

## Some Special Programmes

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| Bharat Nirman Programme  |
| 35% Irrigation Master Plan   |
| Repair, Renovation and Restoration of water bodies with Domestic Support |
| Hirakud Development Plan   |
| Benchmarking of Irrigation Projects                                      |

### 1. Bharat Nirman Programme:

This is a time bound programme (2005-2009) launched for building rural infrastructure in the areas of Irrigation, Roads, Housing, Water Supply, Electrification & Telecommunication connectivity. Specific targets are to be achieved under each sector. The irrigation component of Bharat Nirman aims at creation of irrigation potential of 100 lakh hectare in four years i.e. from 2005-06 to 2008-09 at national level. Orissa has proposed to create 3.923 lakh ha. of additional irrigation potential with projected investment of Rs.2649.29 cr. **No separate funding is available for this programme.** All ongoing projects executed under different schemes such as AIBP, RIDF, SCA, RR&R are clubbed up under this programme. Within the stipulated time period, the state is able to achieve only 61% of the target i.e. 2.35 lakh ha. of additional irrigation potential has been created against the target of 3.923 lakh ha. The target in the National level also could not be achieved. The programme was extended for another two year i.e. from 2009-10 to 2010-11. The state has proposed to create 2.25 lakh ha. in the extended period against which 1.18 lakh ha. has been created during 2009-10. The target & achievement of the state under Bharat Nirman in the extended period is given on the table below.

#### Irrigation Potential (Status as on 31.03.2010)

| Sector         | Target (th. ha.) |             |                | Achievement (th. ha.) |               |                |
|----------------|------------------|-------------|----------------|-----------------------|---------------|----------------|
|                | New              | Revival     | Total          | New                   | Revival       | Total          |
| Major & Medium | 139.166          | 1.69        | 140.856        | 59.770                | 1.197         | 60.967         |
| Minor          | 77.803           | -           | 77.803         | 23.405                | 26.919        | 50.324         |
| Ground Water   | 6.32             | -           | 6.32           | 1.085                 | 5.693         | 6.778          |
| <b>Total</b>   | <b>223.289</b>   | <b>1.69</b> | <b>224.979</b> | <b>84.260</b>         | <b>33.809</b> | <b>118.069</b> |

### 2. 35% Irrigation Master Plan

There is a wide difference in geographical distribution of irrigation facility in the state. Some blocks have more than 50% irrigation facility whereas other blocks have less than 5% facility. Krishna Prasad block in Puri district has no irrigation facility. Government have, therefore, decided that a Master Plan for each district should be drawn up so as to provide at least 35% irrigation in every block during the next five years i.e. from 2005-06 to 2009-10. Collectors were requested to prepare Master Plan of their

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districts. All Collectors submitted their Master Plan, which incorporates Major/Medium, Minor, lift and other sources of Irrigation. 198 blocks were having less than 35% irrigation facility. While submitting the Master plan the Collectors have indicated 27 blocks in Orissa will not be able to achieve 35% irrigation facility by 2009-10. Efforts are being made to explore the possibilities of augmenting irrigation potential in these blocks through other sources of irrigation by identifying suitable sites for water harvesting structures, check dams, nala bunds etc. and also by identifying suitable pockets like ground water prospect zones, ground water recharge points such as percolation tank, recharge pit etc. Blocks having irrigation coverage less than 35% is given in the following table.

