

Minutes of the Second Meeting of the "Group on Financial Aspects under Task Force for Interlinking of Rivers" held on 17.11.2017 at 11:00 AM in the Committee Room, NWDA, 3rd floor, Palika Bhawan, New Delhi.

The Second meeting of the "Group on Financial Aspects under Task Force for Interlinking of Rivers" was held under the Chairmanship of Dr. Prodipto Ghosh, Former Secretary to Govt. of India and Chairman of the Group on 17.11.2017 (Friday) at 11:00 AM in the Committee Room of NWDA, 3rd floor, Palika Bhawan, New Delhi. List of Members and other participants is enclosed as Annex-I.

At the outset, Chairman of the Group welcomed all the Members, Invitees and other participants. He mentioned that four presentations, two from NWDA and one each from NITI Aayog and Yes Bank were proposed for today. However due to some other engagements, representative of NITI Aayog had not been able to come today and as such presentation of NITI Aayog could be arranged in next meeting. Thereafter the Chairmen requested Shri K. P. Gupta, Member Secretary of the Group to take up the agenda items one by one for discussion.

Item 2.1 Confirmation of minutes of the first meeting of the Group on Financial Aspect held on 24.10.2017

The minutes of the first meeting of the group on financial aspects under Task Force for Interlinking of Rivers held on 24.10.2017 at New Delhi were circulated among the Members/Special Invitee vide e-Mail dated 06.11.2017. Chief Engineer (IMO), CWC suggested some modifications vide his email dated 9.11.2017 (Annex-2.1). No comments were received from any other Member. After discussions on the suggested modifications, it was decided to confirm minutes of the first meeting held on 24.10.2017 with the modifications suggested by Chief Engineer (IMO), CWC.

Item 2.2 Estimation of the cost of the entire ILR project by extrapolation of the unit costs of 3 sub projects for which DPRs have been prepared -Presentation by NWDA

Shri M.K. Sinha, Senior Consultant, NWDA made a Power Point Presentation on Extrapolation of cost of ILR projects, based on the approved costs of Ken-Betwa Link Project (Phase-I) and Damanganga-Pinjal Link Project as per respective DPRs and overall benefits envisaged from the ILR programme. The total cost of ILR Projects worked out to Rs. 12.55 lakh crore. The unit costs of irrigation and power development were also worked out in respect of Par-Tapi-Narmada link Project. However these costs were not used for extrapolation as these costs were yet to be approved by the Advisory Committee of the Ministry of Water resources, River Development and Ganga Rejuvenation. Copy of presentation is at Annex-2.2. The cost of irrigation development is coming around Rs.2.8 lakh per hectare which is very close to the figure of Rs. 3.0 lakh per hectare as mentioned by Chief Engineer (IMO), CWC in first meeting held on 24.10.2017. The cost of Power Development worked out as Rs.8.0 crore per MW was considered not very reasonable as power benefits

envisaged from approved projects of Ken-Betwa link and Damanganga-Pinjal link are very low. It was felt that data/ information of some other Hydel projects approved by Central Electricity Authority (CEA)/ Ministry of Power may be collected and utilised for working out unit cost of power development. Further it was decided that for working out a refined estimate of extrapolated cost, two or three ILR projects for which Feasibility Reports have been prepared in the past should also be considered and detailed cost analysis in respect of dam, canal network, power, R & R, Compensatory afforestation, etc be done. Canal cost per cumec per km should also be worked out. Estimation should be done at the Price level of 2015-16. For cost of environmental components, the unit costs of the same maybe taken from Ken-Betwa link Project whose costs are approved. Director (Tech), NWDA pointed out that doing such exercise in respect of two/three projects may be difficult in short time. So it was further decided that to start with, detailed analysis should be done in respect of Mahanadi-Godavari link.

Item 2.3 Likely future trajectory of fiscal resources that may be available for the ILR project, based on various macroeconomic and fiscal considerations - Presentation by NITI Aayog

Presentation by NITI Aayog was deferred to the next meeting as the representative of NITI Aayog could not attend the meeting due to other commitment..

Item 2.4 Likely future trajectory of financial resources that may be available from Indian financial institutions for the ILR project - Presentation by Yes Bank

Power Point Presentation on “Future trajectory of financial resources from Indian Financial Institution for the ILR project” was made by Shri Pranay Ranjan, Associate Director, Corporate Finance, Yes Bank, New Delhi (Annex - 2.4). Shri Mittal from NHPC suggested that financing of one or two link Projects can be recommended through Green Bonds which is basically meant for Sustainable Water Resources Projects. Chairman suggested that ILR Projects could possibly be considered as Climate Change Adaption Projects. Representative from Yes Bank suggested that Masala Bond which comprises of external funding would be a better option for ILR Projects. On external funding, Shri Mittal recommended for World Bank Funding. Chairman mentioned that all the options including funding from Government of India, Indian Banks, International Financial Institutions (ADB/ BRICKS/ World Bank), and foreign capital markets would be explored. Shri Mittal was of the view that 25 to 30% budgetary support should come from Government side. Chairman desired to know from Shri Satish Rao about funding mechanism of similar projects in China. Shri Rao informed that China had recently constructed two Mega Projects- (i) Three Gorges Project, and (ii) Interlinking of Rivers Project. Three Gorges Project envisaged diversion of about 14 BCM water at an estimated cost of 30 billion US \$. The funding was done mainly by Central and State Governments. State Governments of China are capable of generating funds though state owned Commercial Development

Banks (CDB). Their recovery mechanism is quite good. Regarding South to North Water Transfer Project of China, he mentioned that this project envisages transfer of 28 BCM of water at an estimated cost of 80 billion US\$. 50% of the funds were provided by the Centre and remaining funds were provided by the State Governments including Banks. Shri Rao further informed that China has developed navigational facilities and commercial parks along the canals through which they get additional revenue.

