

**14**

**STANDING COMMITTEE ON WATER RESOURCES**

**(2016-2017)**

**SIXTEENTH LOK SABHA**

**MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA  
REJUVENATION**

**REVIEW OF ACCELERATED IRRIGATION BENEFITS PROGRAMME (AIBP)**

**FOURTEENTH REPORT**



**LOK SABHA SECRETARIAT**

**NEW DELHI**

March, 2017 / Phalgun, 1938 (Saka)

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*Presented to Lok Sabha on 16.03.2017*

*Laid on the Table of Rajya Sabha on 16.03.2017*



**LOK SABHA SECRETARIAT**  
**NEW DELHI**

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## SECRETARIAT

- |    |                    |   |                                |
|----|--------------------|---|--------------------------------|
| 1. | Shri Shiv Kumar    | - | <i>Joint Secretary</i>         |
| 2. | Smt. Rita Jaikhani | - | <i>Director</i>                |
| 3. | Shri Kushal Sarkar | - | <i>Additional Director</i>     |
| 4. | Smt. Rinky Singh   | - | <i>Sr. Committee Assistant</i> |

## INTRODUCTION

I, the Chairperson, Standing Committee on Water Resources (2016-17) having been authorised by the Committee to submit the Report on their behalf, present the Fourteenth Report on “Review of the Accelerated Irrigation Benefits Programme (AIBP).”

2. The Committee (2016-17) took up the subject “Review of the Accelerated Irrigation Benefits Programme (AIBP)” for a detailed examination and Report. The Committee took evidence of the representatives of the Ministry of Water Resources, River Development and Ganga Rejuvenation and various States Governments and Union Territories viz. Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal on 08 February, 2016.

3. The Report was considered and adopted by the Committee at their sitting held on 14 March, 2017.

4. The Committee wish to express their thanks to the representatives of the Ministry of Water Resources, River Development and Ganga Rejuvenation for providing the requisite written information and for depositions made - in connection with the examination of the subject.

5. The Committee would also like to place on record their sense of deep appreciation for the assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

**NEW DELHI**  
**8 March, 2017**  
**17 Phalguna, 1938 (Saka)**

**HUKUM SINGH,**  
***Chairperson,***  
***Standing Committee on Water Resources***

**PART-I**  
**CHAPTER I**  
**INTRODUCTORY**

1.1 Water is the most precious and critical natural resource on earth. With signs of water stress all over the world, the need for its sustainable conservation, management and utilization have been recognized and emphasized. The need for developing and managing water resources has assumed tremendous significance in Indian context as more than 50 % of country's workforce is dependent directly or indirectly on agriculture and also because of the predominant role of irrigation in agriculture acquired in last few decades. The world over, the irrigation sector is the largest user of water and in India, the irrigation sector uses approximately 85 percent of its available water resources. According to the Vulnerability Report – 'Intended Nationally Determined Contributions - Template for Vulnerability Assessment, Mitigation and Adaptation', 2015, by the Ministry of Water Resources, River Development and Ganga Rejuvenation, an important source of water in India is groundwater which sustains almost 60% of the country's irrigated area.

1.2 Irrigation, an artificial application of water for the cultivation of crops, is a major catalyst in influencing the agricultural production. Depending on myriad factors like soil type, land topography, water availability, source of water, size of the area being irrigated, etc., various types of irrigation technologies/systems are used worldwide. Irrigation in India broadly includes Well water irrigation system, Reservoir water irrigation system, Canal irrigation system and Multipurpose River Valley Projects. These systems encompasses a network of canals (major and minor), groundwater, wells, tanks, pool, basin, lake, dams, rainwater harvesting projects, etc. and involves diverse methodologies like Manual irrigation, Surface irrigation, Drip irrigation, Sprinkler irrigation etc.



1.3 As per the Operational guidelines of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), out of about 141 Million hectare (Mha) of net area sown in the country, about 65 Mha (i.e 45%) is presently covered under irrigation. In 1950-51, the net irrigated area in the country was 20.853 Mha, whereas in 2012-13, it was 66.103 Mha. Out of 66103 thousand hectare (THa) net irrigated area in the country, approximately 15628 thousand hectare is irrigated through canals (Government and private) and remaining land is irrigated either through tanks, tubewells, other wells and other sources comes to 1748; 30497; 10764 and 7466 thousand hectare respectively.

1.4 Irrigation is a State subject and irrigation projects are formulated, executed and funded by the State Governments themselves from their own resources. A large number of Major and Medium Irrigation Projects in the country were languishing due to various reasons, the most important of them being inadequate provision of funds by the concerned State Governments. As a result, large amount of funds spent on these projects are locked up and the benefits envisaged at the time of formulation of project reports could not be achieved. Since the irrigation projects are capital intensive, States with limited resources at their disposal find themselves unable to meet the desired fund demands of all the projects and the implementation of these projects get delayed. Keeping this in view, the Central Government during 1996-97, launched an Accelerated Irrigation Benefits Programme (AIBP) to provide Central Loan Assistance (CLA) to Major/Medium Irrigation (MMI) projects in the country with the objective to accelerate implementation of those projects which were in advanced stage of completion. While selecting the projects, special emphasis was given to Pre-Fifth and Fifth Plan projects. Priorities were also given to those projects which were benefiting Tribal and Drought Prone Areas.

1.5 Since the inception of the Standing Committee on Water Resources, the Committee have been reviewing the implementation of the 'Accelerated Irrigation Benefits Programme (AIBP)' in their Reports on Demands for Grants (DFG) viz. 3<sup>rd</sup> Report on DFG (2005-06), 5<sup>th</sup> Report on DFG (2006-07), 7<sup>th</sup> Report on DFG (2007-08), 9<sup>th</sup> Report on DFG (2008-09), 1<sup>st</sup> Report on DFG (2009-10), 2<sup>nd</sup> Report on DFG (2010-11), 8<sup>th</sup> Report on DFG (2011-12), 14<sup>th</sup> Report on DFG (2012-13), 17<sup>th</sup> Report on DFG (2013-14), 1<sup>st</sup> Report on DFG (2014-15), 9<sup>th</sup> Report on DFG (2016-17) and their respective Action Taken Reports.

1.6 In addition to the above Reports, the Comptroller and Auditor General of India (CAG) has also conducted the performance Audit of the Accelerated Irrigation Benefits Programme from time to time and submitted its three Reports viz. No. 15 of 2004; No. 4 of 2010 and No. 4 of 2014 (Chapter-II). These audit Reports revealed poor progress in completion of the AIBP projects and creation of Irrigation Potential, poor contract management, cost and time over-runs, repeated modification of the Programme resulting in dilution of original focus, instances of diversion of funds, parking and misuse of funds etc. Besides, studies were also conducted by four national level institutes, namely, Indian Institute of Management, Lucknow (IIML), IIM, Ahmedabad (IIMA), IIM, Bangalore (IIMB) and IIM, Kolkata (IIMC) under the initiative of the Ministry of Water Resources, River Development and Ganga Rejuvenation. These institutions have studied various issues related to the gap between Irrigation Potential Created (IPC) and Irrigation Potential Utilized (IPU), under AIBP Scheme.

1.7 Serious problems have been threatening the success of the Accelerated Irrigation Benefits Programme viz. repeated changes in the programme, gap between the Irrigation Potential Created and Irrigation Potential Utilised, financial irregularities in the AIBP components, delay in completion of projects, lackadaisical monitoring mechanism, etc. Thus, in the present Report, the Committee have

examined and reviewed the progress of the AIBP with special reference to these problems and steps required to remove the bottlenecks and to achieve time bound implementation of the AIBP.

1.8 During the course of the examination of the subject, the Committee took evidence of the representative of Ministry of Water Resources, River Development and Ganga Rejuvenation and various State Governments and Union Territories. Apart from oral testimony of the witnesses, the Committee obtained background documents from the Ministry of Water Resources, River Development and Ganga Rejuvenation for questions, which needed further clarification, post-evidence clarification/ replies thereto were obtained from the Ministry.

1.9 The Committee examination of the subject "Review of Accelerated Irrigation Benefits Programme" *inter-alia* include (i) Genesis and Changes in AIBP (ii) Physical and Fiscal Progress (iii) Monitoring Mechanism / Institutions (iv) Awareness, Training and Research & Development Issues. The views of the Ministry and related aspects have been dealt within the succeeding paragraphs in Part – I of this Report whereas the Observations/Recommendations have been included in Part – II of the Report.

## CHAPTER II

### GENESIS AND CHANGES IN ACCELERATED IRRIGATION BENEFITS PROGRAMME

2.1 The Accelerated Irrigation Benefits Programme (AIBP), one of the four components of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), aims to accelerate completion of ongoing irrigation projects in an advanced stage and ensure access to some means of protective irrigation to all agricultural farms in the country. Initially the Accelerated Irrigation Benefits Programme was launched by the Central Government in 1996-97 to provide Central Loan Assistance (CLA) to Major/Medium Irrigation Projects in the country. However, under the revised AIBP Guidelines from the year 1999-2000, CLA could also be extended to Minor Surface Irrigation Projects of special category States (N.E. States and Hilly States of H.P., Sikkim, Jammu and Kashmir, Uttaranchal and projects benefitting KBK districts of Odisha). Further, w.e.f. 1.4.2005, non-special category States could also include Minor Surface Irrigation Projects with potential more than 100 hectare with preference to the tribal areas and drought prone areas which fully benefit Dalits and Adivasis. The Grant component was introduced under the programme during the year 2004-05 and the Centre provided both loan portion and Grant component of Central Assistance. However, as per the present policy, Centre is providing only the Grant component from 2006-07 and the States are authorised to raise loan component by market borrowing. The Government has further relaxed the criteria for Central Assistance under the AIBP since December 2006. The earlier guidelines stipulating completion of an ongoing project under the AIBP, for including a new project under it, has been relaxed for projects benefitting (a) drought prone areas, (b) tribal areas, (c) States with lower irrigation development as compared to National average, and (d) districts identified under the Prime Minister's package for agrarian distress districts.

2.2 During the Twelfth Plan, the AIBP guidelines has been re-modified and implemented from October, 2013. As per the new guidelines, the *pari-passu*

implementation of Command Area Development (CAD) works have been given more emphasis for the potential utilization. The eligibility criteria for new projects was continued but the advanced stage of construction has been defined in terms of at least 50% of physical and financial progress on essential work like head-works, earth works, land acquisition, R&R, etc. The modified mechanism for completion of 23 priority projects including monitoring mechanism has been issued on 27.1.2016.

2.3 Further, the funding pattern and mode of disbursement have been slightly modified. The Central assistance will be in the form of Central Grant for new and ongoing projects which will be as follows:-

- (i) 90% Central Assistance (CA) of project cost (works component) in case of special category States and KBK region of Orissa;
- (ii) 75% CA of project cost in Special Area i.e., Major/Medium projects benefitting drought prone area, desert prone area, tribal area and flood prone area in non-special category States; and
- (iii) 25% CA of project cost in case of Non-special category States except for (ii) above, could be enhanced upto 50% for new projects subject to condition that the States actually carry out water sector reforms.

2.4 The AIBP guidelines specify following reforms in water sector:

- (i) To implement Micro Irrigation in at least 10% of command area.
- (ii) To enact Participatory Irrigation Management legislation and active working of Water User Association to maintain the system and collecting water cess.
- (iii) New potential is also envisaged along with restoration of lost potential.
- (iv) CAD works have been completed or taken up to be completed.
- (v) To implement measurement on volumetric basis.

2.5 The Committee specifically wanted to know the steps taken to pursue the States to carry out water-sector reforms. To this query, the Ministry, in their written reply stated:

“In the revised AIBP effective from October, 2013, 25% of the Central Assistance is to be provided to States for the Non-Special Category States. Thus, assistance of 25% can be enhanced to 50% for new projects in those States which actually carry out water sector reforms. Thus, incentive has been provided in the guidelines for carrying out water sector reform by the States. The guidelines have become effective from October, 2013 only and reform initiated by State, if any in this regard may take some time to take effect. So far, no proposal in this regard has been received from State Government. The same would be considered as and when States fulfill the said criteria.”

2.6 When the Committee asked about the major changes in AIBP norms since its inception, the Ministry provided the information which is reproduced in the following table:

**Table – 1 : Major changes in AIBP norms since its inception.**

Sl. No.	Date/ Year	Changes in Norms	Impacts
1.	1996-97	Ratio of CLA to State’s share was 1(C):1(S) for General Category States and 2(C):1(S) for Special Category States. `Special emphasis was given to Pre-fifth and Fifth Plan projects. Priority was also given to those projects which were benefiting Tribal and Drought Prone Areas.	As per the assessment made in the report of the “Working Group on Major and Medium Irrigation and Command Area Development(M MI & CAD)” AIBP has been a very successful programme in enhancing irrigation potential in the country is evident from the fact that the irrigation development in major/ medium sector which was about 2.2 Mha per plan till VIII
2.	1999-2000	Ratio of CLA to State’s share was changed to 2(C):1(S) for General Category States while for Special Category States, it was changed to 3(C):1(S). AIBP was also extended to minor surface irrigation projects of special category States (N.E. States & Hilly States of H. P., Sikkim, J&K, Uttaranchal and projects benefiting KBK districts of Orissa)	
3.	Effective from 02/2002	For reforming States of General Category, the Centre-State ratio for loan assistance was kept as 4:1 and that for Special Category States, the centre’s share was 100% and the state’s share was nil. Under Fast Track Programme (FTP) the projects were fully funded by the Centre by providing 100% loan	

		for those priority projects which could be completed within one year or two working seasons.	plan increased to 4.10 Mha per plan during IX plan subsequent to introduction of AIBP as a support mechanism and has further increased to 5.3 Mha in X plan.
4.	Effective from 1/04/2004	The projects receiving CLA under normal pattern of AIBP to be completed in the next 6 to 8 working seasons and projects under Fast Track Programme in 3 working seasons. Fast Track Programme to be fully funded by the Centre by providing 70% loan and 30% grant for General Category States and 90% grant and 10% loan for Special Category States. As an incentive for completion of projects on schedule as per MOU under normal AIBP, CLA was converted to 70% loan and 30% grant for General Category States and 10% loan & 90% grant for Special Category States.	
5.	1.4.2005	It is stipulated therein that the loan component of the assistance to be raised by the States themselves from market borrowings. The completion period of the AIBP projects stipulated as 4 financial years for Normal AIBP and 2 financial years for Fast Track AIBP.	
6.	December-2006	Central grant which is 90% of the project cost in case of special category States, project benefiting drought prone areas, tribal areas and flood prone areas; and 25% in case of Non-Special category States. The balance cost of the project as the State's share is to be arranged by the State Govt from its own resources. completion of an ongoing project under AIBP for including a new project under AIBP has been relaxed for projects benefiting a) drought prone areas, b) tribal areas, c) States with lower irrigation development as compared to National average, and d) districts identified under the PM's Package for agrarian distress districts.	

7.	October, 2013	<p>(i) 90% central assistance (CA) of project cost (works Component) in case of special category States, and KBK region of Odissa</p> <p>(ii) 75 % CA of project cost in Special Area i.e. Major/medium projects benefiting drought prone area, desert prone area, tribal area and flood prone area in non-special category States and.</p> <p>(iii) 25% CA of project cost in case of Non-special category States areas other than covered at (ii) above.</p> <p>Could be enhanced upto 50% for new projects subject to condition that the States actually carry out water sector reforms.</p> <p>The balance funds to be arranged by the State Government from its own resources.</p> <p>Implementation of Command Area Development (CAD) works pari passu with project works was emphasised. The eligibility criteria for new projects was continued but the advanced stage of construction has been defined in terms of at least 50% of physical and financial progress on essential works like Head-Works, Earth Works, Land Acquisition, R&amp;R etc.</p>	
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2.7 The Ministry further submitted the reasons for relaxing the criteria for Central Assistance as under:

“Prior to year 2006, the Centre was providing Central Loan Assistance to the States for completion of their projects and in the year 2006 the guidelines were relaxed and instead of central loan assistance, the Central Government started providing central assistance to the State Government under AIBP for completion of their projects which resulted in creation of more irrigation potential on year to year basis which increased from average annual Irrigation Potential Creation from 357 Th. Ha/year for the period 1996 -2005 to 708 Th. Ha/year for the period 2006-2014”.

2.8 When the Committee desired to know the reasons for making frequent changes in the AIBP, the Ministry in their supplementary written reply, stated:



“To maximise the benefits, the guidelines for of AIBP have been revised from time to time in order to widen the scope of funding as well as to allow special consideration for the regions lagging behind in development, which presently include North-Eastern States, hilly States, drought prone and tribal areas, States with lower irrigation development as compared to national average. At present, the latest modification in AIBP guidelines was made in October, 2013. As per the new guidelines, the *pari-passu* implementation of Command Area Development (CAD) works was given more stress for the potential utilization. It was felt that DDP Area projects may be funded at par with DPAP area as they are even worse affected. Therefore, the new projects under DDP area were made at par with DPAP area for CA.”

2.9 On being asked by the Committee as to how far the relaxing of criteria have been successful, to this the Ministry’s reply was silent. To another query regarding feasibility of making the change in funding pattern to 75(Centre):25(State) for general category States, the Ministry, in their written reply, stated:

“The existing funding pattern is (90:10) in case of North-Eastern States and Hilly areas, (60:40) in case of National Projects and for area under Drought Prone Area Programme (DPAP) and Desert Development Programme (DDP) (on prorated basis) and (25:75) in case of General category States.

After accepting the recommendations of the 14<sup>th</sup> Finance Commission regarding greater devolution of resources to States (from 32% to 42% ) in the Central Divisible pool, more resources are now available with the States and after accepting the report of the subgroup of Chief Ministers on ‘Rationalisation of Centrally Sponsored Schemes’ constituted by NITI Aayog, the funding pattern of PMKSY has been revised to (90(C):10(S) for 8 North-East States and 3 Himalayan States, 60:40 for Special Category States and 25:75 for General Category States). Therefore, change in the funding pattern from 25:75 to 75:25 is not contemplated.”

### **Status of the Sub-schemes of 'Accelerated Irrigation Benefits and Flood Management Programme'**

2.10 The Accelerated Irrigation Benefits Programme, a centrally-sponsored scheme, launched in 1996 and restructured during the financial year 2014-15, has been renamed as 'Accelerated Irrigation Benefits and Flood Management Programme'

(AIBFMP). This includes fund releases to States/UTs in respect of the following sub-schemes:-

- (i) AIBP and National Projects
- (ii) Command Area Development and Water Management
- (iii) Flood Management Programme and
- (iv) Repair, Renovation and Restoration of Water Bodies.

**(i) National Projects**

2.11 The Union Cabinet, in its meeting held on 7<sup>th</sup> February 2008, gave consent to the proposal of the Ministry of Water Resources on implementation of National Projects with Central Assistance of 90% of the cost of the project as grant falling in the following selection criteria:

- i. International projects where usage of water in India is required by a treaty or where planning and early completion of the project is necessary in the interest of the country.
- ii. Inter-State projects which are dragging on due to non-resolution of inter-State issues relating to sharing of costs, rehabilitation, aspects of power production etc., including river interlinking projects.
- iii. Intra-State projects with additional potential of more than 2,00,000 ha. and with no dispute regarding sharing of water and where hydrology is established.
- iv. As per the modification in the guidelines of the schemes of National Projects made in September 2012, Extension, Renovation and Modernization (ERM) projects, envisaging restoration of lost irrigation potential of 2.0 lakh hectare or more would now be eligible for inclusion as a National Project with certain conditions.

2.12 It is stated that the Government of India has approved the scheme of 'National Projects' under the ambit of the AIBP with a view to expedite completion of identified National Projects for the benefit of people. The Scheme of National Projects has been approved for continuation and implementation in the 12<sup>th</sup> Plan by the Cabinet Committee on Economic Affairs on 12.9.2013 with proposed outlay of Rs. 8,150 crore under the ambit of AIBP. So far, 16 projects have been selected in the Scheme of National Projects.

2.13 An analysis of all the 16 National Projects, as provided by the Ministry (**Annexure-I**), has revealed that 5 projects are under execution *viz.* Gosikhund Irrigation project, Shahpurkandi Dam project, Teesta Barrage project, Saryu Nar Pariyojana and Polavaram project, 3 projects are under Appraisal in Central Water Commission (CWC) *viz.* Kishau Multipurpose project, Kushi Dam project and Noa-Dihing Dam project, 2 projects are under PFR Stage *viz.* 2<sup>nd</sup> Ravi Vyas Link project and Upper Siang project, for 2 projects *viz.* Bursar HE project and Gyspa HE project DPR's are under preparation by NHPC and Government of Himachal Pradesh respectively and only 2 projects *viz.* Renuka Dam project and Ujh Multipurpose project are under advanced stage of appraisal in CWC. Besides, one project, Ken Betwa Link project was accepted in 129<sup>th</sup> meeting of TAC held on 8.7.2016 subject to conditions of statutory clearance.