| Sl. No. | Name of the District | Total No. of Blocks | Nos. | Name of the Blocks   |
|---------|----------------------|---------------------|------|--|
| 1.      | Angul                | 8                   | 6    | Angul, Athamallik, Kisorenagar, Talcher, Kanhia, Pallahara   |
| 2.      | Balasore             | 12                  | 8    | Balasore, Remuna, Basta, Jaleswar, Baliapala, Oupada, SoraBahanga  |
| 3.      | Bargarh              | 12                  | 8    | Bhatil, Ambabahona, Sohela, Bijepur, Jharbandha, Padmapur, Gaisilet, Pikamal   |
| 4.      | Bhadrak              | 7                   | 1    | Chandabali   |
| 5.      | Boudh                | 3                   | 1    | Kantamal   |
| 6.      | Bolangir             | 14                  | 13   | Bolangir, Deogaon, Gudvella, Loisinga, Puintala, Belpada, Khaparakhole, Patnagarh, Bongamunda, Muribahal, Saintala, Titilagarh, Tureikala  |
| 7.      | Cuttack              | 14                  | 6    | Athagarh, Tigiria, Badamba, Narsinghpur, Banki-I, Banki-II   |
| 8.      | Deogarh              | 3                   | 2    | Teleibani, Barkote   |
| 9.      | Dhenkanal            | 8                   | 5    | Dhenkanal, Odapada, Gondia, Hindol, Kamakshya Nagar  |
| 10.     | Ganjam               | 22                  | 1    | Jaganathprasad   |
| 11.     | Gajapati             | 7                   | 5    | Gumma, Rayagada, Nuagada, R. Udayagiri, Mohana   |
| 12.     | Jagatsinghpur        | 8                   | 2    | Erasama, Nuagaon   |
| 13.     | Jajpur               | 10                  | 5    | Korei, Danagadi, Sukinda, Bari, Rasulpur   |
| 14.     | Jharsuguda           | 5                   | 5    | Jharsuguda, Kolabira, Kirimira, Laikera, Lakhanpur   |
| 15.     | Kalahandi            | 13                  | 8    | Bhawanipatna, Kesinga, Th. Rampur, Narla, M. Rampur, Lanjigarh, Koksara, Golamunda   |
| 16.     | Kendrapada           | 9                   | 5    | Aul, Gardapur, Mahakalpada, Rajkanika, Rajnagar  |
| 17.     | Kandhamal            | 12                  | 11   | Phulbani, Phiringia, Tikabali, Chakpad, G. Udayagiri, Raikia, Balliguda, K. Nuagaon, Tumudibandha, Kotagada, Daringbadi  |
| 18.     | Khurda               | 10                  | 6    | Khurda, Begunia, Bolagarh, Tangi, Chilika, Jatni   |
| 19.     | Koraput              | 14                  | 9    | Boriguma, Bipariguda, Kundra, Koraput, Potangi, Nandapur, Lamtaput, Dasamantapur, Laxmipur   |
| 20.     | Keonjhar             | 13                  | 11   | Anandapur, Bansapal, Champua, Ghatagaon, Harichandanpur, Jhammpura, Joda, Keonjhar, Patna, Saharapada, Telkoi  |
| 21.     | Malkangiri           | 7                   | 5    | Khairput, Kodumulugumma, Korukunda, Malkangiri, Mathili  |
| 22.     | Mayurbhanj           | 26                  | 21   | Baripada, Suliapada, Bangiriposi, Saraskana, Kuliana, Betnoti, Morada, Rasgobindapur, Badasahi, Kaptipada, G. B. Nagar, Karanjia, Sukuruli, Thakurmunda, Jasipur, Raruan, Bisoi, Kusumi, Bahalda, Tiringi, Jamda |
| 23.     | Nayagarh             | 8                   | 5    | Bhapur, Daspalla, Gania, Nuagaon, Odagaon  |
| 24.     | Nowrangpur           | 10                  | 10   | Nowrangpur, Nandahandi, Tentulikhunti, Papadahandi, Kosagumuda, Debugaon, Jharigaon, Umerkote, Raighar, Chandanhandi   |
| 25.     | Nuapada              | 5                   | 5    | Nuapada, Komna, Kharihar, Boden, Sinapalli   |
| 26.     | Puri                 | 11                  | 3    | Kanas, Krunaprasad, Astaranga  |
| 27.     | Rayagada             | 11                  | 6    | Kolnara, Kasipur, Gudari, Bisamkatak, Muniguda, Chandrapur   |
| 28.     | Sambalpur            | 9                   | 6    | Rengali, Rairakhola, Naktideol, Jamankira, Kuchinda, Bamra   |
| 29.     | Subernapur           | 6                   | 2    | Tarva, Biramaharajpur  |

|     |              |            |            |   |
|-----|--------------|------------|------------|---|
| 30. | Sundergarh   | 17         | 17         | Balisankara,Subdega,Sundergarh,Hemgiri,Lephripada,Tangara palli,Bargaon,Kutra,Rajgangapur,Kuanramunda,Nuagaon,Bisra,Lathikata,Gurundia,Bonai,Lahunipada,Koida |
|     | <b>Total</b> | <b>314</b> | <b>198</b> |   |