Shri Mittal mentioned that in India, two important projects of Freight Corridor and Bullet Train have been taken up by India, each costing about Rs.1.0 lakh crore. Annual funds requirement of ILR projects would not be more than Rs.1.0 lakh crore. So we should explore the possibility of adopting their model of project funding. In Freight Corridor Project, 25% of fund is coming from Centre Government while 75% fund is coming from JICA and World Bank.

Item 2.5 Presentation of one completed DPR of a component of the ILR projects - Presentation by NWDA

Power Point Presentation on Ken-Betwa link project for which Detailed Project Report has been completed was made by Shri R.K. Jain, Chief Engineer (HQ), NWDA. Copy of his presentation is enclosed as Annexure 2.5. Chairman of the Group was of the view that the approved unit cost of R&R, compensatory afforestation and other environmental components should be utilised for working out updated cost of Mahanadi-Godavari link for which comprehensive EIA study has not been done.

Chairman of the Group observed that the presentation was useful in that it set forth the structure of DPRs prepared for projects with GoI funding. However, different funding agencies may have enhanced requirements of due diligence. The methodologies that were to be followed in their case, particularly in respect of cost-benefit analysis and financial analysis are also likely to be significantly different.

Item 2.6 Discussion of next steps in the work of Finance Group

Chairman mentioned that the earlier task Force has made work programme of 12 years for completion of ILR Projects which was very optimistic. Accordingly they had worked out the year wise requirement of funds for the ILR Projects. Since preparation of DPR of individual projects and its implementation depends upon consensus building among concerned basin/beneficiary States, as well as flow of funds from different sources, projections of possible financial flows from different channels over a period of 30 years may be worked out by the concerned teams. He requested NWDA to arrange three presentations in the next meeting: (i) Projections of possible flow of funds for the ILR programme from fiscal sources over the next 30 years, by NITI Aayog (ii) Projections of possible flow of funds for the ILR programme from Indian financial institutions, both private and public sector, by YES bank. In the initial presentation, a GDP growth rate of 8% p.a. over the period may be assumed,

later, the growth scenarios would need to be refined, and there may be need of harmonization of parameter assumptions (e.g. savings rates) between the projections of fiscal resources, and from Indian financial institutions, and (iii) cost analysis of Mahanadi-Godavari link. Further for knowing cost of power development per MW, details of approved cost of two or three Hydro power projects, including Sankosh H.E. Project in Bhutan should be collected from CEA or Ministry of Power. All costs and projections may be made at constant (2015-16) prices.

Item 2.7 Any other matter(s) with the permission of the Chair.

Chairman of the Group advised NWDA to invite Dr Deepak Das Gupta, Former Principal Economic Advisor in the Ministry of Finance (and India's representative on the Board of the Green Climate Fund) who also had rich World Bank experience in the subsequent meetings as a Special Invitee to have the benefit of his rich experience in this field. Further, he suggested to convene 3rd meeting of the Group on Financial Aspects preferably on 07th/08th December, 2017 as per convenience of the Members.

The meeting ended with vote of thanks to the Chair.

List of Members, Special Invitee and other participants of Second meeting of the “Group on Financial Aspects under Task Force for Interlinking of Rivers” held on 17th November, 2017 at New Delhi

| | | |
|----|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1. | Dr. Prodipto Ghosh, Former Secretary to Govt. of India & Member of Task Force for ILR, New Delhi | Chairman |
| 2. | Shri M.K. Mittal, Director (Finance), NHPC, Faridabad | Member |
| 3. | Shri H. Satish Rao, Retd. Director, ADB, Bengaluru | Member |
| 4. | Shri R.K. Jain, Chief Engineer (HQ), NWDA, New Delhi | Member |
| 5. | Shri B.P. Pandey, Director (ISM), CWC, New Delhi | Representing Chief Engineer (IMO), CWC, New Delhi |
| 6. | Shri Pranay Ranjan, Sr. Vice President, Yes Bank Ltd., New Delhi | Representing Shri Rana Kapoor, Managing Director and CEO, Yes Bank Ltd., Mumbai |
| 7. | Shri K.P. Gupta Director (Technical), NWDA, New Delhi | Member-Secretary |
| | Special Invitee | |
| 1. | Shri R.K. Pachauri, Chief Engineer (PPO), CWC, New Delhi | |
| | Other Officers | |
| 1. | Shri Vaibhav Jain, Sr. Manager-SGA, Yes Bank Ltd., New Delhi | |
| 2. | Shri Anil Kumar Jain, Deputy Director, NWDA, New Delhi | |
| 3. | Shri M.K. Sinha Senior Consultant, NWDA, New Delhi | |