**(ii) Command Area Development and Water Management**

2.14 The Central - sponsored Command Area Development (CAD) programme was launched in 1974-75 for development of adequate delivery system of irrigation water up to farmers' field, with an objective to enhance water use efficiency production, productivity of crops per unit of land and water for improving socio-economic condition of farmers. The Programme was restructured and renamed as Command Area Development and Water Management (CAD&WM) Programme w.e.f. 1-4-2004. The scheme has been implemented as a State Sector Scheme from 2008-09 onwards and is being implemented *pari-passu* with the Accelerated Irrigation Benefits Programme during the Twelfth Five Year Plan. At least, 10% of the total Culturable Command Area (CCA) of each new project is to be covered under micro-irrigation during Twelfth Five Year Plan.

2.15 The funding pattern for all the programme components of CAD&WM Programme is on 50:50 sharing basis between the Centre and the State for all the

components except for the State - sponsored software components (for which the funding pattern is 75:25 basis between the Centre and States), which includes training of farmers and field functionaries and officials, adaptive trials and demonstrations, monitoring and evaluation of the programme, etc. along with one - time financial assistance to Water and Land Management Institutes/Irrigation Management and Training Institute (WALMIs/IMTIs) for strengthening and upgradation of infrastructure and infrastructure grant to WUAs. There is also a provision of one - time functional grants at the rate of Rs. 1,200/- per hectare (45:45:10 as Centre: State: Farmers) to the registered Water Users' Associations (WUAs). The interest accrued from this fund is utilized to upgrade the irrigation system and infrastructure developed under this programme.

2.16 The core components of physical works under CAD&WM Programme are construction of field channels. Since the inception of CAD&WM Programme, in 1974-75 upto March, 2014, CCA of about 20.8 Mha has been covered and Central Assistance of about Rs.5,753/- crore has been released to the States under this Programme and an amount of Rs. 127.93 crore has been released during the year 2014-15 (upto January, 2015). During the 12<sup>th</sup> Plan, a total outlay of Rs. 55,200 crore is approved for continuation of the AIBP programme and for *pari-passu* implementation of CAD&WM programme with AIBP. The outlay for the Twelfth Five Year Five Year Plan for CAD&WM is Rs. 15,000/- crore and the revised physical target is coverage of CCA of 3.6 Mha.

2.17 The components of the 'Command Area Development and Water Management' (CAD&WM) programme are as follows:

- a) Survey, planning and designing of On-Farm Developments (OFD) works;
- b) On - Farm Development (OFD) works comprising construction of field channels, land leveling and micro-irrigation;
- c) Construction of field, intermediate and link drains for letting out surplus water;

- d) Correction of system deficiencies above the outlet up to distributaries of 4.25 cumec (150 cusec) capacity;
- e) Reclamation of waterlogged area including use of location specific bio-drainage techniques to supplement conventional techniques for reclamation of waterlogged area;
- f) One time functional and infrastructure grants to Water Users' Associations;
- g) Trainings/ adaptive trials/ demonstrations through Water and Land Management Institutes (WALMIs)/ Irrigation Management and Training Institutes (IMTIs) and other Central/State institutions and monitoring & evaluation of the programme with 75% funding from Government of India;
- h) One time infrastructure grants to WALMIs/IMTIs; and
- i) Establishment cost - 10% of the total Central Assistance on items (b), (c), (d) and (e).

2.18 The following broad provisions have been included in the CAD&WM Programme during Twelfth Five Year Plan:

- i. To promote water use efficiency in irrigation, new component of micro-irrigation has been included to cover at least 10% of Culturable Command Area (CCA) of each project under the programme. Central Assistance is provided to the States for development of infrastructure for micro-irrigation to facilitate use of sprinkler / drip irrigation as an alternative to construction of field channels. The assistance under this item is not admissible for sprinkler and drip irrigation systems (assistance for drip and sprinkler irrigation systems is available under the schemes of Ministry of Agriculture) but limited to construction of stilling tank, pump house and laying conveyance pipes up to farmer's fields.
- ii. Any new project having investment clearance by the NITI Ayog on CAD&WM component of the project and having provision in the State budget will be eligible for inclusion under the Programme. However, selection of projects from the bunch of projects received from the States will be carried out subject to availability of funds under the scheme.

2.19 The Command Area Development and Water Management wing of the Ministry coordinate and monitor the implementation of the Command Area Development programme at the national level. The physical progress for construction of field channels during Eleventh and Twelfth Five Year Plan as furnished by the Ministry are given as under in a table:

**Table – 2 : Physical progress for construction of field channels during XI & XII Plan.**

(Million hectare)

<b>Eleventh Five Year Plan</b>		
<b>Duration</b>	<b>Targets</b>	<b>Achievements</b>
2008-09 to 2011-12	1.32	1.686
<b>Twelfth Five Year Plan</b>		
2012-13	0.35	0.361
2013-14	0.50	0.308*
2014-15	0.50	0.033*

\*As per reports received from the States till December, 2014

2.20 As per the Annual Report (2015-16) of the Ministry, delay in approval of Cabinet for continuation of the scheme and subsequent delay in issuance of guidelines have adversely affected the progress. On being asked to furnish details regarding the adverse impact, the Ministry, in their supplementary reply, stated:

“Due to lack of Central assistance, the State Governments delayed the works under the Command Area Development and Water Management (CADWM) Programme during 2013-14. Budget - related reductions in CA during 2015-16 also resulted in reduced coverage of command area development works.”

2.21 When asked about the measures taken to mitigate the aforesaid adverse impact, the Ministry, in their supplementary reply, stated that the Command Area Development and Water Management Programme became a part of *Har Khet Ko Pani* component of Pradhan Mantri Krishi Sinchai Yojna (PMKSY) from 2015-16 onwards with enhanced funding of the Rs. 1,142.71 crore targeting CCA of about 5.7 lakh hectare (as reported by States till date). Further, from 2016-17 onwards, funding arrangement for CAD works of 99 prioritized AIBP projects has been made through NABARD borrowing from long term irrigation fund loan and an amount of Rs. 667.37 crore has already been released upto October, 2016 targeting a CCA of about 5.6 lakh hectare.

2.22 Regarding the benefit of pari-passu implementation of AIBP and CAD Programme in accelerating the AIBP, the Ministry further informed in their supplementary reply, that the progress of CAD&WM programme does not affect the targets of AIBP because CAD works are located at the downstream end of the AIBP works.

**(iii) Flood Management Programme**

2.23 The Ministry have informed that during the Eleventh Five Year Plan the Government of India launched the 'Flood Management Programme'(FMP), for providing Central assistance to the State Governments for undertaking works related to river management, flood control, anti-erosion, drainage development, flood proofing including flood - prone area development, restoration of damaged flood management works and anti-sea-erosion works. Under this programme, a Central assistance of Rs. 3,566 crore was released and a total of 420 works were approved out of which 252 works have been physically completed during XI Plan. The completed works have restored 17.004 lakh hectare of old flood - prone area and provided reasonable protection to 2.589 lakh hectare of new flood - prone area.

2.24 In October, 2013 (Twelfth Five Year Plan), the Government of India approved continuation of Flood Management Programme with an outlay of Rs. 10,000 crore. During this Plan, the Central Assistance would also be provided for catchment area treatment projects having objectives of flood management. A total of number of 97 new projects, with an estimated cost of Rs. 4,411.595 crore, have been approved for funding under FMP during Twelfth Five Year Plan. The Central assistance of Rs. 572.85 crore was released under the Programme in the years 2012-13 and 2013-14 (till 31.03.2014) towards ongoing and new works. During the year 2015-16, a budget provision of Rs. 4,200 crore has been proposed for FMP to cover on-going liabilities.

The total Central Assistance released during the 12<sup>th</sup> Plan, upto 31.12.2015, is Rs. 991.39 crore.

**(iv) Repair, Renovation and Restoration (RRR) of Water Bodies**

2.25 During the Tenth Five Year Plan, the pilot scheme namely Repair, Renovation and Restoration (RRR) of Water bodies, directly linked to agriculture, was launched in January, 2005 with an outlay of Rs. 300 crore with 75% Central assistance and 25% by the State Government. Based on the success of this Pilot Scheme, two schemes of RRR, one with domestic support with an outlay of Rs. 1,250 crore and other with external assistance with an outlay of Rs. 1,500 crore were launched during Eleventh Plan. The scheme for continuation for Repair, Renovation and Restoration of water bodies during the Twelfth Plan was approved by the Union Government on 20.9.2013 and guidelines were issued in October, 2013. It is envisaged to provide Central assistance for restoration of about 10,000 water bodies with an earmarked outlay of Rs. 6,235 crore for the scheme and an irrigation potential of 6.235 lakh hectare will be restored. Out of 10000 water bodies, 9000 water bodies would be covered in rural areas and balance 1000 water bodies would be in urban areas. The proposal of water bodies, where the Integrated Water Management Programme (IWMP) is implemented, would also be considered for inclusion under the scheme of RRR of water bodies. The Central assistance is provided in the form of grant which is 90% of the project cost only in special category States (NE States, Himachal Pradesh, J&K, Uttarakhand and undivided KBK districts of Odisha) as well as projects lying in drought prone area, tribal area, desert prone area and Naxal - affected areas and 25% of the project cost in case of non-special category States/areas.



2.26 The Standing Committee on Water Resources (2015-16) in their 10<sup>th</sup> Report had examined this subject in detail under the heading 'Repair, Renovation and Restoration of Water Bodies-encroachment on Water Bodies and steps required to remove the Encroachment and Restore the Water Bodies' and have presented it on 02.08.2016.

## CHAPTER III

### PHYSICAL AND FISCAL PROGRESS

3.1 Since the inception of the Accelerated Irrigation Benefit Programme in 1996, 297 Major and Medium Irrigation (MMI) Projects have been taken up. Out of 297 projects 143 MMI projects have been completed, 5 have been deferred, while remaining 149 projects are ongoing. Presently, a total of 80.77 lakh hectare Irrigation Potential has been created and funds released are Rs. 68112 crore. Of the 149 ongoing projects 89 projects are presently active, out of which 46 projects (target potential is 45.43 lakh ha) have been prioritized for completion. Out of these 46 prioritised projects, 23 projects have been further shortlisted for completion by March 2017. Remaining 23 projects are targeted to be completed by March, 2020. Further, 12,552 Surface Minor Irrigation schemes have also been completed.

3.2 The 5 projects that have been deferred under AIBP are given in the following table:

**Table - 3: 5 Projects deferred under AIBP.**

State	Project Name	Major/ Medium	Plan Year	Year of Inclusion under AIBP
ANDHRA PRADESH	Kanupur Canal	Medium	III	2000-01
HARYANA	J. L. N. Lift Irr.	Major	V	1997-98
JHARKHAND	Torai +	Medium	V	1997-98
MEGHALAYA	Rangai Valley	Medium	VIII	2000-01
UTTRAKHAND	Lakhwar Vyasi	Major	V	1997-98

3.3 When the Committee asked the reasons for deferring the 5 projects, the Ministry submitted:

**(i) Kanupur Canal Scheme Project**

The State government has proposed for deletion of the project from the scope of AIBP due to legal complications/court cases.

**(ii) J. L. N. Lift Irr. Scheme**

Since planning of the water resources projects is done by the States, considering various factors/requirements, State did not pursue the project in that form.

**(iii) Torai Irrigation Project**

Torai Irrigation Project of Jharkhand has been abandoned by the State due to Public Agitation.

**(iv) Rongai Valley Medium Irrigation Project**

The State Government had intimated that the project has been closed as per the decision of the State Government keeping in view of their requirement and priorities.

**(v) Lakhwar Vyasi**

The State Government has planned to bifurcate works of this project into two projects namely Lakhwar and Vyasi. Therefore project at that time was foreclosed.”

3.4 As per information received from Ministry of Water Resources, River Development and Ganga Rejuvenation, the target and funds required for 89 ‘Active Projects’ by March, 2020 are as shown in the following table:

**Table – 4: Targets and funds required for 89 ‘Active Projects’ (by March 2020)**

IP target	80.62 lakh Ha.
Balance IP	34.97 lakh Ha.
Fund Required for Canal Network for CAD works	Rs.55163 crore Rs.31248 crore
Total requirement (Central & State Share)	Rs.86411 crore
Yearly requirement in next 5 years	Rs.17300 crore

3.5 The Ministry also furnished the details of the 46 prioritised Projects (out of 89 active projects) as given under:

- (a) 23 shortlisted projects: Following 23 projects are targeted to be completed by March'17 along with CADWM component, preferably through Micro irrigation for Balance area Distribution Network through Pressure Pipe Network to the extent feasible Cost frozen.

**Table – 5: 23 shortlisted projects out of 46 prioritised Projects under AIBP.**

Assam	2
Rajasthan	1
J&K	3
Karnataka	2
MP	4
Maharashtra	7
Manipur	2
Odisha	1
Telangana	1

The funds requirement for completion of shortlisted 23 projects (out of prioritized 46 projects), AIBP component, is Rs. 8,030 crore (Central share Rs. 3,950.42 crore and Rs. 4,080 crore State share). These projects are likely to be completed within March 2017 and would create an additional potential of 4.58 Lakh hectare out of total target of 13.18 Lakh hectare for these projects. The corresponding CAD activity for these 23 projects will require funding of Rs.5,308 crore with a Central share of Rs. 2,654 crore an equal amount of State share. Thus the total projected fund requirement for completion of these 23 projects including CAD Works is Rs.13,338 crore covering both Central (6,604 crore) and State Share (6,734 crore).

**Table – 6 : Target and funds for 23 projects shortlisted required by March, 2017**

IP target	13.18 lakh Ha.
Balance IP	4.58 lakh Ha.
Fund Required for Canal Network for CAD works	Rs. 8030 crore Rs. 5308 crore
Total requirement (Central & State Share)	Rs. 13338 crore

(b) Balance 23 Priority projects are targeted to be completed by March,2020 along with CADWM component Preferably through Micro irrigation Balance Distribution Network through Pressure Pipe Network Cost frozen

The fund requirement for remaining 23 projects (out of 46 prioritized projects), AIBP component, is Rs.35,133 crore (Central share Rs. 16,609 crore and 18,524 crore state share). These projects are likely to be completed in phases by March' 2020 and would create and an additional potential of 14.04 lakh ha out of a total target of 32.25 lakh ha. The corresponding CAD activity for these balance 23 projects will require funding of Rs.12,403 crore with Rs.6,201 crore as Central share and equal amount of state share. Thus the total projected fund requirement for completion of these 23 projects including CAD Works is Rs. 47,538 crore covering both Central of Rs. 22,810 crore and State Share of Rs. 24,725 crore (which includes Rs. 17,255 crore for Sardar Sarover Project including CAD works).

**Table – 7 : Target and funds for remaining 23 projects required by March, 2020**

IP target	32.25 lakh Ha.
Balance IP	14.04 lakh Ha.
Fund Required for Canal Network for CAD works	Rs. 35133 crore Rs. 12403 crore
Total requirement (Central & State Share)	Rs. 47536 crore

3.6 As regards the status of the remaining 43 (out of 89 active projects) projects, the Ministry submitted:

“These 43 (89-46) projects are targeted to be completed by March 2020 along with CADWM component Preferably through Micro irrigation Balance Distribution Network through Pressure Pipe Network Cost frozen.

For completion of remaining 43 ongoing AIBP Projects, approx. Rs.6,000 crore of Central share may be required. These projects are at various stages of completion. Total cost including state share is likely to be Rs.12,000 crore. CAD works required Rs.13,535 crore. Total requirement for completion of the project including CAD is Rs.25,535 crore.”

**Table – 8 : Target and funds for additional 43 projects required by March '2020**

IP target	35.20 lakh Ha.
Balance IP	16.35 lakh Ha.
Fund Required for Canal Network for CAD works	Rs. 12000 crore Rs. 13535 crore
Total requirement (Central & State Share)	Rs. 25535 crore

3.7 On being asked by the Committee about the time - limit specified for completion of projects at Central Government level (Third Tier), the Ministry stated that as per the AIBP guidelines, the MMI projects included in the AIBP for providing Central assistance are to be completed in 4 years period (excluding the year of inclusion). However, if due to any practical reason the completion is not possible within the stipulated time period, extension of time is given.

3.8 When asked to furnish details about the cases where projects have not been completed as per the scheduled time line, along with the reasons for the delay, the Ministry, in the written reply, submitted:

“The irrigation projects under AIBP are required to be completed within a period of four years. However, completion of some irrigation projects is delayed due to various reasons such as land acquisition, Resettlement and Rehabilitation of the affected population, Clearance from the Ministry of Environment and Forest, litigation, geological surprises during execution, paucity of funds etc.

As mentioned above, a Committee under the Chairmanship of Shri Brijmohan Agrawal, Hon’ble Minister (WR), Chhatisgarh had been constituted to look into various issues related to implementation of PMKSY. Based upon inputs from the State Government, the committee has identified 99 projects, out of which 23 projects are targeted to be completed by 2016-17, 31 projects by 2017 and rest 45 projects by 2019-20. The funding of these projects is also envisaged through NABARD.”

3.9 The Ministry also categorically submitted that one of the major challenges faced by them is the insufficiency of funds for providing Central Assistance to the ongoing projects under AIBP for their timely implementation. However, this has been overcome by the decision to fund prioritized ongoing AIBP projects through NABARD.

3.10 When the Committee enquired about the initiative envisaged for overcoming the aforesaid problems / challenges encountered in implementing the projects, the Ministry, in their Supplementary reply, stated:

“As per the latest initiative taken by MOWR,RD&GR to overcome the bottlenecks faced in project completion , 99 projects have been prioritized amongst the 149 ongoing projects under AIBP. Out of these priority projects 23 projects have been shortlisted having least bottlenecks planned to be completed by March 2017 and remaining projects to be completed in phases by December, 2019. The priority projects are being closely monitored at various levels to overcome the bottlenecks and to complete them as per time schedule.”

3.11 On the issue of cost over-run due to delay in completion of projects, the Committee on ‘Restructuring of CWC and CGWB’ headed by Dr. Mihir Shah had observed that the average cost over-run is as high as 1382% in Major Irrigation Projects and 325 % in Medium Projects. In response to a query by the Committee about the measures taken to check / reduce the cost over-run of the projects, the Ministry in their supplementary reply, stated:

“One nodal officer for each of the 99 priority projects has been identified who would be updating the physical and financial progress of the project regularly in the MIS developed for this purpose. A mobile app and dashboard for monitoring the progress of the projects is also under development. Further, third party monitoring is also envisaged for the 99 prioritized projects. Apart from this, CAG has been requested to take up the concurrent audit of these prioritized projects. All these efforts are expected to help in timely completion of the projects.”

**(a) Budget Allocation and Utilization**

3.12 Since the inception of the Accelerated Irrigation Benefits Programme, till January 2016, a total Central Assistance of Rs. 68,110.156 crore has been released for 297 Major/Medium Irrigation (MMI) projects and 16,769 Surface Minor Irrigation (SMI) Schemes. Allocation proposed for Twelfth Five Year Plan for AIBP and National Projects is of Rs. 55,200 crore (Rs. 47,050 crore for AIBP and Rs. 8,150 crore for National Projects). As per the modified guidelines for AIBP effective from October, 2013, the eligibility criteria for inclusion of projects, the terms of funding and the mode of disbursement is at **Annexure II**.

3.13 The year-wise Central Assistance released and Irrigation Potential (IP) created, upto March 2015, under AIBP as furnished by the Ministry are given in the table below:

**Table – 9 : Year wise Central Assistance and Irrigation Potential Created (upto March, 2015).**

Sl. No	Year	Potential in Th. Ha.		IP Created (SMI)	IP Created(TOTAL)
		Rupees in Crore			
		Funds Released	IP Created(MMI)		
1	1996-97	500.01	76.29		76.29
2	1997-98	952.19	199.47		199.47
3	1998-99	1119.18	259.55		259.55
4	1999-00	1440.06	226.35	0.782	227.13
5	2000-01	1818.10	532.88	18.438	551.32
6	2001-02	2650.50	445.85	25.72	471.57
7	2002-03	3059.53	388.69	23.654	412.34
8	2003-04	3128.71	443.45	23.351	466.81
9	2004-05	2867.34	517.57	27.884	545.45
10	2005-06	1900.31	641.58	33.136	674.71
11	2006-07	2301.97	543.03	80.95	623.98
12	2007-08	5445.71	639.16	119.623	758.79
13	2008-09	7598.22	483.28	191.303	674.58
14	2009-10	6955.13	345.90	152.82	498.72
15	2010-11	6837.20	961.14	160.365	1121.50
16	2011-12	5783.90	328.44	278.568	607.01



17	2012-13	5904.13	461.58	135.077	596.65
18	2013-14	4033.06	700.71	206.784	907.49
19	2014-15	2610.33	785.41	7.078	792.49
<b>Total</b>		<b>66905.58</b>	<b>8980.33</b>	<b>1485.53</b>	<b>10465.86</b>

\*Data of IPU in respect of individual project under AIBP is not available.

