00 Lac  
Annual Plan 2007-08 - Rs.1900.00 Lac*

5.1.44 The Lining of watercourses provides assured irrigation facility to the area being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per km. of length lined. This scheme is on 50:40:10 basis amongst Government of India, State Government and beneficiary farmers. This is a new scheme and will be implemented under Command Area Development Agency (CAD) Wing of Ministry of Water Resources, Government of India. The total cost of the project is Rs.41274.48 lacs. The Annual Plan Provision for the year 2007-08 is Rs. 1900.00 lacs.

### **CAD-7 Construction of field Channels on Bathinda Canal Phase-II Canal System on matching grant basis ( 50:40:10).**

*11<sup>th</sup> Plan Outlay-Rs.4000.00 Lac  
Annual Plan 2007-08 –Rs.530.00 Lac*

5.1.45 The Lining of watercourses provides assured irrigation facility to the area being irrigated through canal water and also generates additional irrigation potential @ 10 hectares per km. of length lined. This scheme is on 50:40:10 basis amongst Government of India, State Government and beneficiary farmers. This is a new scheme and will be implemented under Command Area Development & Water Management Agency (CAD) Wing of Ministry of Water Resources, Government of India. The total cost of the project is Rs. 24171.91 lacs. The Annual Plan Provision for the year 2007-08 is Rs. 530.00 lacs.

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## **FLOOD CONTROL AND ANTI WATER LOGGING**

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### Ongoing Schemes

#### Centrally Sponsored Scheme

### **FC-1/ FC 4.8 Project for Reclamation of water logged and saline area of Jamuana and Ratta Khera blocks of Mukatsar (60:40)**

*11<sup>th</sup> Plan Outlay - Rs. 333.00 lac  
Annual Plan 2007-08 - Rs. 333.00 lac*

5.1.46 Two Pilot schemes costing Rs. 940.00 lac for development of water logged areas in Ratta Khera and Jamuana Blocks in district Mukatsar had been



sanctioned by the Department of Waste Land Development for Ministry of Rural Area and Employment, Government of India in 1998. The sharing pattern of the scheme was 60:40 between GoI and GoP. Accordingly an amount of Rs.602.45 lac and Rs.337.55 lac was to be contributed by the GoI and State Government respectively. The objectives of project were to reclaim 1487 hect. of waterlogged area falling in eight villages namely, Ratta Khera, Abulkhurana, Aliana, Shajrana, Jamuana, Jhabelwali, Takhat Malana, Halimwala. The project is at stand still due to non-availability of funds since 11/2001. The Government of India has released Rs.551.27 lac so far, while Rs.51.18 lac are yet to be released. However, the State Government has released Rs. 4.00 lac, while the balance state share of Rs 333.55 lac is yet to be released.

**FC-2/FC 4.45 Construction of embankments and widening of River Ghaggar from Khannauri to Karail in District Sangrur (RIDF-XII)**

*11<sup>th</sup> Plan Outla - Rs. 8484.00 lac*  
*Annual Plan 2007-08 - Rs. 3200.00 lac*

5.1.47 River Ghaggar is non-perennial Inter-State River. About 165 Kms length of river Ghaggar falls in Punjab territory, out of which 102 Km is in District SAS Nagar and Patiala, 40 Km is in District Sangrur and the remaining 23 Km is in district Mansa. To save the agricultural land and Village abadi of the area of district Sangrur adjoining River Ghaggar from flood damages during every rainy season. The project has been approved by NABARD for funding with a total financial outlay of Rs. 8484.00 lac, out of which RIDF Assistance is Rs. 6749.00 lac and State's share is Rs. 1739.00 lac completion date of the Project is 31/3/2011.

**FC-3/FC 4.41 Project for flood projection works on rivers Ravi, Beas and Sutlej and providing protection to drainage system to save Agriculture land and villages abadies in districts Gurdaspur and Amritsar-RIDF X**

*11<sup>th</sup> Plan Outlay - Rs. 660.00 lac*  
*Annual Plan 2007-08 - Rs. 660.00 lac*

5.1.48 A NABARD assisted project namely Project proposal for flood projection works on rivers Ravi, Beas and Sutlej and providing protection to drainage system to save Agriculture land and villages abadies in districts Gurdaspur and Amritsar with a cost of Rs. 2960.00 lac (NABARD Share 2769.00 lac State Share 191.00 lac) was started. The expenditure incurred in the 10<sup>th</sup> Plan was Rs 2389.81 lac. The expenditure incurred in the Annual Plan 2006-07 was Rs 42.92 lac.

**FC-4/FC 4.27 Project for Constructing flood protection works along river Sutlej and Canalisation of Rahon Creek out falling into river**

**Sutlej alongwith construction of bridges on Banga Gopalpur drain and East Bein in districts Jalandhar and Nawanshahar- RIDF-VII.**

*11<sup>th</sup> Plan Outlay – Rs. 450.00 lac*  
*Annual Plan 2007-08 – Rs. 450.00 lac*

5.1.49 A project namely "Constructing Flood Protection works along river Sutlej and canalisation of Rahon creek outfalling into river Sutlej alongwith construction of bridges on Banga Gopalpur drain and east Bein in district Jalandhar and Nawanshahar" stands approved by NABARD of Rs.1932.00 lac. NABARD share is Rs.1739.00 lac and State share is Rs.193.00 lac. The NABARD has released Rs.1029.00 lac so far and Rs.710.00 lac is yet to be released. The State share of Rs.193.00 lac is yet to be released. The project proposal for the canalizing i.e. construction of embankment on both sides of the creek, construction of bridges over the creek and roads interconnecting the villages. Land measuring 9500 acres will be reclaimed from the bed of Rahon creek. The expenditure incurred in the 10<sup>th</sup> Plan was Rs 1432.96 lac. The expenditure incurred in the Annual Plan 2006-07 was Rs 72.70 lac.