Comments of CWC on the minutes of the first meeting of the Group on Financial Aspects held on 24th October 2017

| Minutes as recorded | Suggested Modification |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Item No.1.2 Review of Recommendations of the Sub Group on Finance constituted by earlier Task Force on inter-linking of Rivers (2002):</p> <p>Para 3: During presentation, Chief Engineer (IMO), CWC pointed out that the present average cost of irrigation projects is Rs. 3.0 lakh per hectare. Since irrigation benefits envisaged from ILR projects is of the order of 35 million hectare, the estimated cost of irrigation development will work out to Rs. 10.5 lakh crores.</p> | <p>Para 3: During presentation, Chief Engineer (IMO), CWC was of the view that cost per ha considered for estimation of cost of river-linking projects is on lower side. He pointed out that as the cost of irrigation projects depends on various factors like nature of proposed scheme, conditions of the proposed command area, cropping pattern etc., actual cost can be assessed only after preparation of DPR. However, based on the various project proposals of major and medium irrigation projects received in CWC for techno-economic appraisal, on an average, the cost of irrigation projects, at present, comes out in the order of Rs. 3.0 lakh per hectare. Since irrigation benefits envisaged from ILR projects are of the order of 35 million hectare, the present estimated cost of irrigation development may be about Rs. 10.5 lakh crores accordingly.</p> |
| <p>Item No.1.5 Any other item(s) with permission of the chair:</p> <p>The Chief Engineer (IMO),CWC stated that the Chief Engineer(PAO), CWC who is dealing with National Projects would have been the correct choice as a Member for this Group from CWC as one of the ToRs of the constituted Group is to study the options(s) of declaring some of the IBWT links of NPP as “National Project” on the pattern of Ken-Betwa link. Chairman of the Group suggested that the Chief Engineer (PAO), CWC should be made Special Invitee for all the meetings of the Group.</p> | <p>The Chief Engineer (IMO), CWC stated that the Chief Engineer (PPO), CWC who is dealing with National Projects would have been the correct choice as a Member for this Group from CWC as one of the ToRs of the constituted Group is to study the options(s) of declaring some of the IBWT links of NPP as “National Project” on the pattern of Ken-Betwa link. Chairman of the Group suggested that the Chief Engineer (PPO), CWC should be made Special Invitee for all the meetings of the Group.</p> |

Annex-2.2

PRESENTATION ON EXTRAPOLATED COST OF ILR PROJECTS

BY
NATIONAL WATER DEVELOPMENT AGENCY

LINKS FOR WHICH DPRs PREPARED

**DPRs OF FOLLOWING THREE LINKS OUT OF
THIRTY IDENTIFIED LINKS HAVE BEEN PREPARED:**

| S.N. | NAME OF LINK | MAIN BENEFIT | OTHER BENEFITS | STATUS OF APPROVAL OF COST |
|------|-------------------|----------------|------------------------|----------------------------------|
| 1. | KEN-BETWA | IRRIGATION | POWER & DRINKING WATER | APPROVED BY TAC OF MOWR, RD & GR |
| 2. | DAMANGANGA-PINJAL | DRINKING WATER | POWER | -DO- |
| 3. | PAR-TAPI-NARMADA | IRRIGATION | POWER & DRINKING WATER | YET TO BE APPROVED |

NAME OF THE PROJECT : KEN- BETWA LINK PROJECT (PHASE-I)

- **APPROVED COST**
- UNIT-I (Cost of Headworks) : Rs.8,29,492.62 lakh (P.L.2015-16)
- Unit-II (Cost of Canal network) : Rs.9,29,701.39 lakh
- Unit-III (hydropower) : Rs.46,514.44 lakh
- Total Cost : **Rs.18,05,708.46 lakh or Rs. 18057.08 crore**
- **BENEFITS**
- Total Annual Irrigation : **635661 ha**
- Hydro Power Generation : **78 MW**
- Drinking Water Supply : **49 MCM** (14 lakh population to be benefitted)
- **BENEFIT-COST RATIO : 1.70**
- **INTERNAL RATE OF RETURN : 12%**
- **TO WORK OUT VARIOUS COST PER UNIT**
 ALLOCATED COST OF IRRIGATION COMPONENT (including w.s.)= Rs.1739927.41 lakh
 ALLOCATED COST OF POWER COMPONENT= Rs.65781.05 lakh
- **COST OF IRRIGATION COMPONENT PER HECTARE = Rs.2.74 lakh, say, Rs.2.8 lakh**
- **COST OF POWER GENERATION PER MW = 65781.05 /78 =Rs.843.35 lakh**

NAME OF THE PROJECT : DAMANGANGA-PINJAL LINK

APPROVED COST

- UNIT-I (Cost of Headworks) : Rs.297219 lakh (P.L. Sept 2015)
- Unit-II (Cost of Canal network) : nil
- Unit-III (hydropower) : Rs.3630 lakh
- Total Cost : **Rs.300849 lakh or Rs. 3008.49 crore**

BENEFITS

- Hydro Power Generation : **5 MW**
- Drinking Water Supply : **895 MCM** (population of Greater Mumbai to be benefitted)
- **BENEFIT-COST RATIO : Not applicable**
- **INTERNAL RATE OF RETURN : Not applicable**
- **TO WORK OUT VARIOUS COST PER UNIT**
 ALLOCATED COST OF WATER SUPPLY COMPONENT= Rs.297219 lakh
 ALLOCATED COST OF POWER COMPONENT= Rs.3630 lakh
- **COST OF WATER SUPPLY PER MCM OF WATER = 297219/895= Rs.332 lakh,**
- **COST OF POWER GENERATION PER MW = 3630 /5 =Rs.726 lakh**