### **Achievement:**

By the end of March 2010, out of 198 deficit blocks, 34 blocks namely Jatni, Tangi, Kusumi, Saraskana, Baripada, Badasahi, Kaptipada, Kuliana, Morada, Sulipada, Betnoti, Odapada, Kamakhyanagar, Odagaon, Lephripada, Gumma, Kanas, Muniguda, Aul, Telkoi, Baliapal, Jaleswar, Basta, Borigumma, Laxmipur, Baramba, Kantamal, Chandbali, Rasulpur, Gopabandhu Nagar, BisamKatak, Gudari, Kolnara and Chandrapur have achieved 35% irrigation coverage. There is a target to bring 12 more blocks under 35%Irrigation coverage during 2010-11. Considering the present progress the time period of 35% of irrigation programme has been extended to March 2014 to cover all the deficit blocks.

### **3. Repair, Renovation & Restoration of Water Bodies with Domestic Support**

In India, tanks / ponds & lakes have traditionally played an important role in irrigation, drinking water supply, hydropower, ecology, tourism / culture and domestic use. Relative importance of some of these Water Bodies has waned due to a number of reasons such as shifting away from community based tank system to individual beneficiary oriented ground water dependent system, encroachments, silting, population pressure, multiplicity of agencies responsible for their upkeep, etc. A pilot scheme for "Repair, Renovation and Restoration (RR&R) of Water Bodies directly linked to Agriculture" was launched by Government of India in January2005 for implementation during the remaining period of X Plan. Keeping in view the success of the pilot scheme for RR&R of water bodies and need for a comprehensive programme to upscale the gains from water bodies, the Ministry of Water Resources has launched the scheme of Repair, Renovation and Restoration (RR&R) of Water Bodies as a State Sector Scheme with domestic budgetary support. The scheme will be applicable in whole of the country.

### **Main Objectives:**

- . Comprehensive improvement of selected tank systems including restoration.
- . Improvement of catchment areas of tank & ground water recharge.
- . Community participation and self-supporting system for sustainable management for water bodies covered by the programme.
- . Increase in storage capacity of water bodies.
- . Improvement in agriculture / horticulture productivity.
- . Environmental benefits through improved water use efficiency; irrigation benefits through restoration of water bodies, supplementation of the ground water use and promotion of conjunctive use of surface and ground water.
- . Increased availability of drinking water.

### **Funding pattern:**

- . For special category states (North-Eastern States including Sikkim, Himachal Pradesh, Jammu & Kashmir, Uttarakhand and undivided Koraput, Bolangir and Kalahandi (KBK) districts of Orissa) as

well as projects benefiting drought prone / tribal / naxal-affected areas. 90% of the project cost will be provided as Central Assistance (grant) by the Government of India and 10% of the cost by State Government.

- For non-special category States 25% of the cost will be provided as Central Assistance (grant) by Government of India and 75% by State Governments.
- 10% of the project cost will be earmarked by the State Governments for capacity building, awareness and institutional strengthening.

## Programme Status

1761 water bodies with an estimated cost of Rs.576.16 crores have been sanctioned by Government of India during 2009-10 under Repair, Renovation & Restoration of water bodies with domestic support to revive 88.293 thousand hectares of lost ayacut. These projects are located in KBK districts, Naxal affected areas and drought prone areas. Funding pattern for these projects is in the ratio of 90:10 (central share: state share). Central assistance of Rs.72.12 crores has been released to take up these works. Brief details are given below.

### Details of Projects under RR&R

| Sl. No.      | Name of Deptt./Organisation | No of Project Sanctioned | Estimated Cost of the Project(Rs. in crore) | Ayacut to be revived (in ha.) |
|--------------|-----------------------------|--------------------------|---|-------------------------------|
| 1.           | Minor Irrigation            | 1602                     | 549.19                                      | 84983.72                      |
| 2.           | Medium Irrigation           | 11                       | 4.46  | 362.00                        |
| 3.           | H&UD                        | 01                       | 0.15  | 19.00                         |
| 4.           | ITDA                        | 06                       | 1.41  | 193.00                        |
| 5.           | Panchayati Raj              | 140                      | 20.81                                       | 2715.30                       |
| 6.           | Soil Conservation           | 01                       | 0.17  | 20.00                         |
| <b>TOTAL</b> |                             | <b>1761</b>              | <b>576.16</b>                               | <b>88293.02</b>               |

During 2010-11 it has been programmed to take up 576 projects for which an outlay of Rs.91.00crores (Central Share – Rs.90.00 Crore, State Share – Rs.1.00 Crore) has been proposed.