3.14 The gross fund requirement for 89 active projects under AIBP as provided in the background note is stated to be:

- i) For completion of 23 prioritized MMI projects with CADWM works about Rs. 13,338 crore. (Central share of Rs.6,604 crore and State share of Rs. 6,734 crore)
- ii) For remaining 23 projects out of 46 prioritized MMI projects with CADWM work Rs. 47,538 crore (Central share of Rs. 22,810 crore and State share of Rs. 24,725 crore).
- iii) For other 43 projects out of 149 total ongoing MMI projects with CADWM works Rs. 25,535 crore. (Central share of Rs.12,768 crore and State share of Rs. 12,768 crore)
- iv) Total fund requirement is approximately Rs. 86,411 crore (Central share of Rs. 42,182 crore and State share of Rs. 44,229 crore)

3.15 The Ministry also informed that Rs. 86,411 crore is required for completion of 89 active ongoing projects along with their CAD Works. This requirement if made available in next five to seven years at approximately Rs. 17,300 crore per year through NABARD/ consortium of banks by issuing tax free bonds etc., the loan from NABARD /consortium of banks will be repaid in 10 to 15 years from the annual budget of State Governments and Ministry of Water Resources, River Development and Ganga Rejuvenation.

3.16 When the Committee asked about the problem encountered in distribution/management of fund and measures taken to mitigate those impediments the Ministry, in their supplementary reply, submitted:

“Earlier, there had been challenges in the budgetary provisions in respect of Central assistance (CA) to be provided for AIBP projects. To overcome the same, the arrangement of funds (both Central and State share) for completion of 99 prioritized projects have been made by taking loan from

NABARD. Now, adequate funds are available to the States as per their budget provisions. Also, a Mission has been established for completion of 99 prioritized projects in phases by December, 2019 including their CAD&WM works.

To keep close watch on the physical and financial progress of the projects, one nodal officer for each of the 99 priority project has been identified who would be updating the physical and financial progress of the project regularly in the MIS developed for this purpose. A mobile app and dashboard for monitoring the progress of the projects is also under development. Also third party monitoring of these projects would be carried out besides monitoring visits by CWC offices.”

3.17 On being asked as to how far the States have been successful in raising the loan component by market borrowing, the Ministry, in their written reply, stated:

“The Central Government is providing Central assistance under AIBP for which State share is to be provided by the States as per guidelines of AIBP. Other Non-AIBP projects are implemented by States from either their own resources or by taking the loan from the other agencies such as NABARD, JICA, World Bank or ADB etc. as per their convenience. However, the details are not maintained by this Ministry in respect of such projects”.

3.18 Responding to a specific query as to whether all the States fulfil their share, the Secretary, M/o WR, GR & RD, during the evidence held on 8<sup>th</sup> February, 2016 submitted:

“Sir, by and large States arrange their funds. We don’t release funds to them till they provide us with a letter from their Ministry of Finance to this effect that we will provide a certain amount for the said purpose. First we ensure as the funding has been our constraint.”

3.19 As regards the measures taken to tackle the concerns of States which are not getting fund on time, the Ministry informed the Committee:

“To overcome the same, the arrangement of funds (both Central and State share) for completion of 99 prioritised projects has been made by taking loan from NABARD. Now, adequate funds are available to the States as per their budget provisions.”

3.20 When asked about the steps taken to ensure proper allocation and utilization of fund State Governments, the Ministry, in their written reply, stated:

“To ensure proper utilization of the funds, the State Governments are requested to submit the utilization certificate in respect of projects where Central assistance is released. The States are also required to carry out the audit of the works after release of funds and submit the audit certificate from the Auditor General Office. Apart from above, the regional offices of Central Water Commission (CWC) which is an attached office of MoWR, RD & GR also monitor the projects where Central assistance has been released and report physical and financial progress of the project.”

3.21 On the issue of the diversion and misuse of fund, as observed by the CAG in audit Report No. 4 Of 2014 (Chapter-II), and the steps taken to check them, the Ministry submitted:

“In order to ensure that the funds released to the projects are used for intended purpose, utilization certificates duly countersigned by the concerned Principal Secretary of States and audited Statement of Expenditure are sought from the States. CWC regularly monitors the physical financial progress of the project. Further, third party monitoring is also envisaged for the 99 prioritized projects. Apart from this CAG has been requested to take up the concurrent audit of these prioritized projects.”

3.22 To a specific query by the Committee about the current status of issuing of false certificates for completion of the AIBP and the steps taken against the authorities issuing the same, the Ministry, in their supplementary reply, submitted to the Committee:

“The issue of certification of some incomplete projects as complete by some State Governments was raised by Public Accounts Committee in their Report No. 68 (Para 5). The Committee was apprised of the status of the 12 projects which were reported complete. Out of these, 10 projects have achieved irrigation potential more than 95%, which were declared complete by the States following recommendations of the conference of Chief Secretaries/Principal Secretaries of State Govt./UTs held in 2004 that the State should declare those projects complete which have achieved more than 90% of physical targets. One project declared complete had achieved potential more than 80%. However, the same could not be taken up further due to

public objection and some works were excluded from the scope of AIBP and State closed the project and declared AIBP assisted component as completed. One project is ongoing and included in the 99 prioritized ongoing projects.”

**(b) Irrigation Potential created (IPC) and Irrigation Potential utilized (IPU)**

3.23 The objective of the Accelerated Irrigation Benefit Programme is to extend financial assistance to the States for creation of Irrigation Potential by completion of Irrigation Projects which are at advanced stage of construction. During the post independence era, a large number of Irrigation Projects were constructed for increasing agricultural production in the country. However, during early seventies an analysis of Irrigation Potential Created and Utilised revealed that there was a substantial gap between them. In 1972, the Irrigation Commission in their Report had made specific recommendation that systematic development of commands of irrigation projects should be taken up in order to fully utilise the Irrigation Potential created. Subsequently, in 1973, a Committee of Ministers, set up by the Ministry of Irrigation and Power, analysed the issue and suggested that a broad based Area Development Authority should be set up for every Major Irrigation project to undertake the work of comprehensive area development. Based on this recommendation, the Government of India, in December 1974, initiated a Centrally sponsored Command Area Development Programme (CADP) to improve irrigation potential utilisation and optimise agricultural production from irrigated land through integrated and coordinated approach of efficient water management.

3.24 The details of state-wise Irrigation Potential Created (IPC) and Irrigation Potential Utilisation (IPU) for MMI and MI are given at **Annexure-III**.

3.25 According to the Vulnerability Report – ‘Intended Nationally Determined Contributions - Template for Vulnerability Assessment, Mitigation and Adaptation’, 2015, by the Ministry of Water Resources, River Development and Ganga Rejuvenation, the Ultimate Irrigation Potential (UIP) of the country has been

estimated as 139.9 Million hectares (MHa). Till the end of the Eleventh Plan (2012), an Irrigation Potential of 113.53 MHa (provisional) had been created and 87.86 MHa Irrigation Potential had been utilized. A balance of 26.37 MHa of irrigation potential remained to be created to achieve the target of Ultimate Irrigation Potential. There was a gap of 25.67 MHa or irrigation potential that has been created and utilized till the end of Eleventh Plan.

3.26 Even the Report on 'Restructuring of CWC and CGWB' by the Committee headed by Dr. Mihir Shah had observed that the Irrigation Potential created is 113 Mha whereas the potential utilized is 89 Mha and the gap is growing by the year.

3.27 Further, as per the Ministry, the targets for the Accelerated Irrigation Benefits Programme during Twelfth Plan period are as reproduced below:

**Table – 10 : Targets for AIBP during XII Plan.**

Sl. No	Activities	Revised Target (in Lakh ha)
1.	Creation of new irrigation potential (IP) through completion of ongoing MMI projects and new MMI projects and restoration of lost irrigation potential through ERM of old MMI projects	24
2.	Creation of new irrigation potential (IP) through completion of new and ongoing surface Minor MI projects	10
3.	Closing the gap of irrigation potential created and irrigation potential utilised	36

3.28 Considering the issue of widening gap between IPC and IPU, the Ministry had sponsored study by the four premier Institutes of the country, namely, IIMA, IIMB,

IIMC and IIML, for understanding and preparing strategies for resolving this problem. When the Committee asked about the action taken on the study carried out by the four IIMs, the Ministry did not provide any specific reply.

3.29 When asked about the reasons for under-utilisation of Irrigation Potential Created, the Ministry, in their supplementary reply, provided following reasons:

- i. Dilapidated condition of canals/distributaries and other control structures
- ii. CADWM works not taken up.
- iii. Unlined Canals.
- iv. Diversion of water for other purposes.
- v. Diversion of Command (change in Land Use).
- vi. Change in cropping pattern.

3.30 On being further asked about the measures taken by the Ministry to bridge the gap between IPC and IPU, the Ministry in their supplementary reply, stated:

“As regards to tackle the gap between IPC and IPU *pari-passu* implementation of CAD with AIBP is envisaged for 99 ongoing prioritized projects, for which provision of adequate funds have been arranged through NABARD. Also a new scheme of incentivisation to bridge the gap between IPC and IPU is under preparation in respect of the completed projects.”

3.31 To a specific query regarding hindrances that are still persisting in bridging the gap between Irrigation Potential created and utilized, the Ministry in the supplementary reply, submitted three major hindrances which are as follows:

- (i) Gap in terms of ‘On Farm Development’ works and Micro Irrigation infrastructure in the command of irrigation projects.
- (ii) Deficiencies in the old irrigation canal network.
- (iii) Gap in participatory irrigation management.

## CHAPTER IV

### MONITORING MECHANISM / INSTITUTIONS

4.1 The Accelerated Irrigation Benefits Program is being implemented under the overall charge of the Ministry of Water Resources, River Development and Ganga Rejuvenation (MoWR, RD & GR) with Central Water Commission (CWC) having been assigned the responsibility to comprehensively monitor the projects receiving Central Assistance (CA). The programme is also overseen by the Department of Programme Implementation. As per the present practice, the Field Monitoring Directorates of Central Water Commission are monitoring the physical and financial progress of AIBP on continuous basis and sending monitoring reports to the Department of Programme Implementation, MoWR, RD & GR and CWC (Headquarter) and others concerned.

4.2 The monitoring of the projects is an essential part of AIBP for hassle - free and time-bound completion of the projects included in it. The Central Water Commission carries out periodical monitoring of physical and financial progress of the projects which involves periodical visit and submission of the status report of the project by CWC. Review meeting is taken by the Secretary, MoWR, RD and GR, every year with the Secretary, Water Resources/Irrigation of the State Governments, Officers of CWC, and Planning Commission to review the physical and financial progress of the projects under AIBP and for resolving the bottlenecks witnessed in the completion of the project.

4.3 Irrigation projects are monitored by CWC with the help of its 13 Regional offices situated all over the country (at Bangalore, Bhopal, Bhubaneswar, Chandigarh, Coimbatore, Delhi, Gandhinagar, Hyderabad, Lucknow, Nagpur, Patna, Shillong and Siliguri) and a Project Monitoring Organization (PMO) at the Headquarter (HQ). The Project Monitoring Wing at CWC (HQ) consists of a Chief

Engineer (PMO) and five monitoring Directorate having jurisdiction over different States in the country. The jurisdiction of the Monitoring Directorate is as follows:

**Table – 11: Jurisdiction of Monitoring Directorate of CWC.**

Sl. No.	Directorate	States
1.	Monitoring East	North Eastern States, Jharkhand, West Bengal, Bihar
2.	Monitoring West	Punjab, Rajasthan, Gujarat
3.	Monitoring South	Kerala, Tamiladu, Andhra Pradesh, Odisha, Karnataka
4.	Monitoring North	J&K, UP, Haryana, Himachal Pradesh, Uttrakhand
5.	Monitoring Central	MP, Maharashtra, Goa, Chhattisgarh

4.4 To a query by the Committee as regards the sufficiency of 13 Regional offices for monitoring all the AIBP projects, particularly in North East and difficult terrain, the Ministry in their supplementary reply, stated:

“13 regional offices are located in the different parts of the country to cater the needs of the each region so staff strength is not a hindrance in carrying out the monitoring of the AIBP projects. However, law and order situation/education etc., sometimes have been a reason for the next visit of the projects in some regions.

In respect of 99 prioritized AIBP projects, apart from CWC monitoring visit, third party monitoring visit are also being planned and NABARD may also make the monitoring visits to these projects wherever it desires so.”

4.5 In response to the Committee’s query regarding the physical and financial monitoring of Major and Medium projects, in their 14<sup>th</sup> Report on Demands for Grants (2012-13), the Ministry had stated that CWC carries out monitoring as per the AIBP guidelines since 1996-97, however, there may be some shortfall towards the number of visits depending upon the availability of fund under domestic travel head. When asked about the measures taken to overcome the hurdle of availability of fund



that had affected the number of visits for physical and financial monitoring of AIBP projects, the Ministry in their supplementary reply, stated:

“As regard monitoring visits of 99 prioritized projects by CWC separate TA/DA is available with CWC. Further, for third party monitoring visits of these projects adequate provision has been kept in the scheme of PMKSY by taking funds either from NABARD or Government budgetary support.”

4.6 The detailed mechanism for monitoring of Projects under AIBP (Major/Medium Irrigation projects and Surface Minor Irrigation Projects) both at Centre and State level is provided at **Annexure IV**. The monitoring mechanism for completion of 23 priority projects is also at **Annexure V**.

4.7 As per the Background note provided by the Ministry, a three - tier system of monitoring of irrigation projects at the State and Centre level was introduced in 1975. At the Central level, this work is entrusted to Central Water Commission (CWC). The main objective of monitoring is to ensure the achievement of physical and financial targets of creation of Irrigation Potential. The potential creation achievement by the Irrigation Projects must be utilized to derive the benefit. Monitoring of the project also ensures potential utilization. It is expected to contribute in identification of the inputs required, analysis of the reasons for any shortfalls/bottlenecks and suggest remedial measures, etc., with a view to complete the projects in a time-bound manner. Monitoring aids in getting a true picture of the status of the project implementation for enforcing remedial measures at a higher level and also to impress upon the State Government, who is executing the project, to address the bottlenecks holistically. It is also helpful in reviewing the continuance of the Central Assistance releases to the project under AIBP.

4.8 First and second tier monitoring of the project is done at project level and State Government level respectively. The continuous monitoring of the project by these agencies is crucial for effective management and addressing bottlenecks for

timely completion of the project. Monitoring units are established in all the States as per directions of the MoWR, RD & GR. Monitoring at the Central level by MoWR, RD & GR/CWC, being the third - tier of the monitoring mechanism, is very important to address the bottlenecks at national level and also to achieve harmony amongst all stakeholders of the project, necessary for its accelerated completion. With the Central Assistance being provided by the Central Government the role of monitoring at Central level is very much needed.

4.9 When asked about the mechanism adopted in case of any failure detected at the first - tier of monitoring, Ministry, in their written reply, submitted:

“At the State level, States carry out monitoring of their projects. Further, as per the AIBP guidelines, the State Governments are required to submit the quarterly report on physical and financial components to the regional office/ CWC (Head Quarter). The shortcomings if any, are also observed through the monitoring visit conducted by CWC at least once in a year for each project, for which funds have been released. The shortfalls are reported in the monitoring reports and intimated to the States for their corrective action. The observations made in the monitoring reports are also reviewed during the next monitoring visits.”

4.10 As per the present arrangement in CWC, the projects under AIBP and Repair, Renovation and Restoration of water bodies (RRR) are monitored by respective field units and inter-State whereas externally assisted and Centrally aided projects are being monitored by Directorates of PMO/PPO at HQ. Surface minor irrigation projects receiving Central Assistance are also required to be monitored by CWC. AIBP Major and Medium Irrigation (MMI) projects are presently inspected twice a year and the status reports are prepared and issued to all concerned. While 100% MMI projects are covered by CWC for their monitoring, the monitoring of minor irrigation schemes is targeted for only 5% of MI Schemes. The Ministry have also informed that

a suitable mechanism for monitoring rest of the Minor Irrigation Schemes getting Central Assistance under AIBP by MoWR, RD & GR and CWC is necessary.

4.11 According to the latest AIBP guidelines, monitoring visit is to be undertaken once in a year to the projects subsequent to release of CA. Monitoring Reports are issued based on the status of physical/financial progress, indicating major bottlenecks, if any, to implement the project along with suggestions on their remedial measures.

4.12 Regarding the monitoring visits undertaken in last three year the Ministry have informed as follows:

**Table – 12: Monitoring visits undertaken in last three years under AIBP.**

<b>Year</b>	<b>Monitoring Visit</b>
2012-13	163
2013-14	108
2014-15	56
<b>Total</b>	<b>327</b>

4.13 When further asked for the reasons for decrease in the field visits, the Ministry, in their supplementary reply, submitted:

“Visits up to 2012-13 were being taken as per old monitoring guidelines twice in a year. After revised guidelines for XII Plan, projects are to be visited once only to which CA have been released in the previous year. Since number of projects that were released Central Assistance in the XII five year Plan reduced owing to reduction in budget which resulted in decrease in required number of visits.”

4.14 As regards the process of verification of completion of Projects, procedure of investigation and audit Reports the Ministry, in their supplementary reply, have stated:

“After creation of 90% or more targeted irrigated potential, the State Government issue the completion certificate. The project Completion reports consist of physical progress, cumulative expenditure preferably with year-wise expenditure since commencement of the project, cumulative potential creation with specific detail of canal/branch/distributaries/minors/sub-minors-wise potential creation & potential utilization of the project. In case of submergence, the details of completion of R&R activities are given. Further, once project is reported by state to be completed, the status would be confirmed during next monitoring visit by CWC/third party.”

4.15 When asked whether the States are furnishing their audit Report regularly, the Ministry responded:

“The audit of the expenditure incurred on the AIBP projects is carried out by the States from time to time. However, some delay may occur owing to less staff strength etc. or delay in carrying out audit by concerned authorities. In respect of 99 prioritized projects, CAG has already been requested to carry out the concurrent audit and it is expected the regular audit of these projects would be available.”

### **Online Monitoring Mechanism**

4.16 As regards the online monitoring of MMI Projects, the Ministry informed the Committee:

- (i) This activity is in the offing. The CWC (HQ) shall workout the financial implications for his activity and shall seek approval of the M/o WR, RD & GR to make this activity operational.
- (ii) Based on QPRs received from the Project and the Satellite imageries of the Project, the online monitoring of Projects will be taken up by CWC HQ and CWC Regional offices.
- (iii) Paper print of satellite imagery clearly indicating the project components shall be sent to CE (PMO) and CWC Regional office at the time of inclusion of the project in AIBP and at the end of each year.
- (iv) Satellite imagery study as an Online Monitoring activity shall be undertaken by the Monitoring team in advance to have an idea of the probable areas of concern of hydraulic gap and low progress. The CWC HQ shall be informed in advance. These points shall be covered during the monitoring visit so that effective monitoring is possible within the time

available for the visit. Monitoring of CAD works will also be carried out during monitoring visit of major and medium irrigation project.

- (v) The assessment of the gaps in the canal network causing hydraulic discontinuity and bottlenecks in the progress of the project shall be made so that these bottlenecks are visited. The mention of the selection of such gaps in advance by the team and the result of the field inspection must be including in the monitoring status report.

4.17 The Remote Sensing Technique (RST) has also been deployed for assessing the creation of Irrigation Potential by the projects under the AIBP through satellite imagery taken by National Remote Sensing Centre (NRSC), Hyderabad, using CARTOSAT Satellite data. In the first phase (during 2009-10), the study of 53 projects covering area of 5,447.743 thousand hectare have been completed by the NRSC. In the second phase (during 2013-14), work for similar study in respect of 50 AIBP funding projects covering an area of 851.428 thousand hectare have been completed. All the 50 Reports have been submitted by NRSC, Hyderabad.