NAME OF THE PROJECT : PAR-TAPI- NARMADA LINK

ESTIMATED COST (YET TO BE APPROVED)

- UNIT-I (Headworks) : Rs.4,74,773 lakh
- Unit-II (Canal network) : Rs.4,55,710 lakh
- Unit-III (Hydropower) : Rs.18,091 lakh
- Unit-IV (Command Area Development) : Rs.72547 lakh
- Total Cost : **Rs.10,21,111 lakh or Rs. 10211.11 crore**

BENEFITS

- Total Annual Irrigation : **232175 ha**
- Hydro Power Generation : **20.70 MW**
- Drinking Water Supply : **76 MCM** (27.6 lakh population to be benefitted)
- **BENEFIT-COST RATIO : 1.035**
- **INTERNAL RATE OF RETURN : 10.17%**
- **TO WORK OUT VARIOUS COST PER UNIT**
 ALLOCATED COST OF IRRIGATION COMPONENT (including w.s.)= Rs.1003020 lakh
 ALLOCATED COST OF POWER COMPONENT= Rs.18091 lakh
- **COST OF IRRIGATION COMPONENT PER HECTARE = 1003020/232175= Rs.4.32 lakh**
- **COST OF POWER GENERATION PER MW = 18091 /20.70 =Rs.873 lakh**

EXTRAPOLATED COST OF ILR PROGRAM

| S.N. | COMPONENTS OF ILR PROGRAM | BENEFITS ENVISAGED | COST PER UNIT | TOTAL COST |
|------|---------------------------|--------------------|---------------------------------------------|----------------------------------|
| 1. | IRRIGATION | 35 million ha | Rs.2.8 lakh per ha or Rs.0.028 crore per ha | Rs.9.8 lakh crore |
| 2. | HYDRO POWER | 34,000 MW | Rs. 8 crore per MW | Rs.2.72 lakh crore |
| 3. | DRINKING WATER | 895 MCM + | Rs.3.32 crore per MCM | Rs.2972 crore Or 0.03 lakh crore |
| | TOTAL COST | | | Rs.12.55 lakh crore |

Note- 1. While working out total cost of irrigation component, unit cost of irrigation development of only Ken-Betwa Project (Approved) has been considered.

2. While working out total cost of power component, average unit cost of power generation of Ken-Betwa Project (Approved) and Damanganga (Approved) which works out to Rs.7.85 crore per MW, say Rs.8.0 crore per MW has been considered.

3. Damanganga-Pinjal link is only Water supply project. Cost of water supply component in respect of other link projects are normally included in irrigation component.

THANKS

Annex – 2.4

FINANCING OPTIONS FOR INTERLINKING OF RIVERS PROJECTS



November 17, 2017 | NWDA, New Delhi

FINANCING STRATEGIES



| FINANCING OPTIONS THROUGH BANKS/ FIs | CHALLENGES |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Infrastructure Debt Fund (IDF) <ul style="list-style-type: none"> ▪ IDF can be set up either as a trust or company. ▪ Trust-based IDF is a mutual fund that issues units to investors and is regulated by SEBI. Company-based format, the IDF is an NBFC that issues bonds to investors ▪ Will also attract foreign institutional investors | <ul style="list-style-type: none"> ▪ Bankable projects/ credit enhancement measures required ▪ Limited success so far for IDF |
| 2. Pooled Fund <ul style="list-style-type: none"> ▪ Creating Special State/Project Pooled Finance Entities ▪ Banks/ FI can participate in the pool fund ▪ Can also access capital markets through Pooled Financing Bonds | <ul style="list-style-type: none"> ▪ Success of pooled funds have been low so far - only in TN and Karnataka ULB funds ▪ Bankable projects/ credit enhancement measures required |
| 3. Bond Market <ul style="list-style-type: none"> ▪ Creating special bonds for ILR projects, similar to municipal bond through RBI guidelines | <ul style="list-style-type: none"> ▪ Higher cost of funds ▪ Limited success of bond market in India ▪ Bankable projects/ credit enhancement measures required |
| 4. Bank Funding <ul style="list-style-type: none"> ▪ Bank funding to developers of hydropower projects, land development etc. | <ul style="list-style-type: none"> ▪ Promoter credential ▪ Bank's SBL/GBL limits |

FINANCING STRATEGIES Contd.