## 4. Hirakud Development Plan

Hirakud multi-purpose project completed 50 years of its glorious existence in 2007. It occupies a pride of place in the state's progress, as it has contributed immensely to the control of floods, generation of electricity and providing irrigation facilities to the farmers in the Mahanadi delta. The project was originally designed to provide irrigation to 153750 ha of land in Khariff season and 76875 ha of land in rabi season. After so many years of its existence, the Hirakud project is irrigating 163036 ha in khariff and 115481 hain rabi, much more than what was envisaged in the project originally. It is true that despite a larger area having been brought under irrigation there are pockets especially the tail-end areas where the agricultural fields are not getting water or getting inadequate water. This is due to the fact that the canal systems get deteriorated resulting in decrease in carrying capacity of canal. It is also observed that over drawal of water at head reaches makes water scarcity in tail-end areas even though design discharge in the canal has been maintained. Participatory irrigation management (Pani Panchayats) provide a platform to sit together, take stock of the total availability of water and its scientific use with a view to serving the need of all the farmers in the command.

It has been the government's endeavor to improve canal systems from time to time and also to

sensitise farmers about judicious use of water. Programmes to develop a part of the Hirakud command area were taken up under World Bank supported Water Resources Consolidation Project (WRCP) and Accelerated Irrigation Benefit Programme (AIBP). At present, Rampur & Berkley system modernization work is under progress through NABARD. During 2009-10 Retamunia Distribution System has also been taken up under NABARD funding. It is proposed to consolidate irrigation in the balance command area of Hirakud system through State Fund and World Bank funded Orissa Water Sector Improvement Programme (OWSIP).

During last 3 years i.e. from 2007-08 to 2009-10 an amount of Rs. 121.34 crore has been spent from State own resources and RIDF funding for the modernisation of Hirakud System. Scheme wise expenditure incurred for modernisation work is given in table below.

| Scheme       | Expenditure incurred (Rs. in crore) |              |              |               |
|--------------|-------------------------------------|--------------|--------------|---------------|
|              | 2007-08                             | 2008-09      | 2009-10      | Total         |
| RIDF         | 1.08                                | 10.00        | 15.57        | 26.65         |
| State Plan   | 2.00                                | 49.95        | 42.74        | 94.69         |
| <b>Total</b> | <b>3.08</b>                         | <b>59.95</b> | <b>58.31</b> | <b>121.34</b> |

## 5. Benchmarking of Irrigation Projects

Benchmarking is a continuous process of measuring one's own performance and practices against the best competitors, and a sequential exercise of learning from other's experience. It is fundamental management skill that supports quality and excellence. Benchmarking has broad applications in problem solving, planning, goal setting, process improvement, innovation, strategy setting and in various other contexts. Opportunities for improvement are identified by conducting an internal assessment and making comparative measurements with best practice organizations to determine the performance gaps between current practice and best practice. Selected best practices can then be suitably adopted to fit into organization's need and implemented. The cycle of improvement continues.

In irrigation sector that would mean more productive and efficient use of water, more crop per drop. The benchmarking of irrigation projects is widely accepted world over now. To promote benchmarking in irrigation sector in India, a national level Workshop was held at Hyderabad. The conclusion of the Workshop was that Benchmarking is relevant for India and it should be started as per capita water availability in coming years will dwindle and hence efficient use of water would be a must. Benchmarking would help in appropriate interventions and help in formulation and implementation of policies for improvement of projects. This would result in bringing transparency in irrigation sector along with many benefits such as equitable distribution, improvement in irrigation efficiency, help bringing additional area under irrigation lead to diversification of crops, enable putting cap on O&M expenditure, increase per unit of water etc. 20 main indicators have been identified in the Workshop to assist Benchmarking process which is given in the table below.