4.18 When the Committee asked about for the status of the online monitoring of MMI Projects, the Ministry submitted:

“Imageries need to be procured at present through NRSC but in the absence of multispectral indigenous imagery, NRSC has suggested to procure KOMPSAT imageries at least for the command area predominantly covered by minors/subminors/laterals etc. A proposal is under way for procurement of Cartosat-II and KOMPSAT imageries for 99 priority projects during the requisite period.”

4.19 Ninety-nine prioritized projects have been delineated on the GIS platform indicating main and branch canals and the command of the project. The Ministry have informed that in 34 of the projects, cropped area in Rabi/Kharif has been assessed using the satellite imageries and compared with the IPU reported by the project authorities and the results are found to be satisfactory. Further, monitoring would also be done when imageries are procured in due course as per requirements.

4.20 Based on the hand on practices on the pilot projects taken up by CWC on Bhuvan portal, the present limitation of Cartosat-I and II imageries hosted in Bhuvan Platform makes it unsuitable to fulfil the envisaged objectives primarily due to the low resolution of these C-I and C-II imageries with 2.5 m and 1 m respectively and secondly the tools/user manual available in the portal with limited facility and not so user friendly. The most of the CWC and FU asserted that with the use of Google Earth (with or without assistance of Arc-GIS software) or any other Open Source Software (OSS) better results are possible due to imageries with better resolution to the extent of 50cm with multispectral panchromatic imagery, available in Google Earth. Monitoring South Directorate, Bangalore has digitized the complete Bhima LIS project on Google Earth and tried to convince by carrying out a comparative study between the results obtained by Bhuvan Portal and Google Earth that the free source imagery from it may lead to better results than that from the indigenous Cartosat imagery C-I and C-II, which firstly is required to be purchased in advance at exorbitantly high cost fixed by NDC and then to be processed and hosted by NRSC in Bhuvan making the whole exercise cost prohibitive. Accordingly, the CWC Monitoring and Monitoring and Appraisal Directorates (M&A Dtes) have been requested to go ahead in this regard. Awareness training was also conducted to begin with digitization at CWC (HQ) in particular and regional directorates in general. However, if low cost and high resolution multispectral indigenous imageries are made available, extensive use is possible for GIS application with assistance of Arc-GIS software, in irrigation and water resources, being widespread coverage of the irrigation projects completed as well as at various stages of implementation. The digitization of the priority projects under AIBP are in progress using Google Earth.

4.21 When asked about hindrances which have been witnessed in implementing Remote Sensing Technique and the measures taken to overcome them, the Ministry stated:

“The resolution of Cartosat imageries( >1.0 m) is a constraint in effective implementation of remote sensing technique. To overcome this, it has been decided to obtain the better resolution imageries from KOMSAT.

Inadequately trained staff in some of the regional offices etc. is another constraint. To overcome this, NRSA has been approached to provide training to about 60 officers of the CWC. Further, short training is also being provided to the CWC officers by the Remote Sensing Directorate of CWC.

So far as the finance is concerned, the provision is available under PMKSY.”

4.22 On being further asked by the Committee as to when CWC Monitoring and Monitoring and Appraisal Directorates (M&A Dtes) are likely to set up the necessary infrastructure in this regard, the Ministry stated that the Bhuvan portal is used for online monitoring of MMI projects whenever better resolution imageries provided by NRSC. The infrastructure required to obtain better resolution imageries falls in the purview of NRSC.

4.23 As regards the timeline for having a well established infrastructure for obtaining better resolution imageries, the Ministry, in their supplementary reply, submitted that all the imageries needs to be procured only through ISRO/NRSC. An MoU with NRSC for hand holding in use of their Bhuvan portal and hosting the processed imageries proposed to be procured for monitoring purpose is to be signed. A proposal for procuring the imageries is under process.

4.24 To a specific query by the Committee about the steps taken to coordinate with the NRSC for having infrastructure for obtaining better resolution imageries, the Ministry, in their supplementary reply, submitted:

“Central Water Commission is co-ordinating with NRSA and do needful in this regard. List of 60 officers to be trained through NRSA has already been sent to NRSA. Further, NRSA would upload layer of imageries purchased on Bhuvan Portal also for monitoring purpose.”

4.25 Further in this connection, the Ministry, in their supplementary reply, also submitted:

“In consultation with NRSC, during a meeting on 05.05.2016, the matter has been discussed in detail in respect of cost and capabilities of imageries and they were of the view that for minor/branch/feeder canals Cartosat imageries and for area in command area predominantly with minor/sub-minor high resolution multispectral satellite images like Kompsat-3 could be purchased and hosted in Bhuvan for the new projects to be supplemented by use of space technology.

Process of Identification of suitable Co-ordinates for both the type of imageries for estimation purpose is underway in the regional offices as well as CWC (HQ).”

4.26 The Committee asked about the criteria for gauging the success of monitoring mechanism and the methodology for translating the observations of the Monitoring Report into a positive impact on the AIBP. To this query, the Ministry stated:

“The success of any monitoring mechanism can be gauged by timely updation and correct reporting of the requisite information. In case of AIBP it would be reporting of physical and financial progress of the projects. To achieve this, a MIS system has been developed wherein nodal officer of each project would enter the component-wise physical and financial progress. Further, MIS system would have provision of capturing geo-tagged photographs. MIS would be supplemented with the monitoring visits of CWC and third party monitoring visits. The observations in the monitoring report and their compliance are considered while recommending proposal for Central Assistance to a project. Further, for 99 prioritized projects, it is proposed that a High Power Committee (HPC) under the chairmanship of Chief Secretary, constituted in each state for monitoring RIDF projects may also review progress of projects assisted under LTIF by NABARD. Mission would consider the MIS reports, CWC and third party monitoring reports etc., while releases the Central Assistance to these 99 projects. Further, a council has also been constituted under chairmanship of CEO, NITI Aayog for overall supervision.

#### **Central Water Commission (CWC ) and Dr. Mihir Shah’s Report**

4.27 On the issue of outsourcing of monitoring of Minor Irrigation (MI) and Repair, Renovation and Restoration (RRR) schemes the Ministry, in their written information, stated:



“There are 149 ongoing Major and Medium Irrigation (MMI) Projects under AIBP as on 31.03.2015. 100% monitoring of the ongoing Major and Medium Irrigation (MMI) Projects is to be undertaken by the Central Water Commission. However, due to large number of ongoing MI and RRR schemes, the monitoring of all ongoing schemes by Central Water Commission is not possible. Looking into limited availability of the manpower with the CWC, outsourcing of the monitoring of the MI and RRR schemes is necessary. It is, therefore, necessary to outsource monitoring through experienced firms for independent monitoring of MI and RRR schemes getting CA under AIBP. This will help to achieve target of monitoring of MI and RRR schemes in a year getting Central Assistance. The procedure for engaging of independent monitors, terms of reference for the independent monitors, methodology to be followed for monitoring by independent monitors, proforma for reporting the monitoring status of the MI scheme by the independent monitors, procedure for submission of the Monitoring Report and further action on the report by the State Governments and Central Water Commission will be finalized and submitted to MoWR, RD and GR.”

4.28 When asked about Government’s plan to outsource the functioning of CWC, the Ministry stated that outsourcing of functioning of CWC is not contemplated.

4.29 The Committee have also been informed that the Committee on ‘Restructuring the CWC and CGWB’ headed by Dr. Mihir Shah (presented on 26<sup>th</sup> July, 2016) has put forward following points for restructuring the CWC and CGWB:

- i. The paradigm shift required in both surface and ground water, as also new national challenges in the 21<sup>st</sup> century, demand major reforms in the CWC and CGWB.
- ii. CWC setup in 1945 and CGWB in 1971 have continued unreformed over several decades.
- iii. Even as objective conditions on the ground, demands of the economy and society, as also out understanding of water, have all undergone a sea change.
- iv. Their mandate belongs to an old era when dam construction and tube well drilling was the prime need of the hour.
- v. Capacities and Structure reflect that mandate.
- vi. Mainly comprise civil engineers and hydrogeologists.
- vii. Comprise civil engineers and hydrogeologists.
- viii. Very weak presence on the ground in river basins.
- ix. Need to work closely together within a holistic river basin perspective.

- x. Need greater and more effective presence at river basin level.
- xi. CWC and CGWB suffer from a lack of professionals from a large number of disciplines.
- xii. The paradigm shift of moving toward Irrigation Management Transfer to ensure has khet ko paani, as also participatory groundwater management to implement NAQUIM, requires professionals from Social Sciences and Management.
- xiii. If we are to tackle demand – side management issues and implement crop water budgeting and improve water use efficiency, we need professionals from Agronomy.
- xiv. We need professionals from Ecological Economics for an accurate understanding of the value of ecosystem services.
- xv. And to attain the national goals of nirmal dhara, aviral dhara, swachh kinara, we need professionals specializing in River Ecology.
- xvi. Several State Governments testified that huge delays in techno-economic appraisal by CWC had become a matter of concern.

4.30 On being asked about the likely impact of the Report of the Committee on 'Restructuring the CWC and CGWB' headed by Dr. Mihir Shah, the Ministry stated that the recommendations of the Mihir Shah Committee Report are under consideration by the Ministry.

#### **Participatory Irrigation Management (PIM)/Water Users' Association (WUA)**

4.31 According to the Ministry, the National Water Policy stresses on participatory approach in water resources management. It has been recognized that participation of beneficiaries will greatly help in the optimal upkeep of irrigation system and effective utilization of irrigation water. The participation of farmers in the management of irrigation would include transfer responsibility for operation and maintenance and also collection of water charges to the Water Users' Association in their respective jurisdiction with effect from 2008- 09. One time functional grant at the rate of Rs. 1,200/- per hectare to be shared by the Centre, State and Farmers in the ratio of 45:45:10 respectively is being paid to outlet level Water Users Associations' as incentive, the interest from which is to be used for maintenance.

4.32 Under the Command Area Development and Water Management (CAD&WM) Programme, there is a thrust on Participatory Irrigation Management (PIM), and the following features have been made mandatory for its implementation: -

- i. Central Assistance to States has been linked to enactment of PIM legislation. Till this is done, alternative arrangements have to be in place for formation and empowerment of Water Users' Associations (WUAs);
- ii. WUAs have to be in position before Project Components are taken up so that beneficiaries are involved in the implementation of programme activities, since inception;
- iii. Central Assistance for correction of system deficiencies upto distributaries of 4.25 cumec (150 cusec) capacity has been linked to formation of Distributaries Committees and handing over of the distributaries to such Committees for maintenance in future.
- iv. Inclusion of Panchayat Representative in WUAs /District Level Implementation Monitoring Committee/ State Level Monitoring Committee shall be considered by the State Government for prioritizing the CAD works, management, operation and maintenance of the projects after handing over.

4.33 Further, under the restructured Command Area Development and Water Management (CAD&WM), Programme more emphasis is being given to participatory approach and payment of Central Assistance to the States is linked with the formation of Water Users' Associations (WUAs). 16 States viz. Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Odisha, Rajasthan, Sikkim, Tamil Nadu and Uttar Pradesh have either enacted exclusive legislation or amended their Irrigation Acts for involvement of farmers in irrigation management. Other States are also taking steps in this direction. So far 84,779 Water Users' Associations have been formed in various States covering an area of 17.84 million hectare under various commands of irrigation projects. However, the States of Sikkim and Tripura and the Union Territories do not have any Water Users' Associations.

4.34 The Committee asked about details of the hindrances witnessed in forming Water Users' Associations. To this query, the Ministry submitted:

- (i) Lack of legal back up and policy changes in some States to take up Participatory Irrigation Management (PIM) especially with respect to empowerment of WUAs for operation and maintenance, collection of water charges, lack of clarity of legislation and implementation of legislation for empowerment of WUAs in States where PIM has been enacted.
- (ii) System deficiency in the irrigation scheme like deterioration of structures, canals, due to seepage and erosion of banks, siltation which hinder farmers to take over the system management.
- (iii) Uncertainty over water availability, as the farmers will be reluctant to take on the responsibility of managing the system unless water is really made available.
- (iv) Lack of capacity building of the members of the WUAs for various technical and financial issues.

4.35 Responding to a specific query about the initiatives taken to remove the aforesaid hindrances, the Ministry submitted:

“The State Governments have been requested to enact the PIM Act, where the Act is not yet enacted and strengthen the existing PIM Acts where PIM Acts have already been enacted.”

4.36 When further asked about the plans envisaged to increase the number of Water Users' Associations the Ministry, in their supplementary reply, stated:

“One time functional grant is being released to the registered WUAs under CADWM Programme. One time infrastructural grants are also being provided to the registered WUAs. In addition, for the 99 prioritized project, the Ministry is proposed to utilize the services of TISS and select NGOs for capacity building of WUAs towards successful PIM implementation.”

4.37 Adding on the issue of participatory management and Water Users Association the Secretary, MoWR, GR & RD, during the evidence held on 8<sup>th</sup> February, 2016, submitted as follows:

“Sir, at first you have said about Participatory Management. Presently whatever projects we are sanctioning or releasing funds for the future we are applying 2 or 3 conditions even if it is 23+23 projects. First is that the development of Command Area and the completion of the project should be side by side. Secondly, when you start development work of Command Area you will constitute Water Users Association so that their participation in irrigation management becomes complete. Thirdly we are saying that wherever Command Area has not been developed then from there start pressured irrigation system, now you have to promote Micro Irrigation system. So far 10% micro irrigation was mandatory in command in our system. We want to enhance it as much as possible 40% or 50%. Water is a scarce resource. If we can irrigate 10 acres of land with 10 drops then why to irrigate only one acre. It will be step by step. At present we are not doing 10% we are moving towards 40% and 50% Micro Irrigation in command.”

## CHAPTER V

### AWARENESS, TRAINING AND RESEARCH & DEVELOPMENT

5.1 The Ministry informed the training and awareness provided to officials (both at Centre and State) for better implementation and monitoring of the AIBP, which is reproduced as follows:

“For creating awareness amongst officials for better management of irrigation programmes, the officials are given regular trainings on water management.

A three day Conference, “Jal-Manthan” was organized from 20 to 22 November, 2014 at Vigyan Bhawan, New Delhi wherein various stakeholders, starting from Government agencies – Central as well as States”, non-Governmental organizations and user communities, were invited for deliberations regarding various issues related to availability of water resources including better management of water

A Jal Kranti Abhiyan has been started in the year 2015-16 to consolidate water conservation and management in the country through a holistic and integrated approach involving all stakeholders, making it a mass movement. The primary objective of organizing the Abhiyan is to encourage local solutions for water conservation and management for optimal and sustainable utilization of water resources. The activities proposed under “Jal Kranti Abhiyan” include 1. Jal Gram Yojna, 2. Development of Model Command Area, 3. Pollution Abatement, 4. Mass Awareness Programme and 5. Other Activities.

The Ministry also organized a National Dialogue on Clean and Sustainable Groundwater titled ‘Bhujal Manthan’ on 21.8.2015 at Kurukshetra, Haryana. It was aimed primarily at emphasizing the need for a collective interaction among various stakeholders engaged in ground water resource development and management to attain synergy and harmony with the ecology for ensuring the long-term sustainability of this precious resource.

Time to time training programme is conducted for providing training to officials (Centre/State) for better implementation and monitoring of AIBP at National Water Academy (NWA),Pune under MoWR,RD&GR. Further in-house training for CWC officers have been arranged by Remote Sensing Directorate, CWC for providing GIS Application Base for online monitoring of the project under AIBP. National Remote Sensing Centre (NRSC),Hyderabad also provided

training to officers/engineers involved on Satellite/Online monitoring of the projects as a part of the work assigned to NRSC for assessing creation of IP by the projects under AIBP through Remote Sensing technique using CARTOSAT Satellite data.”

5.2 When the Committee asked about Research and Development (R&D) in Irrigation Programme and Technology Transfer from different countries, the Ministry stated:

“There is a separate R&D Program under MoWR, RD & GR which supports research based activities related to water resources which include Irrigation Techniques & Irrigation Performance. The Indian National Committee on Surface Water (INCSW) is a specialized entity under CWC which manages the R&D functions as well as work as Indian platform for International Organizations like ICID, UNESCO, INE etc. As an Indian office of ICID it is organizing awareness workshops for Green Revolution 2.0 – New Emerging Technologies.

It is also proposed to hold an International Conference on Micro Irrigation during the year 2018. The preparation for which are underway. The international conference shall open up new windows for technology transfer for micro irrigation technology in Indian Market.”

5.3 On being asked by the Committee as to whether the steps taken by the Ministry to train the officials of the Ministry/CWC/farmers/other stakeholders are sufficient for implementation of the AIBP, the Ministry submitted:

“The CADWM programme of the PMKSY (HKKP) already has provision for training of farmers etc. Further, under PMKSY, there is provision of adequate funds for IEC activities which can be used for awareness of the farmers/officials. Apart from these, training is imparted to the officials of the Ministry and CWC from time to time.”

### **Successful models of Irrigation projects**

5.4 When asked about the feasibility of adapting the successful models of Irrigation projects of other countries the Ministry, in their written reply, stated:

“MoWR, RD & GR in partnership with European Union is in the process of finalising possible priorities and activities for the work programme 2017. Adoption of successful models of other States e.g. Madhya Pradesh are also one of such possible areas.”

5.5 The Committee have been also informed about the concepts of drip irrigation system and Israel model of water management. The details given by the Ministry in this regard are at **Annexure-VI**.



## PART-II

## OBSERVATIONS/RECOMMENDATIONS

## OVERALL REVIEW OF AIBP

The Committee note that since the inception of Accelerated Irrigation Benefits Programme (AIBP), in 1996, various bodies *viz.* Comptroller and Auditor General of India (CAG), Public Accounts Committee, four Indian Institutes of Management (IIM Lucknow, IIM Ahmedabad, IIM Bangalore and IIM, Kolkata, Programme Evaluation Division of Planning Commission have examined the Programme and commented upon numerous discrepancies and shortcomings in the implementation of the AIBP Projects. The Standing Committee on Water Resources, have also been reviewing and commenting upon the implementation of the AIBP in their Reports on Demands for Grants. The Committee are dismayed to note that despite all the recommendations by several Organisations/Bodies/Committees, myriad problems *viz.* poor progress in completion of Projects, financial irregularities in the AIBP components, short creation of Irrigation Potential, non-utilization of created Irrigation facilities, deficiencies in planning and approval of AIBP projects, poor project execution and financial management have undermined the success of the Programme. The Committee, cannot but conclude that though the AIBP was launched with laudable objectives, its implementation has suffered a setback and has not been able to attain the desired results. The Committee, therefore, strongly opine that sincere and rigorous efforts need to be made by the Ministry for not only achieving the goals of envisaged under the AIBP but also for ensuring the sustainability of irrigation Projects so as to achieve optimum irrigation development and utilization of Irrigation Potential created in the country. The Committee also desire that resolute and concrete action be taken to address the impediments indentified in subsequent paragraphs, for making the Programme successful and timely achievement of the targets of the AIBP.

**MODIFICATIONS IN NORMS, SCOPE, COVERAGE AND FUNDING PATTERN**

2. The Committee note that since the inception of the Accelerated Irrigation Benefits Programme (AIBP) there have been seven sets of modifications in the norms, scope, coverage and funding pattern of the scheme i.e. in the years 1996-97, 1999-2000, 2002, 2004, 2005, 2006 and recent being in October, 2013, and that despite the observations made in the CAG's audit Report on repetitive modification (in 2004 and 2010) the Ministry have once again made changes in the norms for providing Central Assistance under the Programme in 2013 and 2016. During the year 1996-97 the ratio of Central Loan Assistance (CLA) to State's share was 1(c) : 1(s) for Special Category States. This ratio of CLA to State's share was changed to 2 (c) : 1(s) for General Category States - while for Special Category States it was changed to 3 (c) : 1 (5) in 1999 – 2000. During this year the AIBP was also extended to Minor Surface Irrigation Projects of Special Category States (NE States and Hilly States of H.P., Sikkim, J&K, Uttarakhand and Projects benefiting KBK districts of Orissa. The Committee also note that in 2002, for States of General Category, the Centre – State ratio of loan assistance was again changed as 4:1 and for Special Category States the Centre's share was made as 100% whereas the States' share was 'Nil'. Further, with effect from 01.04.2004, as an incentive for completion of projects on schedule, CLA was converted to 70% loan and 30% grant for General Category States and 10% loan and 90% grant for Special Category States. Further, in December 2006, the Central grant for Special Category States, project benefiting drought prone areas, tribal areas and flood prone areas remained as 90% of the project cost however, in case of Non-Special category States it was made 25%. Further, completion of an ongoing project under AIBP for including a new project under AIBP has been relaxed for projects benefiting a) drought prone areas, b) tribal areas, c) States with lower irrigation development as compared to National average, and d) districts identified under the PM's Package

for agrarian distress districts. The Committee note that again in October, 2013 implementation of Command Area Development (CAD) works pari-passu with project works was emphasized. Besides, other changes have also been made which *inter-alia* include (i) 90% Central Assistance (CA) of project cost (works Component) in case of Special Category States, and KBK region of Odisha; (ii) 75 % CA of project cost in Special Areas i.e. Major/medium projects benefiting drought prone area, desert prone area, tribal area and flood prone area in Non-Special Category States and (iii) 25% CA of project cost in case of Non-Special Category States areas other than covered at (ii) above could be enhanced upto 50% for new projects subject to condition that the States actually carry out Water Sector Reforms.