FINANCING OPTIONS THROUGH BANKS/ FIs

5. **NABARD - Long Term Irrigation Fund (LTIF)**
 - LTIF created in NABARD with an initial corpus of Rs. 20,000 crore for funding of Central and State share for projects under PMKSY
 - Funds being raised through private placement
 - Banks/ FI can finance LTIF and shall be considered as “priority sector lending”
6. **External Commercial Borrowings (ECB)**
 - At present, a large part of the ECBs (about 40-45%) has been channelled to the infrastructure sector
 - Can be used to fund bankable PPP projects and avail of the concessions prescribed for infrastructure sector

CHALLENGES

- Limited number of projects will qualify under LTIF
- Projects do not generate matching foreign exchange earnings. Hence foreign exchange risk

RECOMMENDATIONS



Recommendations to Increase Banks/ FI Financing for ILR

- Reinstating Section 10(23G), which made income from investments in infrastructure tax-free. This would affect all entities engaged in infrastructure finance like financial investors, infrastructure finance companies, banks etc.
- Grant Statutory Liquidity Ratio (SLR) status to ILR funding to attract banking sector investment
- Declaring funding through banks/FI for ILR as “priority lending sector”
- Tax Free status to be given to bonds raised for ILR, similar to Tax Free Municipal Bonds
- Central Credit Rating Enhancement Fund (CREF) to improve the credit rating to access capital market
- Encourage participation by pension funds and insurance companies

Some of the current RBI concessions to promote Infrastructure Funding

- Enhancement in single/ group borrower limits
- Banks are permitted to finance SPVs, registered under the Companies Act, set up for financing infrastructure projects
- Debts due to the lenders in case of PPP projects to be considered as secured to the extent assured by the project authority in terms of the Concession Agreement
- Banks may enter into take-out financing arrangement with IDFC/ other financial institutions or avail of liquidity support from IDFC/ other FIs
- IDF-NBFCs can invest in PPP projects even without a government-backed authority

ILR – ECONOMIC BENEFITS AND POSSIBLE REVENUE SOURCES



| BENEFIT | REVENUE SOURCE/ SAVINGS TO MAKE IT BANKABLE |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Water Supply <ul style="list-style-type: none"> ILR will lead to augmentation of water supply to meet the domestic and industrial water requirement Involved states can purchase water sharing rights which can be used to fund construction cost | <ul style="list-style-type: none"> States can charge/ increase water tariff to individual users / industries for water use |
| 2. Irrigation <ul style="list-style-type: none"> Benefits of 35 million hectares of irrigation 25 million ha from surface waters and 10 million ha by increased use of ground waters, raising irrigation potential from 140 million ha to 175 million ha Average cost to state for providing irrigation water is Rs. 50 per acre It will also provide flood/ drought control | <ul style="list-style-type: none"> States will save on irrigation water supply. States can also charge betterment levy on farmers benefiting |
| 3. Hydro-power Generation <ul style="list-style-type: none"> Potential generation of 34000 Megawatt of power | <ul style="list-style-type: none"> Involved states can purchase power purchase / generation rights which can be used to fund construction cost |
| 4. Inland Water Transport <ul style="list-style-type: none"> ILR will create new water-ways which can be used for transportation and logistics | <ul style="list-style-type: none"> Revenue generation potential through logistics players, ports, and through transportation |
| 5. Commercial Land Use <ul style="list-style-type: none"> Tourism infrastructure like river front projects can be setup on PPP mode Land can also be used for other commercial purposes | <ul style="list-style-type: none"> Revenue can be generated by leveraging land development rights along canals/ bank |
| 6. Fisheries <ul style="list-style-type: none"> It will increase pisciculture potential | <ul style="list-style-type: none"> Revenue can be generated through fishing rights |

THANK YOU



Annex – 2.5

Ken – Betwa Link Project

by

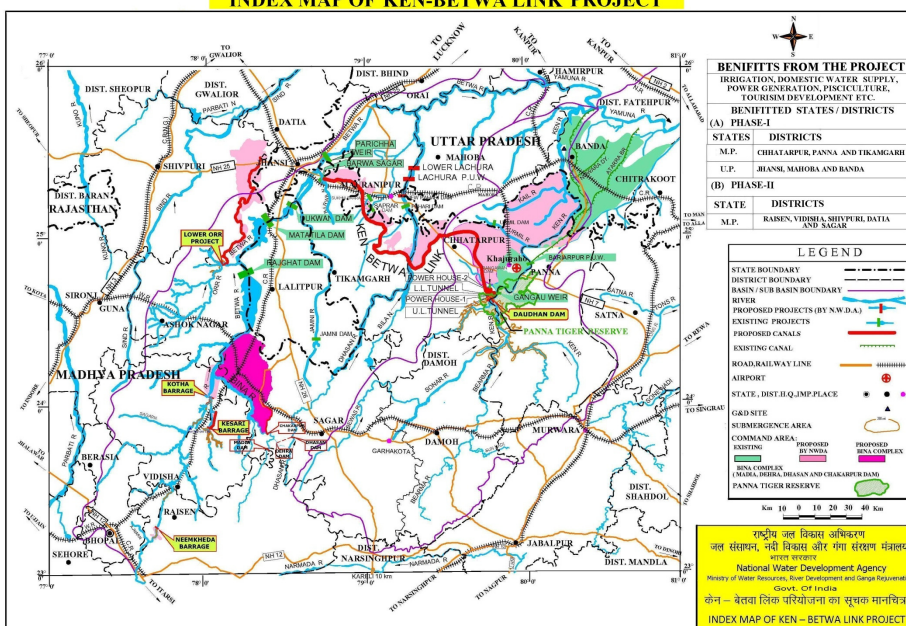
R.K. Jain,

Chief Engineer (Hq.)