### Main Performance Indicators for Benchmarking of Irrigation Project

| Sl. No. | Domain                    | Performance indicator   |
|---------|---------------------------|---|
| I.      | System Performance        | 1. Water delivery capacity Index  |
|         |                           | 2. Total annual volume of irrigation water supplied / delivered (m <sup>3</sup> / year) |
|         |                           | 3. Field application efficiency   |
|         |                           | 4. Annual Relative Irrigation Supply Index  |
|         |                           | 5. Annual Irrigation Water Supply per unit command area (Cum / ha)                      |
|         |                           | 6. Annual Irrigation Water Supply per unit irrigated area (Cum / ha)                    |
| II.     | Agricultural Productivity | 7. Output per unit command area (Rs. / ha.)   |
|         |                           | 8. Output per unit irrigated area-Tons / ha cropwise. (Rs. / ha.)                       |
|         |                           | 9. Output per unit irrigation supply (Rs. / ha.)  |
|         |                           | 10. Output per unit crop water demand (Rs. / ha.)                                       |
| III.    | Financial Aspects         | 11. Cost recovery ratio   |
|         |                           | 12. Total O&M cost per unit area (Rs. / ha.)  |
|         |                           | 13. Total O&M cost per person employed on O&M Works (Rs. / person)                      |
|         |                           | 14. Revenue collection performance  |
|         |                           | 15. Revenue collection performance  |
|         |                           | 16. Maintenance cost to revenue ratio   |
|         |                           | 17. Staff numbers for O&M per unit area (person / ha.)                                  |
|         |                           | 18. Total O&M cost per unit of water supplied (Rs. / cum)                               |
| IV.     | Environmental Aspects     | 19(a). Average depth to water table (m)   |
|         |                           | 19(b). Land Damage Index  |
|         |                           | 20(a). Water Quality:<br>Ph/Salinity/Alkalinity Index                                   |
|         |                           | 20(b). Salt balance (tones)   |

During 2006-07, it was decided to use benchmarking in the state for improving the performance of irrigation projects. The work will be carried out on phased manner in selected major & medium Irrigation projects and later extended to all major, medium and minor irrigation projects. In the first phase, 12 medium irrigation projects namely Daha, Ghodahado, Salia, Aunli, Dadaraghati, Derjang, Sunei, Remal, Ramiala Gohira, Salki & Pilasalki were selected. Data's required to evaluate the performance of the projects are being collected from field units. Data's have been received from field units and evaluated. The first report on Benchmarking of Irrigation Projects has been published and circulated among field authorities for study and to furnish views for further improvement of the performance indicators of respective projects.

### **Volumetric Measurement and Pricing of Irrigation Water:**

Water rates for irrigation use in the state are levied on the basis of area irrigated and the types of the crops grown separately for khariff and rabi crops. Khariff crops are levied with a compulsory basic water rate on basis of class of irrigation (the total depth of water) that the project is designed to supply which is to be paid irrespective of its use. But the Rabi rate is not compulsory and payable on use. Obviously, this system leads to excess use of water and wastage.

Therefore, a few states in the country initiated action for switching over to volumetric supply and pricing of irrigation water system, in which, the water tax is collected at a rate of unit volume of water supplied. The farmer has to pay depending upon his decision regarding the water usages, and the rate and the total revenue vary from farmer to farmer, land to land, and also crop to crop, even in the same ayacut hereby creating a scope for financial incentive for his efficiency in water use. Most of the advanced countries advocate for this type of revenue structure. The reason for introduction of volumetric measurement and pricing of irrigation water is to use water resources judiciously.

Presently, it is proposed to introduce Volumetric Supply and Pricing of Irrigation Water (VSPIW) in one medium (Derjang Irrigation Project) and one Minor Irrigation Project (Darpanarayanpur MIP) of the State as Pilot basis. Prior to actual demonstration of VMP to farmers as well as the field engineers, instruction have been issued to the respective Chief Engineers of the projects, i.e., CE& BM, BRB and CE, MI to rectify the system deficiencies of the selected projects and to conduct hands on training to field Engineer& Farmers by WALMI. In addition to above, action has been initiated to organize a State Level workshop at Bhubaneswar to train our field engineers regarding VMP by inviting the resource persons.