As regards the reason for making changes in the AIBP the Committee have been informed that the guidelines for AIBP have been revised from time to time for maximising the benefits as well as to allow special consideration for the regions lagging behind in development - which presently include north-eastern States, hilly States, drought prone and tribal areas and States with lower irrigation development as compared to national average. Nevertheless, when the Committee desired to know about the success of the relaxing the criteria repetitively, the Ministry's reply was silent on this aspect. The Committee are convinced that such repeated changes in guidelines hampered the smooth implementation of the Programme and it also reflects lack of farsightedness in framing Policy. The Committee are of the opinion that the Ministry have failed to act in accordance with the larger vision for the programme. The Committee deplore the piecemeal approach to such a significant programme and strongly recommend the Ministry to tackle the issue with a long-term perspective and planning to avoid repeated modifications and adhocism in future.

## NATIONAL PROJECTS

3. The Committee note that the Union Cabinet on 7<sup>th</sup> February 2008 gave its consent to the proposal of the Ministry of Water Resources, Rural Development and Ganga Rejuvenation for implementing National Projects with the Central Assistance of 90% of the cost of the project as grant, and that the Scheme has been approved for continuation and implementation in the 12<sup>th</sup> Plan by the Cabinet Committee on Economic Affairs on 12.9.2013 with proposed outlay of Rs. 8,150 crore under the ambit of AIBP i.e. a part of the sub-schemes of the AIBFMP. The Committee however, note with concern that out of 16 projects selected, only 5 projects are under execution *viz.* Gosikhund Irrigation project, Shahpurkandi Dam project, Teesta Barrage project, Saryu Nar Pariyojana and Polavaram project, while remaining projects are either at Appraisal/ PFR / DPR preparation stage. Besides, one project, Ken Betwa Link project was accepted in 129<sup>th</sup> meeting of TAC held on 8.7.2016 subject to conditions of statutory clearance. The reasons for non-achievement of target under the National projects, as informed by the Ministry, include R&R problem, shortage of funds, execution issues, land acquisition problem, gap in canal network, assured funding arrangements, Inter-State issues, etc. The Committee are perturbed to note the delay made in implementing the 'National Projects' so much so that 4 out of these 5 projects *viz.* Goshikhurd Irrigation Project (Maharashtra), Shahpurkandi Dam Project (Punjab), Teesta Barrage Project (West Bengal) and Saryu-Nahar Pariyojna, have passed exceeded targeted date of completion i.e. March, 2015/2016. It is a matter of concern that the revised time-lines have been extended till December 2019 / March, 2020 and the cost for two of the projects *viz.* Goshikhurd Irrigation Project (Maharashtra) and Polavaram project have also been revised. The Committee deplore the lackadaisical attitude of the Ministry and reiterate the recommendation made in their 9<sup>th</sup> Report on DFG (2016-17) (Para 2.27) enjoining the Ministry to promptly initiate action in consultation with the concerned State Governments to sort out the issues/hurdles

and efforts be made for timely completion of the 5 projects which are currently under execution. The Committee also recommend that henceforth realistic and achievable targets be made for addressing all contentious issues in consultation with the concerned States/Organisations viz. NHPC, CWC, etc., and the remaining National Projects, which are at various stages of implementation, be completed as per the scheduled timeline. Efforts should also be made to ensure that the Ken Betwa Link project, which was accepted in 129<sup>th</sup> meeting of TAC held on 8.7.2016 subject to conditions of statutory clearance, should not meet the same fate as other delayed National Projects. The Committee would like to be apprised about the concrete measures taken for timely implementation of the National Projects so that its objectives are achieved and unnecessary time and cost over-run is minimised.

#### COMMAND AREA DEVELOPMENT AND WATER MANAGEMENT

4. The Committee note that the Centrally - sponsored Command Area Development (CAD) programme was launched during the year 1974-75 for development of adequate delivery system of irrigation water up to farmers' field and to enhance water use efficiency and productivity of crops per unit of land and water. From 01-04-2004, the CAD programme was restructured and renamed as Command Area Development and Water Management (CAD&WM) Programme. The scheme has been implemented as a State Sector scheme from the year 2008-09 and is being implemented *pari-passu* with the Accelerated Irrigation Benefits Programme during the Twelfth Five Year Five Year Plan with an total outlay of Rs. 15,000 crore. As far as the physical progress for construction of field channels during Eleventh and Twelfth Five Year Plan is concerned the Committee note that for the years 2012-13, 2013-14 and 2014-15 the achievements are 0.361, 0.308 and 0.33 Mha respectively and the revised physical target is to cover CCA of 3.6 Mha. The Committee are unhappy to note that though a new Plan period is about to

begin this year, the targets under CAD&WM programme are yet to be achieved. The Committee also note that the delay in approval of Cabinet for continuation of the scheme and subsequent delay in issuance of guidelines have adversely affected the progress of CAD&WM Programme so much so that the State Governments delayed the works under the Programme during the year 2013-14 and budget related reductions in CA during 2015-16 also resulted in reduced coverage of Command Area Development works. The Committee further note that to mitigate the aforesaid adverse impacts, the Command Area Development and Water Management Programme have been made a part of *Har Khet Ko Pani* component of Pradhan Mantri Krishi Sinchai Yojna (PMKSY) from the year 2015-16 with enhanced funding of the Rs. 1,142.71 crore targeting CCA of about 5.7 lakh hectare. Further, from the year 2016-17 funding arrangement for CAD works of 99 prioritized AIBP projects has been made through NABARD and an amount of Rs. 667.37 crore has already been released upto October, 2016 targeting a CCA of about 5.6 lakh hectare. The Committee are of the considered opinion that if the Ministry had avoided delayed release/reduced allocation of the Central Assistance for CAD&WM programme, the situation of funding arrangement through borrowing from NABARD would not have arisen. The Committee desire the Ministry to take initiatives to avoid delayed release of funds under Central Assistance and also its subsequent reduction. The Committee also recommend the Ministry to ensure timely and proper implementation of CAD&WM programme and take fresh measures to ensure that objectives of the Programme are achieved. The Committee would like to be apprised about the action taken in this regard, including the year-wise physical and financial achievements made under CAD&WM during 12<sup>th</sup> Plan period.

## FLOOD MANAGEMENT PROGRAMME

5. The Committee observe that during the Eleventh Five Year Plan, the Government of India launched the 'Flood Management Programme' (FMP), a State Sector Scheme, for providing Central Assistance (CA) of Rs. 8,000 crore to the State Governments for undertaking works related to river management, flood control, anti-erosion, anti-sea-erosion, drainage development, flood proofing, flood prone area development, restoration of damaged flood management works etc. Under this programme, a total of 420 works were approved and a Central Assistance of Rs. 3,566 crore was released. Out of which, 252 works have been physically completed. The completed works have restored 17.004 lakh hectare of old flood prone area and provided reasonable protection to 2.589 lakh hectare of new flood prone area. A total of number of 97 new projects, with an estimated cost of Rs. 4,411.595 crore, have been approved for funding under FMP during Twelfth Five Year Plan. The Committee also note that in view of the demands made by the States and also recommendations of Twelfth Five Year Plan Working Group on Flood Management and region specific issues, the Government of India has approved continuation of Flood Management Programme during the Twelfth Five Year Plan with an outlay of Rs. 10,000 crore and the Central Assistance of Rs. 991.39 crore has been released up to 31.12.2015. Noting that the 'Flood Management Programme' forms an essential part of the AIBP, and that the deficiencies of this programme have been identified by this Committee in their 1<sup>st</sup> Report on DFG (2014-15) and 9<sup>th</sup> Report on DFG (2016-17), the Committee recommend that such deficiencies hampering the FMP be tackled with all seriousness by the Ministry and effective steps taken to remove them in a concerted way so that the loopholes of Flood Management Programme doesn't have an adverse cascading impact on the AIBP.

## REPAIR, RENOVATION AND RESTORATION (RRR) OF WATER BODIES FOR CONTINUATION IN TWELFTH FIVE YEAR PLAN

6. During the Tenth Five Year Plan, a Pilot Scheme namely Repair, Renovation and Restoration (RRR) of Water bodies directly linked to agriculture was launched in January, 2005 with an outlay of Rs. 300 crore and with 75% as Central Assistance by Government of India and 25% by State Government. Based on success of this Pilot Scheme, two schemes of RRR, one with domestic support with an outlay of Rs. 1,250 crore and other with external assistance with an outlay of Rs. 1,500 crore were launched during the Eleventh Five Year Plan. The scheme for continuation for Repair, Renovation and Restoration of Water Bodies during Twelfth Plan period was approved by the Union Government on 20.9.2013 and guidelines were issued in October, 2013. The Committee also note that it is also envisaged to provide the Central Assistance for restoration of about 10,000 water bodies with an earmarked outlay of Rs. 6,235 crore for the scheme so as to restore an irrigation potential of 6.235 lakh hectare. In this connection, the Committee note that they have, in their Tenth Report on the subject 'Repair, Renovation and Restoration of Water Bodies- Encroachment on Water Bodies and steps required to remove the encroachment and restore the Water Bodies', examined various issues like state of water bodies in the country, encroachment, its extent and impact, implementation of judicial guidelines/directions in the matter, the provision for prevention of encroachment under the RRR scheme, pollution of water bodies and measures for increasing public awareness, etc. The Committee are fully convinced that there is an imperative need to remove the encroachment and for repairing, renovating and restoring the water bodies not only to improve the health of Water Bodies but also to ensure a positive impact on the Accelerated Irrigation Benefits Programme. The Committee, therefore, recommend the Ministry to act in right earnest to address all the concerns of the Committee expressed in the aforesaid Report so that the efforts of the Centre and the State Governments results in a sustainable



development and efficient management of water resources and Irrigation infrastructure.

REVIEW OF FISCAL PROGRESS

7. The Committee note that since 1996, 297 Major and Medium Irrigation (MMI) Projects have been taken up under the Accelerated Irrigation Benefits Programme. Out of 297 projects, 143 MMI projects have been completed, 5 projects have been deferred, while remaining 149 projects are ongoing. Out of these 149 ongoing projects, 89 projects are presently active, of which 46 projects have been prioritized for completion. The Committee also note that out of 46 projects, 23 projects have been shortlisted for completion by March, 2017 while remaining 23 projects are targeted to be completed by March, 2020. The Committee also note that out of the 23 shortlisted projects to be completed by March, 2017, two are in Assam, one in Rajasthan, three in Jammu and Kashmir, two in Karnataka, four in Madhya Pradesh, seven in Maharashtra, two in Manipur, one in Odisha and one in Telangana. The Committee also note that in addition, 12,552 Surface Minor Irrigation schemes have also been completed. The Committee further note that the fund required for 89 'Active Projects' to be completed by March, 2020 is Rs. 86,411 crore (Central and State share) which include Rs. 55,163 crore for Canal Network and Rs. 31,248 crore for CAD. Out of 89 'Active Projects' the fund requirement for 23 shortlisted projects, which are targeted to be completed by March, 2017, is Rs. 13,338 crore (Rs. 8,030 crore is AIBP component and Rs. 5,308 crore for CAD works) - where the Central share is Rs. 3,950.42 crore and State share is Rs. 4,080 crore. The Committee note that the irrigation projects under AIBP are required to be completed within a period of four years. However, completion of some irrigation projects is delayed due to various reasons such as land acquisition, Resettlement and Rehabilitation of the affected population, clearance from the Ministry of Environment and Forest, litigation,

geological surprises during execution, paucity of funds etc., one major challenge cited for it being the insufficiency of funds for Central Assistance. Responding to a query regarding initiative envisaged for overcoming the aforesaid problems the Ministry have informed that 99 projects have been prioritized (out of 149 ongoing projects) under AIBP. Out of these 23 projects have been shortlisted which are having the least bottlenecks and are planned to be completed by March 2017 and remaining projects are to be completed by December, 2019. The Committee are concerned to note the tardy rate of completion of AIBP projects which are causing time and cost over-run as also of the serious lapse in distribution / management of fund like diversion / misuse of fund, issuance of false certificate for completion of AIBP projects, under-utilisation of funds, delayed submission of Utilisation Certificates, etc. The Committee also note that due to delay in completion of projects under the AIBP, the cost over-run is as high as 1382% in Major Irrigation Projects and 325% in Medium projects. Responding to a query about the measures taken to check/reduce the cost over-run in implementing the projects under AIBP, the Ministry have informed that the priority projects are being closely monitored at various levels to overcome the bottlenecks and to complete them as per time schedule. As far as funding of these projects is concerned it is envisaged through NABARD. For ensuring proper utilization of the funds, the State Governments are requested to submit the Utilization Certificates in respect of projects where Central Assistance is released. While taking cognisance of these initiatives taken by the Ministry, the Committee, however express serious concern over the lapses encountered in distribution / management of fund like diversion / misuse of fund, issuance of false certificate for completion of AIBP projects, under utilisation of funds, delayed submission of Utilisation Certificates, etc., and they, therefore, strongly recommend the Ministry to devise a mechanism to prevent the lapses causing further delay as well as to have stringent measures to obviate such time and cost over-runs. The Committee also reiterate their recommendations made in

3<sup>rd</sup> Report on DFG (2005-06) on the subject and urge the Ministry to be extra vigilant and take innovative and corrective measures to prevent any further diversion /misuse/waste of fund under AIBP. The Committee further recommend the Ministry to have a separate component in AIBP fund for incentivising the States who are using modern water saving technologies and are implementing the projects under AIBP in a time bound manner. The Committee would like to be apprised about the detailed status of the outcome of all the efforts/initiatives enumerated by the Ministry to have proper budget allocation and its utilisation under AIBP.

#### PHYSICAL PROGRESS AND IPC VIS-A-VIS IPU

8. The Committee note that since the early seventies a substantial gap between the Irrigation Potential Created (IPC) and Irrigation Potential Utilised (IPU) was observed and in 1972 the Irrigation Commission in its Report had made specific recommendation for systematic development of Commands of Irrigation projects for fully utilising the Irrigation Potential created. In 1973, a Committee of Ministers, set up by Ministry of Irrigation and Power, had also analysed this issue. Subsequently, in 1974 a Centrally sponsored Command Area Development Programme (CADP) was initiated to improve Irrigation Potential Utilisation. In addition, concerned with the issue of widening gap between IPC and IPU, the Ministry had sponsored study by the four premier Institutes of the country (namely, IIMA, IIMB, IIMC and IIML) for understanding and evolving strategies for resolving this problem. Despite all these efforts, the Committee not with concern that the AIBP is not only suffering from short creation of irrigation potential but also that there is a wide gap between the IPC and IPU, which is growing every year to the extent that the current gap is approximately 24 Mha (IPC is 113 Mha and the IPU is 89 Mha). According to an analysis of the achievement of total Irrigation Potential created and Utilised by the States at the end of 2002-07, it is found that there is a

gap of 26.1% between the IPC and IPU. The Committee also note that for 149 ongoing Major/Medium/ERM Irrigation Projects under the AIBP, the targeted potential to be created was 12104.46 MHa whereas the potential created upto March, 2014 was 5638.21 MHa leaving a balance of 6466.25 MHa Irrigation Potential to be created. The Committee have been informed that in order to bridge the gap between the IPC and IPU, *parri-passu* implementation of CAD with AIBP is envisaged for 99 ongoing prioritized projects, for which provision of adequate funds have been arranged through NABARD. Further, a new scheme of incentivisation for bridging the gap between IPC and IPU, in respect of completed projects, is under preparation. Nevertheless, the Committee are concerned to note that despite the above measures taken by the Ministry some hindrances are still persisting which *inter-alia* include (a) Gap in terms of “On Farm Development” works and Micro Irrigation infrastructure in the command of irrigation projects; (b) Deficiencies in the old irrigation canal network and (c) Gap in participatory irrigation management. Another disquieting fact is that the Ministry do not have the data of the targets initially set for Irrigation Potential to be created and Irrigation potential utilized under each project in one place. Since there is no data for the estimated / targeted Irrigation Potential to be created, the Committee could not have a comprehensive view of the AIBP projects in terms of IP targeted, created and actually utilised. The Committee, therefore, strongly recommend the Ministry to devise strategies and take urgent steps to not only increase the creation of Irrigation Potential IP created but also to ensure proper utilisation of the Irrigation Potential. The Ministry should positively achieve the target set, during 12<sup>th</sup> Five Year Plan, for closing the gap between the Irrigation Potential created and Irrigation potential utilized, which is 36 lakh hectare. The Committee also urge the Ministry to look into the bottlenecks leading to the gap seriously and address the deficiencies in the old irrigation canal network, gaps in infrastructure in command of irrigation projects, gaps in participatory irrigation management etc., for better management of Irrigation

projects. The Committee further recommend the Ministry to reconcile the data with respect to Irrigation Potential since the inception of the projects State-wise, Year-wise and Project-wise and maintain them at one place so as to have a holistic picture of the progress, actual gap between irrigation potential targeted, created and utilised. The Committee would like to be apprised of the concrete action taken in this direction.

#### MONITORING MECHANISM / INSTITUTIONS

9. The Committee observe that for hassle free and time-bound completion of the projects, monitoring is an essential part of the Accelerated Irrigation Benefits Programme since the main objective of monitoring is to ensure the achievement of physical and financial targets of creation of Irrigation Potential. The Committee were apprised that Central Water Commission (CWC) have been assigned the responsibility to comprehensively monitor the projects receiving Central Assistance (CA). As per the present arrangement in CWC, projects under AIBP and Repair, Renovation and Restoration of water bodies (RRR) are monitored by respective field units and Inter-State whereas externally assisted and Centrally aided projects are being monitored by Directorates of PMO/PPO (Project Preparation Organisation) at Head Quarter (HQ). The Committee have been informed that the CWC with the help of its 13 Regional offices situated all over the country and a Project Monitoring Organization (PMO) at HQ, monitors the irrigation projects under AIBP. Monitoring of physical and financial progress of the projects involves periodical visit and submission of the status report of the project by the CWC. Further, review meeting is taken by the Secretary, M/o WR, RD & GR, every year with the Secretary, Water Resources/Irrigation of the State Governments, Officers of CWC and Planning Commission for reviewing the physical and financial progress of the projects under AIBP and resolving the bottlenecks hindering the completion of the project. The

Committee also note that a three-tier system of monitoring of Irrigation Projects at the State and Centre level was introduced in 1975 viz. first and second tier monitoring at project and State Government levels and monitoring at the Central level, by MoWR, RD & GR/CWC, which is the third tier of the monitoring mechanism. The Committee also note that apart from the procedure for monitoring of Major and Medium Irrigation (MMI) Projects there is monitoring of Surface Minor Irrigation (SMI) schemes which are getting Central Assistance under AIBP and this is done by the State Government. The Committee note with concern that the number of MI schemes getting Central Assistance under AIBP is large and the available CWC staff strength is low. Regarding monitoring visits, the Committee note that, as per the latest AIBP guidelines, it is to be undertaken once in a year to the projects subsequent to release of CA. The Committee were informed that the decreasing trend of the monitoring visits in last 3 years 2012-13, 2013-14 and 2014-15 which was 163, 108 and 56 respectively was due to the fact that there was decrease in the required number of visits also because the number of projects that were given Central Assistance in the Twelfth Five Year Plan were reduced due to the reduction in Budget. The Committee, believe that any lapse/lacunae in monitoring process/mechanism will be a hindrance in giving true picture of project implementation. The Committee, therefore, recommend the Ministry to take remedial action for removing all the bottlenecks in monitoring and strictly implement all the criteria/guidelines for monitoring the projects/Schemes under the AIBP. The Committee also recommend the Ministry to adopt carrot and stick model for penalizing those States which are not adhering to the terms and conditions and incentivizing those - which follow them scrupulously. In addition, apart from having effective monitoring mechanism at I and II tier, the Ministry should also ensure that there is timely and adequate visit of the monitoring team to verify the completion of the irrigation potential creation and proper utilization of the irrigation potential created. Furthermore, the Committee recommend the

Ministry to take initiative to increase the number of Regional offices and the staff strength in CWC so as to avoid their adverse impact on the monitoring mechanism. In addition, the Committee recommend the Ministry to develop a modus operandi for having systematic synergy between the physical visits made and online monitoring methods which will not only facilitate the visiting team with concrete data but will also help in conducting effective monitoring. The Committee would like to be apprised about the action taken on all the aforesaid recommendations along with the outcome of the same.