NATIONAL WATER DEVELOPMENT AGENCY

(17-11-2017)

INDEX MAP OF KEN-BETWA LINK PROJECT



National Water Development Agency

Background

- The Task Force set up by the NDA Govt. in Dec. 2002 – (Report in 2004) recommended Ken-Betwa as a top priority link.
- A series of meetings were held between the two States of UP and MP and CWC to decide on allocation of water, culminating in an agreement between the two CMs and the Union Minister of Water Resources in the presence of PM on 25.08.2005 to undertake KBLP by sharing the water in the ratio of **1700 MCM for UP and 2279 MCM for MP** based on water yield of 6188 MCM AT 75% dependability.

National Water Development Agency

Main Components

| | |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Daudhan Dam | On Ken River in Chhatarpur & Panna in M.P. |
| <ul style="list-style-type: none"> • Height • Length • Reservoir Capacity | <ul style="list-style-type: none"> - 77 m - 2031 m - 2853 MCM |
| Link Canal | 221 km length |
| <ul style="list-style-type: none"> • Drinking water • Enroute Irrigation • Transfer to Betwa River | <ul style="list-style-type: none"> - 49 MCM (14 lakh population) - 366 MCM (0.60 lakh ha. Irrigation in MP and UP) - 591 MCM (1.00 lakh ha. Irrigation) |
| Ken Left Bank Canal and Bariarpur | 1405 MCM for 3.2 lakh ha irrigation in Panna and Chhatarpur (MP) |
| Daudhan Dam through Bariarpur | 1600 MCM for 2.5 lakh ha irrigation in Banda (UP) |
| Power generation | 78 MW |

National Water Development Agency

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Ken-Betwa Link Project

| Costs | | Benefits | |
|------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
| Area under submergence | 9000 ha. | Area Irrigated 6.35 lakh ha. MP - Chhatarpur, Panna, Tikamgarh UP - Mahoba, Jhansi, Banda | |
| Total Forest Area | 5803 ha | | |
| Forest area in Panna Tiger Reserve | 4206 ha | | |
| Villages affected | 10 | Drinking water Beneficiaries | 14 lakhs |
| Families affected | 1913 | Total Population benefited | 0.7 million in >100 villages |
| Population affected | 8339 | | |
| Cost of the project | 18057 crore (Price level 2015-16) | Benefit Cost ratio | 1.70 : 1 |