**FC 5/FC 4.37 Project for Antiwater Logging and Drainage and Flood Control Works- RIDF-XIII**

*11<sup>th</sup> Plan Outlay - Rs. 100.00 lac*  
*Annual Plan 2007-08 - Rs. 0.10 lac*

5.1.50 The Drainage Administration has been entrusted with the work of constructing embankments, river training works and drains to save the area from flooding and water logging. The embankments and river training works and drains constructed by the drainage administration have to be maintained for their proper functioning to avoid any mishap during the floods. It envisages new project for anti water logging and flood control works will be covered under this scheme.

**FC-6/FC 4.26 Project for Construction of Flood Protection works on River Ghaggar and its Tributaries in Districts Patiala and Fatehgarh Sahib of Punjab- RIDF-IX.**

*11<sup>th</sup> Plan Outlay - Rs. 900.00 lac*  
*Annual Plan 2007-08 - Rs. 900.00 lac*

5.1.51 River Ghaggar passes through Punjab in a length of about 165 Kms. No dam has been constructed over this river nor has its channelisation been done so far. In the absence of any regulation and control flash floods in this river create havoc every year. Causing damage to land and other properties. This project proposal has been prepared for providing flood protection works on river Ghaggar and its tributaries so as to minimize the flood damages. The NABARD has cleared this project with a cost of Rs.3091.00 lac in 2003. The NABARD assistance is

Rs.2936.00 lac and State share is Rs.155.00 lac. This project envisages construction of embankments in a length of 23 Kms, river training works i.e.32 studs and pitching in a length of 1.53 Km, resectioning of drainage system in a length of 123 Km and construction of 9 bridges. The expenditure incurred in the 10<sup>th</sup> Plan 2002-2007 was Rs 1813.07 lac. The completion date of this project has been extended to 31/3/2008 from 31/3/2007.

### **State Funded Schemes**

#### **FC-7/FC 4.1 Flood Control and Drainage scheme( Works and Salary)**

*11<sup>th</sup> Plan Outlay - Rs. 5000.00 lac*  
*Annual Plan 2007-08 - Rs. 1000.00 lac*

5.1.52 There are three perennial rivers namely Ravi, Beas and Sutlej in the State and one non-perennial river Ghaggar, besides a large number of choes, Nadies and Khads also traverse the Sub-Mountainous and alluvial plains before out falling into parent river multipurpose storage reservoirs stands constructed on river Sutluj at Bhakra , river Beas at Pong and Ranjit Sagar Dam on river Ravi which was completed in 2001. Due to construction of Dams on 3 rivers the menace of flash floods has been considerably reduced but flash floods are still are experienced in river Ghaggar due to non construction of Dam on this river. The Drainage Administration is entrusted with the work of maintenance and repair of 1800 Km. long flood protection embankments (Dhusis), 3800 river training works and 8000 kms, long drainage system. An expenditure of Rs.2246. lac was incurred during 10<sup>th</sup> Plan. In the Annual Plan 2006-07, the expenditure was Rs 428.00 lac.

#### **FC 8/FC 4.45 Construction of two new bridges on river Ghaggar from villages Karail to Handa and Moonak to Tohana roads.**

*11<sup>th</sup> Plan Outlay - Rs. 750.00 lac*  
*Annual Plan 2007-08 - Rs. 750.00 lac*

5.1.53 The drainage administration has proposed the construction of two new village road bridges on river Ghaggar from villages Karail to Handa and Moonak to Tohana roads at a total cost of Rs. 750.00 lac. In the Annual Plan 2006-07, the expenditure incurred was Rs. 41.00 lac. The target to complete the works is 31/3/08.

### **New Schemes**

#### **FC-9 Improving agriculture Production by Controlling Water Logging Problem in Muktsar District RIDF-XII**

*11<sup>th</sup> Plan Outlay - Rs. 1055.00 lac*  
*Annual Plan 2007-08 - Rs. 1055.00 lac*

5.1.54 To tackle the problem of the water logging, a network of surface drains was constructed in 1997-2000. However, these surface drains could not give relief in certain low lying pockets where problem of water logging has been worsened due to collection of rain water. During recent rains in January, February and March 2007 , the low lying areas of Villages Punjawa, Kakhan Wali , Roran wali , Tarmala were worst affected. The rain water, which collected in these villages, could not be drained out due to non-existence of proper drainage system. As a result, more than 7400 acres of Irrigated land was water logged, damaging crops and endangering the safety of houses of the people of these villages. The water standing in the fields could not be drained out through Toe drain, along Sirhind Feeder as bed level of the drain is higher than the bed of water standing in the field. The Toe drain was constructed to cater to the seepage from Sirhind Feeder. As an interim measure, the standing water has been pumped out. The scheme will benefit 7400 acres of agricultural land of these villages.

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