#### **ONLINE MONITORING MECHANISM**

10. The Committee are heartened to note that Remote Sensing Technique (RST) has been deployed for assessing the Irrigation Potential created by the projects under AIBP. In the first phase (during 2009-10), study of 53 projects covering area of 5447.743 thousand hectare have been completed by the National Remote Sensing Centre (NRSC). In the second phase (during the year 2013-14), work for similar study in respect of 50 AIBP funding projects, covering an area of 851.428 thousand hectare, have been completed. All the 50 Reports have been submitted by NRSC, Hyderabad. The Committee are, however, concerned to learn about the low resolution of Cartosat-I and II imageries hosted in Bhuvan Platform which is 2.5 m and 1 m respectively and the fact that the tools/user manual available in the portal has limited facility and it is not so user friendly. The Committee also note that inadequately trained staff in some of the regional offices is another constraint. The Committee have been informed, in this regard, that in order to deal with the problem of low resolution, Bhuvan portal is used for online monitoring of MMI projects and if required better resolution imageries from Google are used by the Ministry to supplement the imageries provided by NRSC. In addition, to overcome the problem of low resolution of Cartosat imageries, it has been decided to obtain the better resolution imageries from KOMSAT. A proposal is also under way for

procurement of Cartosat-II and KOMPSAT imageries for 99 priority projects. The Committee also note that the digitisation of the priority projects under AIBP is in progress using Google Earth, and also to overcome the problem of inadequately trained staff, NRSA has been approached to provide training to about 60 officers of the CWC and the list of those 60 officers has already been sent to NSRA. This is in addition to short training also being provided to the CWC officers by the Remote Sensing Directorate of CWC. Further, the Ministry have informed that all the imageries needs to be procured only through ISRO/NRSC and an MoU with NRSC is to be signed for using their Bhuvan portal and hosting the processed imageries proposed to be procured, the proposal for which is under process and the Central Water Commission is coordinating with NRSA to do needful. Taking cognisance of the significance of the Remote Sensing Technique in monitoring the Irrigation projects, the Committee recommend the Ministry to set up and maintain well - established infrastructure/arrangements for obtaining better resolution imageries within this financial year, which would be cost effective as well - in the long run. The Committee also recommend the Ministry to institute a system for ensuring the safety/security of data while using online monitoring mechanism and have a systematic compilation of the data so as to have a comprehensive picture, and take necessary steps in this regard at the earliest. The Committee would like the Ministry to expeditiously work in this direction in a time-bound manner and apprise them accordingly.

#### **CENTRAL WATER COMMISSION (CWC) AND DR. MIHIR SHAH'S REPORT**

11. The Committee note that, as on 31.03.2015, there are 149 ongoing Major and Medium Irrigation (MMI) Projects under the Accelerated Irrigation Benefits Programme. As informed by the Ministry, 100 percent monitoring of the ongoing Major and Medium Irrigation (MMI) Projects is to be undertaken by the Central Water Commission (CWC). However, due to large number of ongoing MI and RRR



schemes, the monitoring of all ongoing schemes by CWC is not possible. The Ministry have also informed that due to limited availability of the manpower with the CWC, it is necessary to outsource monitoring through experienced firms. The procedure for engaging of independent monitors, terms of reference for the independent monitors, methodology to be followed for monitoring by independent monitors, proforma for reporting the monitoring status of the MI scheme by the independent monitors, procedure for submission of the Monitoring Report and further action on the Report by the State Governments and Central Water Commission will be finalized and submitted to MoWR, RD & GR. The Committee note in this regard, that a Panel headed by Dr. Mihir Shah, in their Report on the subject 'Restructuring the CWC and CGWB' had observed that a paradigm shift is required in both surface and ground water and the new national challenges in the 21<sup>st</sup> century demand major reforms in the CWC and CGWB. In addition, they have also observed that CWC and CGWB suffer from a lack of professionals from a large number of disciplines. Besides, several State Governments have testified that a huge delay in techno-economic appraisal by CWC has become a matter of concern. When the Committee desired to know about the likely impact of the Report, the Ministry have informed that the recommendations of the said Report are under consideration. In view of the significant function of the CWC, particularly in light of its role in monitoring of irrigation projects under AIBP, the Committee recommend the Ministry to take expeditious steps on the issue of restructuring CWC and apprise this Committee accordingly.

#### **PARTICIPATORY IRRIGATION MANAGEMENT/ WATER USERS' ASSOCIATION**

12. The Committee note that under the CAD&WM Programme, a thrust is given on Participatory Irrigation Management (PIM) and therefore the Central Assistance to the States has been linked to enactment of PIM legislation as well as with the

formation of Water Users' Associations. So far, 84,779 Water Users' Associations (WUA's) have been formed in various States covering an area of 17.84 million hectare under various commands of Irrigation Projects. However, the States of Sikkim and Tripura and the Union Territories do not have any Water Users' Associations. The Committee also note that hitherto 16 States *viz.* Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Odisha, Rajasthan, Sikkim, Tamil Nadu and Uttar Pradesh have either enacted exclusive legislation or amended their Irrigation Acts for involvement of farmers in irrigation management, while other States are also taking steps in this direction. The Committee, however, note that various hindrances have been witnessed in forming Water Users' Associations which *inter-alia* include (i) lack of legal back up and policy changes in some States to take up Participatory Irrigation Management (PIM) and lack of clarity of legislation and implementation of legislation for empowerment of WUAs in States where PIM has been enacted, (ii) system deficiency in the irrigation scheme (iii) uncertainty over water availability and (iv) lack of capacity building of the members of the WUAs for various technical and financial issues. The Committee also note that in order to remove the aforesaid hindrances, the Ministry have requested the State Governments to enact the PIM Act where the Act is not yet to be enacted and to strengthen the existing PIM Acts - where these have already been enacted. The Committee also note that to increase the number of Water Users' Associations, the Ministry releases one time functional grant to the registered WUA's under CADWM Programme. In addition, for the 99 prioritized projects, the Ministry have proposed to utilize the services of TISS and select NGOs for capacity building of WUAs. The Committee recommend the Ministry to provide States/UTs with incentives for increasing the participation of WUAs in management of water resources and Irrigation Projects. The Committee also recommend the Ministry to increase their effort to facilitate the formation and involvement of WUAs/local communities by

increasing the incentives as well as nominate one person in each WUA to coordinate all the activities for promoting coordination, cooperation and participation among the farmers. The Ministry should also ensure that the enactment of PIM legislation in all the States/UTs is done at the earliest as well as the existing PIM Acts be strengthened where it has already been enacted. While appreciating the mandatory feature of CAD&WM programme for inclusion of Panchayat representative in WUAs /District Level Implementation Monitoring Committee/ State Level Monitoring Committee, the Committee further recommend the Ministry to ensure its proper implementation in all States/UTs. In addition, the Committee desire that the Ministry's proposal to utilize the services of TISS and select NGOs for capacity building of WUAs also be done on priority. The Committee desire that the Ministry take specific action on the aforesaid recommendations and accordingly apprise them of the same.

#### **AWARENESS TRAINING AND RESEARCH & DEVELOPMENT ISSUES**

13. The Committee note that for creating awareness, for better management/implementation/monitoring of the irrigation programme, regular training on water management is given to the officials both at Centre and State level. Besides, time to time training programme is also conducted at National Water Academy, Pune under M/o WR, GR & RD. The Committee also note that the CAD&WM programme of the PMKSY (HKKP) has provision for training of farmers too. Further, under PMKSY, there is provision of adequate funds for Information, Education and Communication (IEC) activities which can be used for awareness of the farmers/officials. While noting these initiatives, the Committee strongly opine that there is an urgent need for an integrated approach for training all the stakeholders involved in implementing and monitoring of AIBP. The Committee, therefore, recommend the Ministry to organize more frequent workshops training and conference, design more awareness campaigns and utilise Print and Electronic

media to sensitise the farmers about the significance of irrigation projects and their contribution for success of the programme. The Committee would like to be apprised of the initiatives taken in this direction as well as about the outcome of the same. The Committee further note that there is a separate Research & Development (R&D) Program, under MoWR, RD & GR, that supports research based activities related to water resources which *inter-alia* include Irrigation Techniques and Irrigation Performance. The Indian National Committee on Surface Water (INCSW) is a specialized entity under CWC which manages the R&D functions as well as it works as an Indian platform for International Organizations like ICID, UNESCO, INE, etc. The Ministry have also proposed to hold an International Conference on Micro Irrigation during the year 2018 for which the preparations are underway. The Committee are happy to note that this International Conference would open up new windows for technology transfer for Micro-irrigation technology in Indian Market. The Committee recommend the Ministry to take tangible and bold initiatives for focussed R&D and inform the Committee accordingly.

#### **SUCCESSFUL MODELS OF IRRIGATION PROJECTS**

14. On the issue of adaptation of successful models of Irrigation Projects of other countries, the Committee have been informed that M/o WR, RD and GR in partnership with European Union is in the process of finalizing possible priorities and activities for the work programme 2017. The Committee have also been informed about the Israel Model of Irrigation, which has led to an increase in water use efficiency, and their innovation for efficient and sustainable water use that has made them international leader in developing water-saving technology in agriculture. In view of the disheartening ground reality of Irrigation Projects in the country, the Committee are convinced that the current initiatives taken by the

Ministry are not sufficient to uplift the status of Irrigation Projects. The Committee, therefore, are of the opinion that though the AIBP was launched with laudable objectives, its implementation has not yet attained the desired results and is engulfed in myriad shortcomings. The Committee recommend the Ministry to take fresh initiatives for technology transfer from other countries, for emulating the successful models of other countries/States suited to the needs of the country and make efforts to devise out of the box methods for implementation and sustainability of irrigation Projects under Accelerated Irrigation Benefits Programme. While appreciating the Ministry's plan to adopt the successful model of Madhya Pradesh, the Committee also recommend the Ministry to exercise caution and carry out proper feasibility study of the successful models of other Countries/States before emulating the same. The Committee would like to be apprised about the concrete action taken in the matter.

NEW DELHI

8 March, 2017

17 Phalguna, 1938 (Saka)

HUKUM SINGH,

*Chairperson,*

*Standing Committee on Water Resources*

## Annexure I

## Updated details with respect to all the National Projects

Sl. No	Name of the National Project	Targeted schedule for completion	Target achieved	Stage at which the National project is at	Estimated cost of the project	Assistance released till November 2016	Funds utilized till November 2016	Potential created till November 2016	Reason for non-achievement of target
1	<b>Gosikhurd Irrigation Project</b>	Project was scheduled to be completed by March, 2015. However, project authorities have requested for an extension of completion time upto March, 2020.	Irrigation Potential created: 0.395 ha out of 2.50 lakh ha.	Project is under Execution	Rs. 7777.85 Cr (PL 2007-08)  (Revised cost as proposed by Project Authority : Rs.18494.57 Crore)	Rs. 2987.94 Crore	CA released has been fully utilized.	Irrigation Potential Created= 39482 ha	R&R problems  Shortage of funds  Execution Issues
2	<b>Shahpurkandi Dam Project</b>	Project was to be completed by March 2015.	Nil against target of IP - 0.37 lakh ha Power - 168 MW	Project is under Execution	Rs. 2285.81 Crore (PL 04/08)	Rs. 26.036 Crore	CA released has been fully utilized.	Nil-Irrigation potential to be created after the completion of the project.	Work has been stopped since September 2014 due to land issues between Punjab and J&K.
3	<b>Teesta Barrage Project</b>	Project was to be completed by March 2015.	Irrigation Potential created : 1.97 lakh ha (12/2015) out of 9.23 lakh (NP component : 5.27)	Project is under Execution	Rs. 2988.61 Crore (PL 2008)	Rs. 178.20 Crore	Utilization certificate is yet to be received from project authority.	Irrigation Potential created =1.97 lakh ha (12/2015)	Land acquisition problem
4	<b>Saryu Nahar Pariyojna</b>	Project was to be completed by March 2016 as per MOU, however, rescheduled to December 2019 after identifying it as one of the prioritized projects.	Irrigation Potential Created= 1.26 lakh ha (March, 2016) out of 14.04 lakh (NP Component: 4.73 lakh)	Project is under Execution	Rs. 7270.32 Crore (NP cost Rs. 3011.53 Cr) (PL 2008-09)	Rs. 1159.58 Crore	CA released has been fully utilized.	Irrigation Potential Created= 1.26 lakh ha	Gaps in canal network. Land acquisition

5	<b>Polavaram Project</b>	Project to be completed by March 2019	1.21 lakh out of targeted IP 2.91Lakh ha	Project is under Execution	Revised Cost Rs. 16010.45 Crore (PL 2010-11)	Rs. 950.00 Crore	CA released has been fully utilized.	1.21 lakh ha	-Assured funding arrangements Interstate issues of A.P., Orissa and Chhattisgarh
6.	<b>Lakhwar Vyasi Multipurpose Project</b>	54 months	Nil	The project was considered acceptable for investment for an amount of Rs. 3966.51 Cr by Investment Clearance Committee of MoWR, RD & GR in its meeting held on 24.02.2016.	Rs. 3966.51 Cr (May 2012 PL)	Nil	Nil	Nil	-
7	<b>Renuka Dam Project</b>	-	-	Project is under advanced stage of appraisal in CWC	Rs. 5242.89 Cr. (PL 2015)	Rs. 446.96 cr (One time Special Assistance for land compensation)	Nil	Nil	-
8	<b>Ujh Multipurpose project</b>	-	-	Project is under advanced stage of appraisal in CWC	Rs.3630.67 Cr at April 2013 PL	Nil	Nil	Nil	-
9.	<b>Kishau Multipurpose Project</b>	-	-	Project is under Appraisal in CWC	Rs.7193.24 Cr at Jun 2010 PL	Nil	Nil	Nil	-
10	<b>Ken Betwa Link Project</b>	8 years	-	The project was accepted in 129th meeting of TAC held on 08.07.2016	Rs. 18057.08 crore 2015-16 PL	Nil	Nil	Nil	-

				subject to conditions of statutory clearance.					
11	Kulsi Dam Project	-	-	Project is under Appraisal in CWC	Rs.1139.27 Cr at 2014 PL	Nil	Nil	Nil	-
12	Noa-Dihing Dam Project	-	-	Project is under Appraisal in CWC	Rs 1086.06 Cr at 2013 PL	Nil	Nil	Nil	-
13	Bursar HE Project	-	-	DPR under preparation by NHPC	-	Nil	Nil	Nil	-
14	Gyspa HE Project	-	-	DPR under preparation by Govt. of Himachal Pradesh	-	Nil	Nil	Nil	-
15	2 <sup>nd</sup> Ravi Vyas Link Project	-	-	Under PFR stage	-	Nil	Nil	Nil	-
16	Upper Siang Project	-	-	Under PFR stage	-	Nil	Nil	Nil	-



**The terms of funding and the mode of disbursement under revised guidelines of AIBP**

**TERMS OF FUNDING**

**Major/Medium and ERM irrigation projects**

The cost at the time of inclusion of any new project in the scheme of AIBP will be frozen for the purpose of working out the quantum of Central assistance, with the States being at liberty to fund the project from their own resources after the stipulated date of completion. The stipulated date of completion will be four years starting from the financial year of first release of Central Assistance and excluding year of inclusion. The projects which are not going as per schedule, time extension of maximum two years and escalation of cost by maximum 20% may be allowed based on justifications provided by the State with the approval of Secretary, Ministry of Water Resources.

The Central assistance (CA) will be in the form of Central grant which will be as follows: (a) On-going and new projects benefiting the non-Special Category States may continue to be provided Central Assistance at 25% of the cost apportionable to irrigation and drinking water components. However, the quantum of Central Assistance could be enhanced upto 50% as an incentive for new projects subject to the condition that the States actually carry out water sector reforms<sup>1</sup> as per the reform benchmarks to be laid down by the Ministry of Water Resources in due course. (b) For ongoing projects in Special areas<sup>2</sup> of Non-special Category States, the Central Assistance under AIBP will be 75% of the cost of the project (work component) for eligible irrigation projects (c) For new projects in Special areas of Non-special Category States, the Central Assistance under AIBP will be 75% of the cost of the project (work component) for eligible irrigation projects (d) Ongoing projects and the surface Minor Irrigation schemes benefiting Special Category States (including MI schemes of KBK region of Orissa) may continue to be eligible for 90% Central Assistance. (e) For new projects in Special category States, the Central Assistance under AIBP will be 90% of the cost of the project (work component) for eligible Irrigation projects. (f) For the purpose of determining the quantum of assistance, a project benefiting Desert Development Programme (DDP) area/Desert Prone Area will be treated on a par with those benefiting DPAP areas and the new projects will be eligible for Central Assistance @ 90% for projects in Special Category States, while it will be 75% for projects in Non-Special Category States. The DDP areas

will be as identified by the Ministry of Rural 1 Till finalization of reform benchmarks by MOWR, following measures will be considered as water reforms 1) Measurement on volumetric basis, 2) participatory Irrigation Management, 3) Active working of Water User Association, 4) Micro Irrigation, 5) Collection at water cess by Water User Association, and 6) Maintenance by Water User Association. With implementation of any three of the above, the State Government will become eligible for enhanced funding. 2 The Special Areas for major/medium irrigation projects will denote DPAP areas, Tribal areas, Flood prone areas. 5 Development in their published documents. The ongoing projects already under AIBP and benefiting Desert Development Programme (DDP) /Desert Prone Area will continue to get Central Assistance @ 25%

### **Surface Minor irrigation schemes**

The cost at the time of inclusion of any new project in the scheme of AIBP will be frozen for the purpose of working out the quantum of Central assistance, with the States being at liberty to fund the project from their own resources after the stipulated date of completion. The stipulated date of completion will be two years starting from the financial year of first release of Central Assistance and excluding year of inclusion. The projects which are not going as per schedule, time extension of maximum two years and escalation of cost by maximum 20% may be allowed based on justifications provided by the State with the approval of Secretary, Ministry of Water Resources.

The Central assistance (CA) will be in the form of Central grant which will be as follows: (a) Ongoing schemes of Drought Prone Area Programme (DPAP)/Tribal Area (TA) of Non-Special Category States will continue to get Central Assistance at the rate of 90 %. (b) Ongoing schemes benefiting Special Category States (including MI schemes of KBK region of Orissa) may continue to be eligible for 90% Central Assistance. (c) For new projects in Special areas<sup>3</sup> of Non-special Category States, the Central Assistance under AIBP will be 75% of the cost of the project (work component) for eligible irrigation projects (d) For new projects in Special category States, the Central Assistance under AIBP will be 90% of the cost of the project (work component) for eligible Irrigation projects. 3.0 MODE OF DISBURSEMENT The Central assistance (CA) would be released in the following manner: 3 The Special Areas for surface minor irrigation projects will denote DPAP areas, Tribal areas, Flood prone areas, Desert Prone Area/ DDP Areas and Left Wing extremist areas including MI

schemes of KBK region of Orissa. 6 (a) For projects receiving Central assistance @ 25% and upto 50% of project cost, the 90% of CA to be released after release of at least 50% share of the State; (b) For projects receiving assistance higher than 50%, the 50% of CA to be released after the State releases its full share; (c) Balance/Second installment of CA to be released after obtaining UC of minimum of 50% of CA released earlier; (d) Next year installment to be released after obtaining 100% utilization of funds released in the previous year(s).

**Important points to be taken into consideration by the States while submitting the proposal for Central assistance under AIBP :**

The proposals (including CADA\_WM components with investment clearance) for release of CA from the State Governments will be submitted by State Governments to the corresponding field offices of CWC. The field office of CWC will check the proposal at the time of submission itself towards its completeness.

In case of surface Minor Irrigation schemes, the Panchayati Raj Institutions will be consulted at an appropriate level by the Irrigation/ Water Resources Department of the concerned State before submitting the proposal for release of CA under AIBP from the Financial Year 2014-15 onwards.

State governments will be required to enter into an MoU with the MoWR (Annexure II for major/medium projects and Annexure III for minor irrigation schemes) for each individual project under the programme.

The Utilization Certificate shall be issued by the Chief Engineer of the project and countersigned by Secretary (Water Resources/Irrigation) of the state government. The Utilization Certificate must contain physical achievement of Irrigation Potential and financial progress/expenditure on AIBP and CADWM components as agreed to in the MoU on year to year basis.