National Water Development Agency

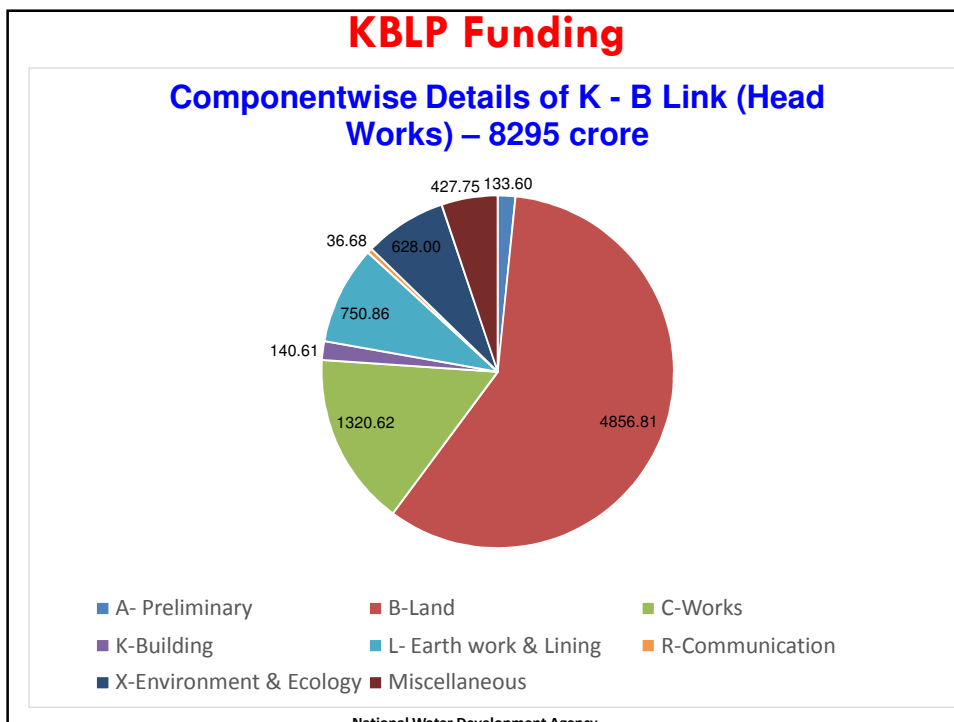
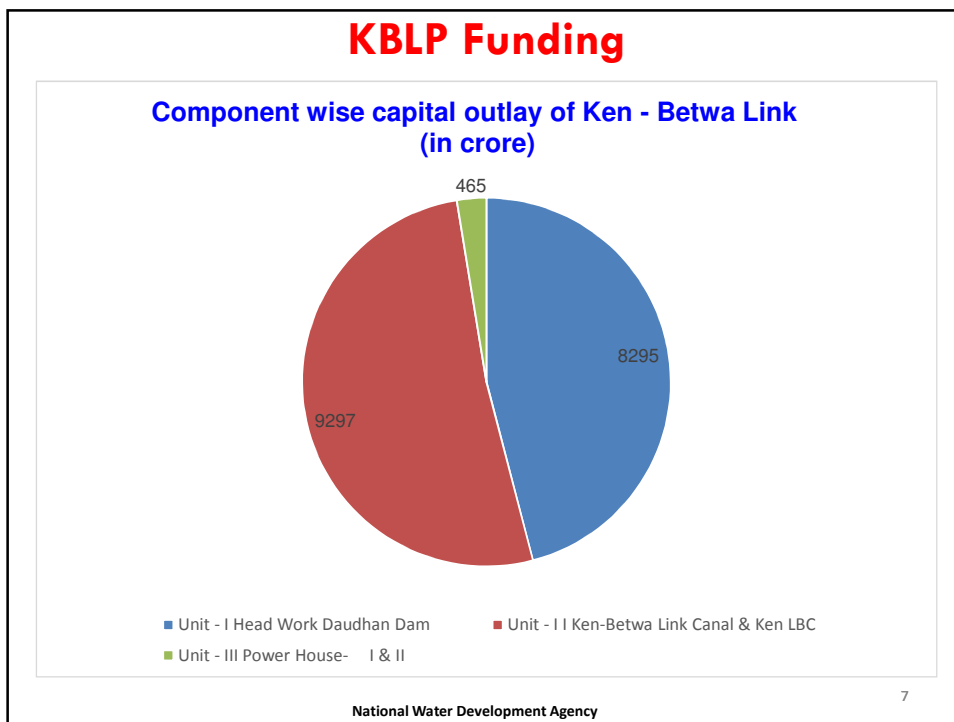
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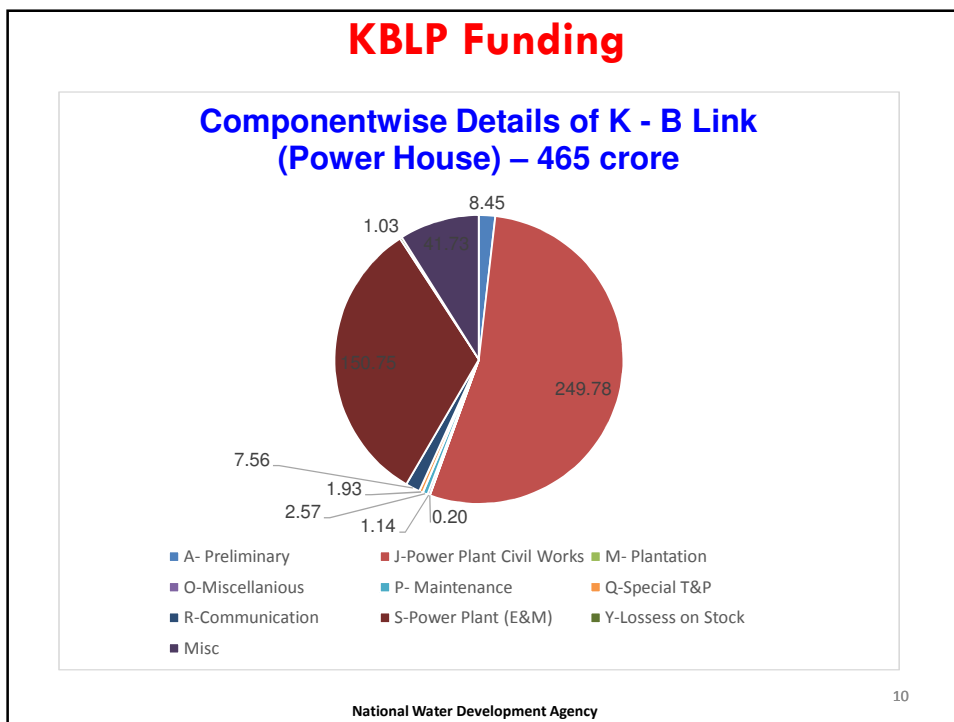
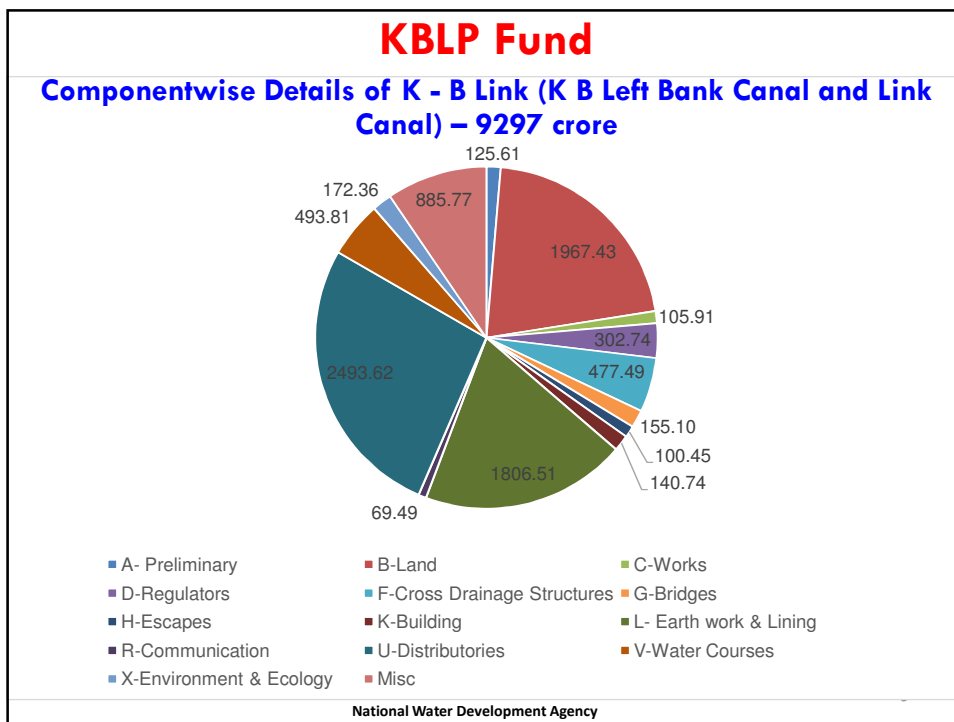
KBLP Funding