The Utilization Certificate shall be issued for the expenditure incurred as on 31 March of the Financial Year (FY) of funding. It is desirable to avoid bunching of funds.

The State Governments should make every effort to submit the proposal for release of 1st installment CA in the first quarter of the FY with proper budget certificate, so that the State Governments may request for 2nd installment in that FY. It is desirable for even distribution of expenditure in a given FY.

The quarterly physical target and progress certificate both for AIBP and CAD shall be issued by the Chief Engineer of the project and countersigned by Secretary (Water Resources/ Irrigation) of the State Government and should reach to field monitoring unit of CWC by first week of July, October, January, and April (of next financial year).

States will have to ensure that there is no overlapping of the works undertaken in the Minor Irrigation schemes and the works undertaken in the M.N.R.E.G.S and other schemes of Central and State Government.

If the State Governments fails to comply with the agreed date of completion, the grant component released will be treated as loan and recovered as per usual terms of recovery of the Central Loan.

The State Government should make matching budget allocation and release for CAD activities proportionate to creation of potential under AIBP components.

The States would be required to submit audited statements of expenditure incurred on the AIBP component of the project within nine months of the completion of the financial year. The release of Central assistance of the following years will not be considered if audited statement of expenditure is not furnished within nine months of release of Central assistance.

A project will be treated as 'completed' only when the corresponding CADWM works and the R&R works are completed. 4.13 Concurrent evaluation of the project by State Government is mandatory at the end of each Financial Year during the period of funding.

**State wise details of Irrigation Potential Created and Utilized**

Annexure-III

**State wise details of Irrigation Potential Created and Utilized**

(Unit : '000 Hectare)

Sl. No.	State/UT	Ultimate Potential	At the end of Sixth Plan 1980-85		At the end of Seventh Plan 1985-90		At the end of Annual Plan 1990-92		At the end of VIII Plan 1992-97		At the end of IX Plan 1997-2002		At the end of 2002-07		% of IPC to UIP	% of IPU to IPC	
			IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1	Andhra Pradesh	11260	5243.0	4891.0	5788.0	5431.9	5876.3	5509.6	7900.5	6149.9	8652.1	6513.0	9699.7	7307.2	86.1	75.3	
2	Arunachal Pradesh	168	40.2	34.2	56.0	49.7	64.9	55.8	61.8	37.4	77.6	46.0	92.6	53.6	55.1	57.9	
3	Assam	2870	489.0	404.0	681.0	535.9	751.3	578.0	642.2	351.6	652.2	448.3	790.3	551.1	27.5	69.7	
4	Bihar	10888	5968.0	5154.0	7171.0	6250.0	7642.9	6652.2	7216.9	5368.6	6929.6	4603.7	8127.9	4976.6	74.7	61.2	
5	Chhattisgarh	1718	Included in MP									1316.2	642.9	1578.8	865.0	91.9	54.8
6	Goa	116	15.3	13.6	30.2	21.0	31.4	28.7	32.0	29.3	37.5	29.8	56.0	42.0	48.3	75.0	
7	Gujarat	6103	2729.0	2255.0	3049.3	2628.2	3146.3	2790.2	4024.7	3097.7	6372.7	4069.3	7229.1	4600.5	118.5	63.6	
8	Haryana	4512	3310.0	3106.0	3509.0	3245.9	3559.5	3274.7	4392.2	4023.4	4539.1	4130.3	4669.2	4220.5	103.5	90.4	
9	Himachal Pradesh	353	123.0	110.0	134.6	118.7	149.6	126.5	209.1	178.2	230.1	190.8	263.1	214.7	74.5	81.6	
10	Jammu & Kashmir	1358	490.0	439.0	514.3	463.2	521.6	488.3	539.3	490.5	620.1	533.1	770.0	616.8	56.7	80.1	
11	Jharkhand	2461	Included in Bihar									776.3	521.2	1025.8	731.5	41.7	71.3
12	Karnataka	5974	2313.0	2168.0	2663.4	2500.4	2812.5	2587.5	3368.8	2772.1	4495.7	3636.6	4543.2	3659.1	76.0	80.5	
13	Kerala	2679	765.0	707.0	881.4	792.3	934.0	849.4	999.1	897.7	1118.8	996.8	2030.2	1623.5	75.8	80.0	
14	Madhya Pradesh	16214	3584.0	2942.0	4196.4	3516.2	4522.5	3770.0	7687.7	5408.4	7328.4	4392.6	7639.0	4618.0	47.1	60.5	
15	Maharashtra	8952	3719.0	2586.0	4380.1	3140.6	4487.4	3248.1	6945.1	4489.6	8839.9	6183.5	9363.8	6492.2	104.6	69.3	
16	Manipur	604	79.0	59.0	105.9	85.5	108.6	91.2	100.6	74.6	136.1	101.2	157.4	117.6	26.1	74.7	
17	Meghalaya	168	35.0	32.0	40.4	35.6	42.5	37.2	81.1	46.6	93.9	70.6	96.9	73.1	57.7	75.5	
18	Mizoram	70	6.4	5.8	9.5	8.2	10.5	9.0	9.0	7.8	11.8	7.4	13.6	8.2	19.5	60.1	
19	Nagaland	85	51.0	47.0	62.7	54.4	65.1	55.9	67.1	39.7	106.0	48.6	135.0	61.2	158.8	45.3	
20	Orissa	8803	2296.0	2158.0	2512.2	2313.5	2654.4	2452.2	3134.3	2222.0	3259.9	2429.7	3744.9	2707.7	42.5	72.3	
21	Punjab	5967	5426.0	5373.0	5596.7	5505.4	5657.5	5547.2	9390.4	8700.1	8885.6	8286.8	9130.4	8505.3	153.0	93.2	
22	Rajasthan	5128	3699.0	3488.0	4176.1	3943.3	4387.7	4203.6	6545.5	5832.8	8678.1	6372.7	9235.6	6817.6	180.1	73.8	

Contd..

(Unit : '000 Hectare)

Sl. No.	State/UT	Ultimate Potential	At the end of Sixth Plan 1980 - 85		At the end of Seventh Plan 1985-90		At the end of Annual Plan 1990-92		At the end of VIII Plan 1992-97		At the end of IX Plan 1997-2002		At the end of 2002-07		% of IPC to UIP	% of IPU to IPC	
			IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU	IPC	IPU			
			4	5	6	7	8	9	10	11	12	13	14	15			16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
23	Sikkim	70	14.0	10.0	20.4	15.9	22.2	17.1	22.3	14.5	24.5	15.6	33.8	19.7	48.3	58.2	
24	Tamil Nadu	5532	3449.0	3449.0	3597.4	3585.3	3652.9	3643.5	5278.9	4558.8	5733.8	3945.6	5825.7	3992.5	105.3	68.5	
25	Tripura	281	58.0	50.0	82.5	74.5	89.4	80.8	48.3	39.0	85.0	60.2	113.6	81.5	40.4	71.7	
26	Uttar Pradesh	29635	18354.0	16600.0	23309.0	20887.0	25676.0	23103.0	22114.4	18342.1	26678.8	20762.6	29222.1	22849.1	98.6	78.2	
27	Uttarakhand	864	Included in U.P.									925.3	667.4	1023.8	727.4	118.5	71.0
28	West Bengal	6918	2887.0	2669.0	3868.6	3307.0	4125.4	3567.9	4517.3	3465.1	5133.7	3489.0	5351.6	3628.6	77.4	67.8	
Total States		139750	65142.9	58750.6	76436.1	68509.6	80992.4	72767.8	95328.7	76637.5	112306.7	83725.3	123169.8	91002.4	88.1	73.9	
Total UTs		144	72.2	71.6	89.3	77.1	96.9	84.7	107.0	91.8	88.6	79.8	92.7	83.6	64.4	90.2	
Grand Total		139894	65215.1	58822.2	76525.4	68586.7	81089.3	72852.5	95435.6	76729.3	112395.2	83805.1	123262.5	91086.0	88.1	73.9	

Source : Ministry of Water Resources(Minor Irrigation Division) & P & P Directorate, CWC.

Note : Totals may not tally due to rounding off.

**Detailed mechanism for monitoring of Projects under AIBP (Major/Medium Irrigation projects and Surface Minor Irrigation Projects) both at Centre and State level**

**MAJOR AND MEDIUM IRRIGATION PROJECTS**

**Monitoring at Project Level (First Tier)**

The Project Level Monitoring Committee headed by Chief Engineer of the Project will closely monitor the project on day-to-day basis, particularly, towards achieving the physical and financial targets as per action plan submitted for AIBP funding. The bottlenecks, if any, will be resolved in such a way that quarterly targets are achieved. The project Authority shall submit the quarterly progress report (QPR) on physical and financial component (including CAD-WM component) in the prescribed proforma as prescribed by CWC, to Chief Engineer (PMO) and Chief Engineer CWC regional office by first week of the following month. A web based physical and financial progress will also be reported every quarter by concerned authenticated Project Executive Engineer. The QPR will be provided to Central Water Commission Regional Office who shall submit QPR of the projects to CWC HQ with their observations based on the targets committed in the project proposal. The bottlenecks in the progress of the project shall also be reported alongwith the QOR to CWC. Central Water Commission shall review the progress of the Project. The very important issues which require intervention at higher level i.e., Principal Secretary/State level shall be brought to their notice by Central Water Commission Regional Office and Central Water Commission HQ beforehand so that appropriate measures can be taken up to resolve the issues for timely achieving the physical and financial targets. Project level Environment Monitoring Committee and State Level Monitoring Committee shall submit a quarterly report indicating implementation of environment concerns as per Environment Monitoring Plan.

**MONITORING AT STATE GOVERNMENT LEVEL (Second Tier)**

A State Government level monitoring Committee shall address crucial issues like manpower management, quality assurance, R&R, land acquisition, forest and environment issues, management of award of works, resolution of the bottlenecks informed by the Project and smooth flow of funds to the Project. Quarterly progress report of the project for all the components should be reported in a suitably devised proforma in consultation with Central Water Commission by first week of following month without fail through e-mail or special messenger, clearly indicating the bottlenecks and resolution mechanism on the bottlenecks, if any. The progress of the works and resolution mechanism of the bottlenecks of the project shall be reported to the CWC quarterly through e-mail and in the web based format by first

week of the following month. The action taken to resolve the bottlenecks will be reported alongwith the result thereof. Paper print of Satellite imagery clearly indicating the project components shall be sent to CE (PMO) and CWC Regional Office at the end of each year and on completion of the project. The State level Environment Monitoring Committee shall submit a quarterly report indicating implementation of environment concerns as per Environment Monitoring Plan. Land acquisition related bottlenecks, if any, shall be addressed in advance by the state Government level Committee. On receipt of these reports by CWC, the concerned Chief Engineer of the field office will within a week's time bring the bottlenecks to the notice of the State Government. State Government will have to submit the compliance within 15 days indicating the mechanism for resolution thereof, particularly, in case inter-ministerial cooperation is required to resolve disputes at State level in such cases, the Regional Chief Engineer of CWC will pursue with the concerned ministries at their level alongwith DO letters addressed to concerned officer in the concerned Ministry from Chief Engineer (PMO) and Member (WP&P). State Governments will also submit a Quality Assurance Report stating:

"All mandatory quality checks prescribed for construction material, construction procedure both in number and frequency have been carried out in accordance to the Quality Control Codal procedures and all the results are within prescribed limits. The quality of works constructed and under construction is of good quality. Payments to contractors have been released based on quality work. The mandatory inspections required by supervisory staff of all quality control labs are being carried out. The Quality Control establishment is independent of the executing establishment."

### **MONITORING AT CENTRAL GOVERNMENT LEVEL (Third Tier)**

All MMI including CAD-WM projects under AIBP for which Central Assistance has been released in the preceding year shall be monitored once in a year by concerned field office of CWC. The respective monitoring Directorates of CWC HQ may also make monitoring visits of an AIBP project of their States which has not been able to achieve the progress as per the committed targets. Adequate time must be given to the monitoring visit so as to cover the Project appropriately and the Monitoring Status Report shall include progress and bottlenecks of all components. The CWC (HQ) will visit inter-State projects and reconcile the status as submitted by the field units. Necessary harmony amongst the party States shall be restored through inter-State meetings by the CWC at the end of the monitoring visit of the Project and inter-State disputes shall be resolved.

Criteria for monitoring of the projects for CA release under AIBP:

- i. Each field unit shall prepare the program of Monitoring of Projects in advance and submit to CWC (HQ) for approval.



- ii. Satellite imagery study as an Online Monitoring activity shall be undertaken by the Monitoring team in advance to have an idea of the probable areas of concerns of hydraulic discontinuity and low progress. these points shall be covered during the monitoring visit so that effective monitoring is possible within the time available for the visit. Monitoring of CAD works will also be carried out during monitoring visit of Major and Medium Irrigation (MMI) Project.
- iii. The monitoring visit must cover all Project components so that the overall progress of the Project can be assessed for its timely completion as delay in completion of any Project component will delay completion of the Project and the Central Assistance provided under AIBP will not be fruitful.
- iv. Timely release of adequate funds to the Project by the State Government as per the requirement of AIBP guidelines shall be monitored to ensure flow of funds to the Project and also to discourage parking or diversion of funds by the State.
- v. The monitoring visit shall cover Quality Assurance Mechanism of the Project. The guidelines, manual and standards for quality assurance being followed in the Project, the mechanism of reporting of shortcomings in quality of works and its rectification by the executing agency shall be described in the Monitoring Status Report. Release of payment to the contractor is made for quality work. Provision of third party quality assurance mechanism and independency of quality assurance establishment shall also be covered in the report.
- vi. Ensure that effective monitoring through first and second tier monitoring is in place and the complete CAW proposal of all respect in the following year can be submitted latest by May by the State Government to the CWC.
- vii. CWC HQ will review the progress of Projects and identify the project will low progress against committed target as per MoU. CWC (HQ) will hold meetings with the respective State Government to expedite the completion of such Project. Monitoring visit of such identified project can also be done by HQ. The poor performing projects shall be report to MoWR and Chief Secretary of the concerned State with comments.
- viii. The projects completed during the previous year may be visited once to judge the true status of its completion on submission of completion Report on CAD-WM, R&R, EMP, Catchment area treatment, etc.
- ix. A list of the AIBP projects completed prior to the previous year shall be maintained. CWC will devise a mechanism and undertake the performance evaluation of such projects. The evaluation shall inter alia include the measurable benefits e.g. increase in crop production, consumption of fertilizer, increase in per capita income of farmers, increase in benefitted population from drinking water facility, working of WUA, collection of

water charges etc. as per extant guidelines. The Chief Engineer, PMO, Central Water Commission shall undertake the study and evaluate the performance of each State towards implementation of AIBP, RRR, CAD-WM and National Projects every financial year and bring out a publication for perusal of MoWR. Information on Project wise, source-wise . These projects may be deleted from the list of the projects to be visited by the regional offices. The completion report of the completed project shall be provided to CWC (HQ).

### **SURFACE MINOR IRRIGATION SCHEMES**

#### **MONITORING AT STATE GOVERNMENT LEVEL:**

Apart from adopting procedure for Monitoring of Major and Medium Irrigation (MMI) Projects as above appropriately, monitoring of Surface Minor Irrigation (SMI) schemes getting Central Assistance under AIBP shall be done by the State Government as follows:

- (i) The Monitoring Units established in all State Governments, as per directions of the MoWR, shall take up Monitoring based on Geographic Information System (GIS) maps.
- (ii) Each minor irrigation scheme to be given a Unique Identification Code (UIC) at the time of its inclusion in AIBP. States will have to ensure that there is no overlapping of the works undertaken in the MI schemes and the works undertaken in the MNREGA Scheme and other schemes of State and Central Government.
- (iii) States will also have to ensure that MI Schemes submitted for funds under AIBP are not extension renovation and modernization of an existing MI scheme.
- (iv) Independent evaluation will be carried out by the State Government for completed MI schemes. The evaluation shall *inter alia* include the measurable benefits e.g. increase in crop production, consumption of fertilizer, increase in per capital income of farmers, increase in benefitted population from drinking water facility, working of WUA, collection of water charges etc. as per extant guidelines. The report shall be submitted to Central Water Commission.
- (v) The data pertaining to benefitted SC/ST population shall be provided to CWC.
- (vi) Performance review of the MI schemes completed under AIBP shall be made.

### **MONITORING AT CENTRAL GOVERNMENT LEVEL.**

The number of MI schemes getting Central Assistance under AIBP is large and the available CWC staff strength is low, only 15% of ongoing MI schemes shall be monitored by the concerned regional offices of Central Water Commission by suitably utilizing available man power. The respective monitoring Directorates of CWC HQ may also make monitoring visits of the MI schemes of their States. Remaining 85% of ongoing minor irrigation schemes visits can be undertaken by the CWC through outsourcing. CWC HQ shall finalize the mechanism and fund availability by obtaining approval of MOWR for monitoring by outsourcing.

### **Criteria for the monitoring of MI Schemes for CA release under AIBP:**

- (i) The target for monitoring of the Minor Irrigation schemes by CWC shall be finalised by CWC HQ at the start of the year. The name and number of MI schemes to be visited by CWC and by outsourced agencies separately shall also be finalized.
- (ii) For ongoing schemes, the first visit will be undertaken when first CA release has been utilized and appreciable physical progress has been reported by the State Government. The second visit shall be undertaken when the scheme is complete in all respect and is operational.
- (iii) CWC will perform monitoring visits of the MI schemes once in a year. These visits can be combined with monitoring visit of Major and Medium Irrigation Projects wherever possible.
- (iv) Monitoring visit of completed MI schemes shall be made to ascertain the maintenance status of the scheme. Visit to already completed schemes will be taken up at any time as per schedule finalized by the CWC/MoWR.

### **REPAIR, RENOVATION AND RESTORATION (RRR) OF WATER BODIES**

#### **Monitoring at the State Government Level.**

Repair, Renovation and Restoration (RRR) of water bodies is a State sector scheme. Central Assistance is provided to the State Governments in the manner similar to AIBP. The water bodies getting Central Assistance under the scheme are required to be monitored by the State Governments as under:-

- (i) State Level Nodal Agency (SLNA) will be identified by the State Government which will be responsible to plan various activities envisaged under the scheme, monitor their implementation, provide guidelines to District Level

Implementation and Monitoring Committee (DLI & MC) and ensure coordination among all concerned departments/agencies at the State level.

- (ii) SLNA would also set-up an independent Quality Control Unit and would ensure proper quality of the work as per Guidelines of RRR of Water Bodies/BIS standards.
- (iii) Monitoring will be done by the State Governments based on Geographic Information System (GIS) maps and each water body to be given a Unique Identification Code (UIC). The States will have to ensure that there is no overlapping of the works undertaken in the RRR of Water Bodies scheme and the works undertaken in the MNREGA, NLCP or other scheme.
- (iv) Concurrent evolution will be carried out by the State Government themselves by involving independent agencies through transparent process.
- (v) The State Government shall submit quarterly physical and financial report regularly to Regional Office of CWC for each water body as per prescribed format.

### **Monitoring at Central Level**

The number of water bodies under RRR scheme getting Central Assistance is large and the available CWC staff strength is low. Therefore, about 20% of water bodies included under RRR scheme is proposed to be monitored by the concerned Regional Offices of Central Water Commission and CGWD. The monitoring work of remaining 80% of water bodies can be undertaken by the CWC through outsourcing to the agencies which have personnel/staff with suitable exposure of monitoring of irrigation projects. The CWC shall finalize the mechanism and fund availability by obtaining approval of MoWR for outsourcing the monitoring work. The water bodies getting Central Assistance would be monitored at the Central level in the following manner:

- (i) The target for monitoring of water bodies by Central Water Commission and CGWB and outsourcing would be finalized by CWC.
- (ii) The CWC and CGWB will perform monitoring visits of the water bodies once in a year. These visits can be combined with monitoring visit of major, medium and minor irrigation projects, wherever possible. The Status Report would be prepared as per prescribed format after each visit and submitted to CWC.

- (iii) For ongoing works, the first visit will be undertaken when nearly 50% of the physical works are completed and final visit when the water bodies is completed in all respect and is operational.

### **STATUS REPORT FORMAT AND GUIDELINES FOR MONITORING**

The guidelines for monitoring of Projects and the format to be used for reporting the status of the Project was finalized in 1995 as "*GUIDELINES FOR MONITORING OF IRRIGATION PROJECTS AND PREPARATION OF STATUS REPORT*". The MoWR and CWC HQ have undertaken its revision and updating as per the present requirement. However, till the revised monitoring guidelines are accepted and put in use, the existing Monitoring guidelines issued in 1995 alongwith AIBP Guidelines 1996 and 2006 and the existing guidelines of CADWM will continue with addition of **Remote Sensing Based Online Monitoring**.

**Monitoring mechanism for completion of 23 priority projects**

The 23 projects which have been prioritized for completion by March 2017 as per frozen cost in the Cabinet Note of XII Plan with Central assistance limited upto 20% cost escalation, will require extensive monitoring by CWC and State Government. The broad guidelines of monitoring will be as follows:-

- i. The CWC field units will first gather from the States the details of construction, planning, land acquisition status and future programme, contractual position, award of works and targeted completion time for different components as per the work programme, the completed components, any impediments etc. This is then followed by the satellite based monitoring using space data towards completed components and balance quantity to be executed.
- ii. Based on the desktop monitoring studies and satellite based monitoring a clear picture of different works to be executed and *viz-a-viz* that is included in the proposal for funding, would emerge. This is then followed by field visit for actual verification of executed components during the year as per the monitoring guidelines to the Field Units.
- iii. The team of CWC would physically inspect the works carried out and ensure implementation of the targeted works of the year and which in general will check/cover following things:-
  - Formation of water user associations, nos. and percentage of the command area covered.
  - The progress achieved by State Government towards utilization of already created potential.
  - The status of development of irrigation potential as per current year target.
  - Percentage of irrigation potential utilised through micro irrigation.
  - Steps taken by Government to utilize the potential created during current financial year.
  - Will take photographs and send the same through an App being developed to assess the current status of works completed, works under progress, the likely time taken for completion, progress of works between two visits etc.
  - CWC should clearly bring out the efforts towards implementation of pressurized piped network in the balance area for which contracts has not yet been awarded.

- Will pursue State Government for awarding turnkey contract for converting remaining area where distribution network & command area development have not been yet developed through micro irrigation within the ambit of technical feasibility.
- Will pursue with State Governments to make necessary arrangements for implementation of participatory irrigation management and its outcome.
- Action taken to make water available to tail end farmers.
- Photographs having discussions with farmers of the area whose command has been provided with water and their reaction on it towards utilization of full potential.
- Balance number of farmers whose potential is yet to be developed.
- Land acquisition status, RRR status.
- The O&M status of the works already completed.

**Note on Drip irrigation and Israel model of water management**

Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 liters/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish. Drip irrigation is most suitable for row crops (vegetables, soft fruit), tree and vine crops where one or more emitters can be provided for each plant. Generally only high value crops are considered because of the high capital costs of installing a drip system. Dripping water to individual plants also means that the method can be very efficient in water use. For this reason it is most suitable when water is scarce.

Overcoming the challenges of an arid climate and scarce natural water reserves has always been a vital necessity for the growth of Israel's population and economy since the founding of the state. This has led to continuous improvements in Israel's water sector, through innovations in technologies, practices and long-term plans.

Currently, Israel annually requires almost a billion cubic metres per year (MCM/year) more water than average natural replenishment provides. Nevertheless, average annual sustainable natural water consumption has been achieved, while nevertheless providing for all of the country's water needs, via innovations that have involved overcoming extensive engineering, biological and logistic challenges. These innovations include:

- A visionary, nationwide water conveyance system, constructed from 1955-64, to deliver water from the natural reserves in the north throughout the country, including the dry south;
- Treatment and reuse of almost all of the nation's domestic waste water for irrigation in the agricultural sector;



- Highly advanced irrigation methods such as moisture-sensitive automated drip irrigation directly to plant roots;
- Development of new crop strains that provide 10 times higher yield with the same amount of water;
- Pioneering work in drilling exceptionally deep wells, reaching 1,500 metres and pump settings as high as 500 metres;
- Large-scale desalination of seawater and brackish groundwater;
- Controls of algae blooms in reservoirs for reused water;
- Innovative, multi-tiered water safety methods, early warning systems and other technologies;
- Innovative methods for minimising non-revenue water loss.

### **Innovations in planning, policies and tariffs**

Numerous governmental strategies and policies have been created throughout Israel's history to ensure a continuous supply of potable water for all citizens and to promote sustainable national water consumption. These include Israel's National Long-Term Master Plan for the Water Sector, from 2010-15, and innovations in both governmental and private sectors in key areas, particularly demand management, water use efficiency, creating supplementary potable water, and governmental support for innovations, notably in the NewTech Programme.

### **2. Water Resources Scenario**

The average total water availability in Israel is about 1.17 BCM. However, the country has to meet the demand for population of about 8 million, irrigation to about 200 thousand Ha of land and more than 1000 industrial plants. The demand of water for various uses in the year 2010 was about 2.13 BCM. Further, the demand for water for various purposes in the year 2050 has been estimated to be about 3.57 BCM.

### **3. Water Management Strategy**

The Strategy adopted or proposed to be adopted by the Israel Government for meeting the current demand of water and also to make preparation for enhanced water requirement by 2050 has been described as under:

#### **3.1 Governance & Regulation**

The importance of quality manpower has been recognised and accordingly steps for reinforcement and structural change of the Water Authority, to enable it to carry out its role of being a regulator are being taken. The assessment of the shortage of manpower in the various areas of the national water sector, and implementation of a program for manpower development are made and suitable steps are taken to fill the gap.

The important aspects of policies for regulation adopted are:

The national water system will be administered in a Centralized and integrated manner.

National resources will be administered based on full cost recovery

Efficiency improvement measures will be introduced for water saving in all consumption sectors (technical, financial and informational).

The aim is minimize costs and to charge water tariffs that are as reasonable as possible  
Production levies and taxes should be allocated for developing the national water system

Efforts should be made to minimize cross-subsidization between the various sectors when fixing water tariffs

The planning of the Water Authority's development program will be funded by the water tariffs

Mechanisms will be established to provide appropriate service to the public while ensuring balance between public & private interests

#### **3.2 Reuse of treated effluents**

The importance of treated effluent was recognised by the Israel Government and the concept of considering effluent as resource instead of nuisance was adopted since

1993. With governmental support, sewage infrastructures were developed and upgraded nationwide, which enabled them to turn the environmental hazard to valuable resource. The use of treated water in the country was about 0.450 BCM per year in 2014. It may be noted that the Israel is using 86% of the effluent produced in the country as on date and planning for using 90% of the effluent produced.

#### **4.3 Use of Brackish water for agriculture and industry**

Till mid 60s fresh water was mainly used for agriculture in Israel. However, research for non-traditional farming was promoted keeping in view the looming scarcity of water. In view of scarcity of water, the brackish water was progressively being used for irrigation and industry. The use of brackish in the year 2010 was about 0.175 BCM per year.

#### **3.4 Seawater and brackish water desalination and use**

In order to improve the availability of water, the Israel Government decided to create infrastructure for large scale desalination of sea water and brackish water in the year 2001. As per available information, the total capacity created for desalination of sea water and brackish water by the end of 2015 was about 0.537 BCM per year. Another 0.150 BCM capacity was under planning / construction.

#### **4. Development in Irrigation Sector**

Surface irrigation methods using fresh water was prevalent in Israel till mid sixties. The government intervention was mainly for creation of infrastructure for water conveyance and distribution, R&D in agriculture and providing extension services. The innovation in non traditional farming was promoted. During mid 60s to mid 70s construction of "National Carrier" was undertaken. In order to increase efficiency in irrigation, the surface irrigation system was being replaced by pressurised irrigation system. The technologies related to metering, automation, filtration and fertilization were being developed and introduced. By mid 80s, irrigation by using pressurized system was adopted in entire country, which led to a countrywide increase in water use efficiency.

Further, in view of water scarcity, the use of brackish water (saline and treated sewage water) was also progressively increasing by then. Consecutive droughts in last two decades further resulted in increasing use of saline water for agriculture. Continuous efforts were made to maintain productive, yet sustainable irrigated agriculture in Israel. Increased use of recycled treated wastewater led to formation of national regulations (2010) taking into account human health, agronomic and environmental aspects. Scarce water and land resources motivated Israel for continuous innovations for more efficient and sustainable water use making them international leader in developing water saving technology in agriculture.

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**MINUTES OF THE FIFTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES (2015-16) HELD  
ON MONDAY, 8 FEBRUARY 2016**

The Committee sat from 1100 hours to 1245 hours in Committee Room 'B', Ground Floor, Parliament House Annexe, New Delhi.

**PRESENT**

Shri Hukum Singh – Chairperson

**MEMBERS**

**LOK SABHA**

2. Shri B. Vinod Kumar
3. Shri Maganti Murali Mohan
4. Dr. Sidhant Mohapatra
5. Shri Rodmal Nagar
6. Shri Subhash Patel
7. Smt. Aparupa Poddar
8. Smt. V. Sathyabama
9. Shri Lallu Singh

**RAJYA SABHA**

10. Shri Balwinder Singh Bhunder
11. Shri Amar Shankar Sable
12. Prof. Mrinal Miri
13. Shri A.V. Swamy
14. Shri Lal Sinh Vadodia

**SECRETARIAT**

1. Shri Shiv Kumar - Joint Secretary
2. Shri Kushal Sarkar - Additional Director

**WITNESSES**

**Ministry of Water Resources, River Development and Ganga Rejuvenation(MoWR,RD&GR)/Central Water Commission (CWC)**

1. Shri Shashi Shekhar, Secretary
2. Shri G. S. Jha, Chairman, CWC
3. Dr. Amita Prasad, JS (Admn. & GW)
4. Dr. M. Satyanarayan, Advisor (NWM)
5. Dr. Rajat Bhargava, JS(CAD)
6. Shri Pradeep Kumar, Commissioner (Parl.)
7. Shri C. Lal, Commissioner
8. Shri Sanjeev Agrawal, Chief Eng. CWC
9. Shri R.K. Jain, Chief Eng. CWC
10. Shri R.K. Sinha, Chief Eng. Brahmaputra and Barak Basin, CWC, Shilong
11. Shri R.K. Gupta, Chief Eng. Krishna Godavari Basin, CWC, Hyderabad
12. Shri S.K. Sahu, Chief Eng. Lower Ganga Basin, CWC, Patna
13. Shri B. Thakur, Sr. JC.
14. Shri Rajeev Kumar, Sr. JC.
15. Shri Kiran Pramanik, Sr. JC.
16. Shri R.K. Tiwari, Sr. JC.
17. Shri J.R. Boro, Sr. JC.
18. Shri Sameer Shukla, Director, CWC
19. Shri Vijay Saran, Director, CWC
20. Shri Anant Kumar Gupta, Director, CWC
21. Shri H. S. Sanger, Director, CWC
22. Shri Rajesh Yadav, Director, CWC

**Representatives of States & UTs**

23. Shri R. Sivaprasada Pillai, Ex- Engineer, Cauvery Special Cell
24. Shri A.V. Satyanarayana, Chief Engineer, Government of Andhra Pradesh
25. Shri Nityanand Mukherji, Dir, CWC, Siliguri
26. Shri Ashish Banerji, Dir., CWC, Lucknow
27. Dr. S.D. Singh, CEO, DPGS
28. Shri P.K. Saxena, CE, CWC, Bangalore
29. Shri. Shiv Nandan Kumar, CE, CWC, Nagpur

30. Shri J. Chandrashekhar Iyer, CE, CWC, Coimbatore
31. Shri Anant Kumar Gupta, Director, CWC
32. Shri Tapan Lodh, CE, PWD (WR)
33. Shri R. K. Gupta, Superintending Engineer(Hyd.), J & K
34. Shri Ravindra R. Yaragatti, Superintending Engineer, Water Resources Department, Govt. of Goa.
35. Shri Birendra Kr. Ram, Chief Engineer, Government of Jharkhand
36. Shri Binod Parashar, Executive Engineer, Minor Irrigation Division, Government of Jharkhand
37. Shri Praveen Shrivastava, Water Resources, Chhattisgarh
38. Shri N. Mukherjee, Director, CWC, Kolkata
39. Shri S. K. Awadhiya, Chief Engineer, Chhattisgarh
40. Shri K. Rama Krishna, C.E. (I & CAD), Hyderabad
41. Shri Rajendra Kumar, Executive Engineer, MWRD, Bihar
42. Shri R. K. Jarhyaw, Chief Engineer, IPH Department
43. Shri R. Selvam, Chief Engineer, PWD, WRD, Plan Formulation, Orissa
44. Shri G. S. Wason, Chief Engineer, Canal Irrigation, Punjab
45. Shri Sanjay Saxena, Superintending Engineer, Irrigation & Flood Control, Delhi
46. Dr. S. D. Singh, CEO, Evt. Deptt., Delhi Govt.
47. Shri Gulesh Chand, Chief Engineer (Yamuna) UP Irrigation
48. Shri K. K. Agrawal, Executive Engineer, UP Irrigation
49. Shri R. K. Suryawanshi, Chief Engineer, CWC, Gandhinagar
50. Shri J. Vijaya Prakash, ENC (AW) I & CAD, Government of Telangana
51. Shri Rajeev Chowdhary, C. E. Narmada Canal Project, Rajasthan
52. Shri M. P. Raval, C. E. (San.) & Addl. Secy, M.W.R.W.S. Deptt., Govt. of Gujarat
53. Dr. M. B. Joshi, GM (Tech. & Coord.), Sardar Sarovar Narmada Nigam Ltd., Govt. of Gujarat

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee, convened to have briefing by the representatives of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD & GR), Central Water Commission (CWC) and representatives from States & UTs - in connection with the examination of the subject "Review of the Accelerated Irrigation Benefits Programme (AIBP)" Thereafter, the Chairperson welcomed the representatives of various Ministries and State & UT Governments - who were also co-opted by the Ministry represented for the meeting.

3. At the outset, the Hon'ble Chairperson desired to know about the State Governments whose representatives were not present in the meeting. Thereafter, the Secretary MoWR, RD&GR gave a power point presentation on various issues relating to the subject and also apprised the Committee that the aims of Pradhan Mantri Sinchai Krishi Yojana (PMSKY) viz 'Har Khet ko Pani' and 'More Crop per Drop' also have been included as components of the AIBP Scheme. Thereafter, the Hon'ble Chairperson drew the attention of the representative of the Ministry towards the aim, "Minimum Water Maximum Irrigation." While pointing out that the maximum area of the country is still under canal irrigation and 80 % irrigation is dependant on ground water. Though, 'Rivers' are a Central Subject, yet a law has not been drafted about the regulation of the river waters. The Secretary however apprised the Committee that a framework law in this regard is being prepared and the same will be ready in the next two months' time. On the statistical part of the subject before the Committee, the Secretary apprised the Committee that out of the total number of 297 projects undertaken under AIBP, only 143 projects have been completed. Out of the total number of 89 active projects, there are 46 projects which can be categorized as 'Prioritized Projects' (projects which can be completed within thirty years) and the remaining 43 projects are classified as 'Active Projects'.

4. The issue of creation of River Basin Authority (RBA) for proper and efficient management of already scarce water resources in the country was raised during the deliberations. To this, the Secretary informed that no such authority has been formulated as of now. The Secretary enlightened the Committee that the same is under active consideration under the proposed national framework law. Further, a National Commission is also being proposed to be constituted to cover all the 20 river basin in the country. The Chairperson expressed deep concern over the non-implementation of the schemes announced by the Government in their entirety especially the Command Area Development Scheme (CAD).

5. The Hon'ble Chairperson categorically desired to know whether any policy is being formulated with regard to rejuvenation of river Yamuna. While observing that the river Yamuna has lost both its purity and utility, he expressed that a national universal policy needs to be framed and implemented effectively with regard to every big river. Co-ordination between States and Centre will be possible only if there is a well - defined policy in this regard. If the rivers are ignored, it will have a disastrous effect on our water resources. He also emphasized the need for a proper study and review of seasonal crop pattern as there are certain crops which require lot of water viz. rice, sugar etc. Moreover he also felt that for paddy cultivation, Participatory Irrigation Management (PIM) should be used.

6. While the Secretary informed the Committee that at present the Centre and the States make equal contributions in the AIBP projects and the States are free to collect money direct from the farmers, the Committee made a suggestion that keeping in view the financial constraints of the States, it would be better if the funding pattern is modified and that the share of funds to be borne by the Centre should be enhanced to 75% from the present 50%.

7. On the issue of progress made in the State of Gujarat on micro - sprinkler and drip irrigation, the representative briefed the Committee that a total of 46 projects are linked in the Sardar Sarovar, in which micro-irrigation will be done through the pressure pipe network. The State of Gujarat has done remarkable work in this field



as well as in cooperative movement and Water Users' Association and have framed good rules. To a pointed question, the Secretary of the Ministry informed that in future the entire irrigation in the country is going to be based on Underground Pipe Line (UGPL) System so as to avoid wastage of water seepages through canals, drains, reservoirs etc.

8. As regards the Sarayu Yojana, the Secretary informed the Committee that the said project caters to the Eastern UP - which is comparatively a poorer region. There exists a wide gap between the irrigation potential created and the irrigation potential utilised in that region, which needs to be bridged. Regarding pollution in the canals of Eastern Uttar Pradesh, the Committee were apprised that a team of representatives of Central Water Commission has been deployed to ascertain and remove the bottle-necks, if any, to ensure availability of water to every farmer.

9. The Hon'ble Chairperson further drew the attention of the representatives of the Ministry, State Governments towards the fact that inspite of having only a single river (Jordan), the Government of Israel has transformed their country to a water - rich nation. Since our country is blessed with a large number of rivers and with availability of latest technology, the nation can definitely utilise the entire irrigation potential available. The Secretary while expressing concurrence with this, apprised the Committee that the Government is seized of the issue and limited availability of water. He stated that the per capita water consumption in the country was 1,500 cubic metre which will diminish to 1,200 cubic metre within 10 years. He further informed that the Chinese Government had declared a state of crisis when the per capita annual supply of water dipped to 1,500 cubic metre. According to him, there is plenty of water in India, be it in the form of ground or surface water, only thing needed was harnessing this water properly and judiciously. He also alerted that climate change and pollution has now posed a further threat to already fast depleting water resources in the country.

10. In the end, the Hon'ble Chairperson suggested that 'water' as a subject should be included in the school/college educational curriculum to create better awareness in the future generation to which the Secretary also expressed full agreement.

11. The Committee, then, asked the Secretary, MoWR, RD & GR to furnish written replies to those queries raised by Members during the sitting - which could not be replied by the representatives orally.

***The witnesses then withdrew.***

12. A copy of the verbatim proceedings of the sitting was kept for record.

The Committee then adjourned.

**MINUTES OF THE SIXTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES (2016-17) HELD ON 14 MARCH, 2017**

The Committee sat from 1500 hours to 1515 hours in Committee Room 'C', Ground Floor, Parliament House Annexe, New Delhi.

**PRESENT**

Shri Hukum Singh – Chairperson

**MEMBERS**

**LOK SABHA**

2. Shri Radheshyam Biswas
3. Shri B. Vinod Kumar
4. Shri Abhijit Mukherjee
5. Shri Subhash Patel
6. Shri Vishnu Dayal Ram
7. Shri Ram Prasad Sarmah
8. Smt. V. Sathyabama
9. Shri Liladharbhai Vaghela

**RAJYA SABHA**

10. Sardar Balwinder Singh Bhunder
11. Dr. Bhushan Lal Jangde
12. Shri Ananda Bhaskar Rapolu
13. Shri A.V. Swamy
14. Shri Pradeep Tamta

**SECRETARIAT**

- |    |                    |   |                     |
|----|--------------------|---|---------------------|
| 1. | Shri Shiv Kumar    | - | Joint Secretary     |
| 2. | Smt. Rita Jaikhani | - | Director            |
| 3. | Shri Kushal Sarkar | - | Additional Director |

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee. Thereafter, the Committee took up for consideration (a) Thirteenth Report on the subject “Indigenous and Modern forms of Water Conservation – Techniques and Practices”; (ii) Fourteenth Report on the subject “Review of the Accelerated Irrigation Benefits Programme (AIBP)”; (iii) Fifteenth Report on Action Taken by the Government on the Observations / Recommendations contained in the Tenth Report (16th Lok Sabha) of the Committee on “Repair, Renovation and Restoration of Water Bodies – Encroachment on water bodies and steps required to remove the encroachment and restore the water bodies”; and (iv) Sixteenth Report on “Demands for Grants (2017-18) of Ministry of Water Resources, River Development and Ganga Rejuvenation. After some deliberations, the Committee adopted the aforesaid four draft Reports without any modification.

3. x x x x x x x x x

4. The Committee then authorized the Chairperson to present the above Four Reports to both the Houses of Parliament in the current Session.

The Committee then adjourned