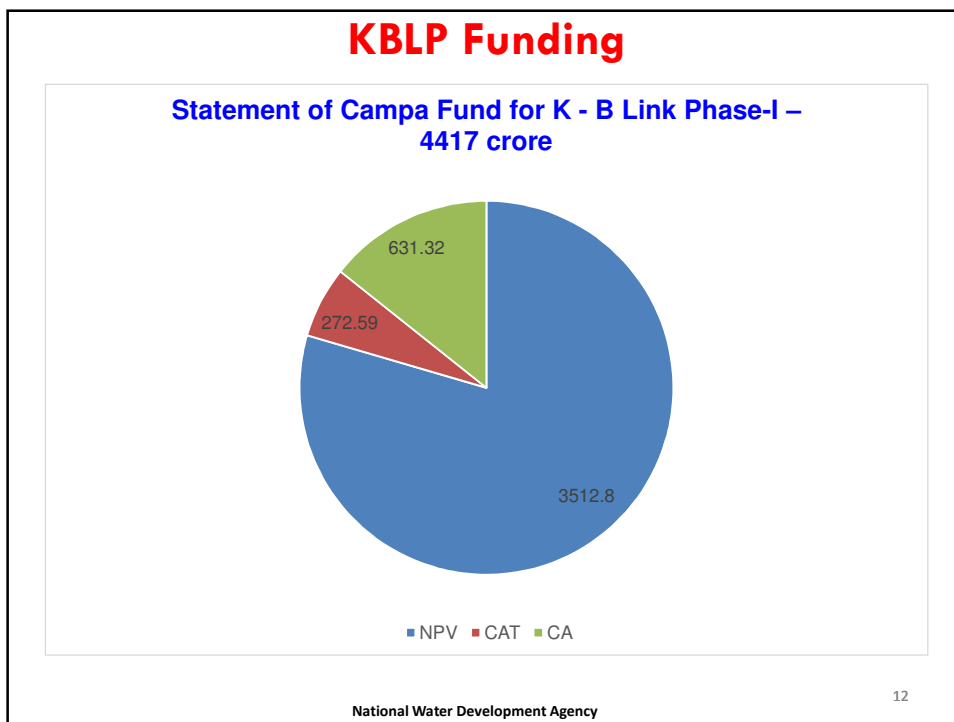
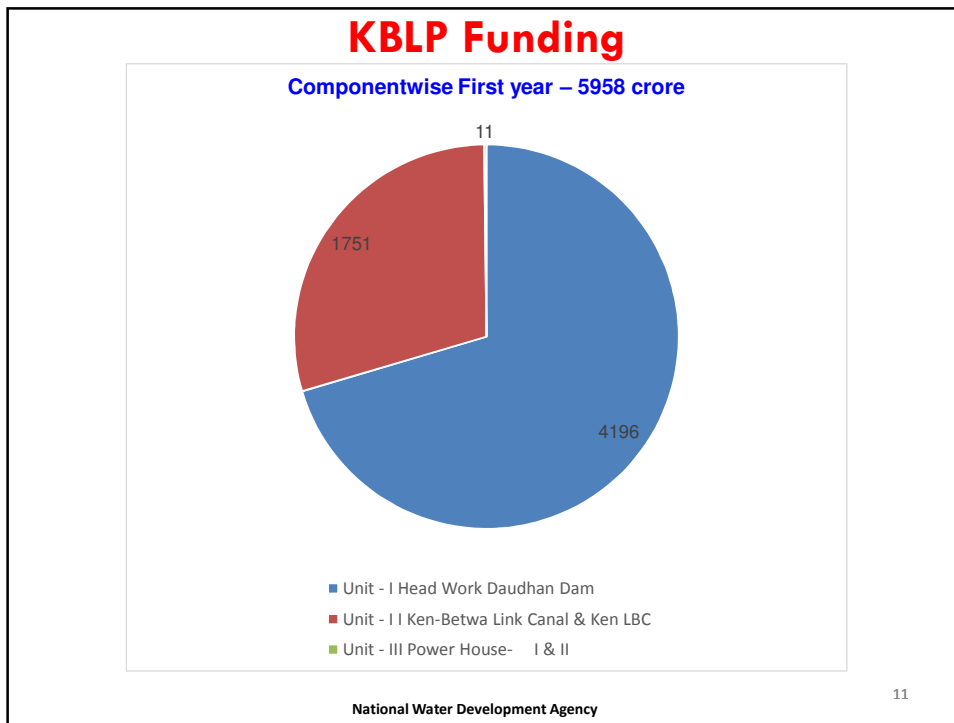
- Total cost of the project of Rs. 18057.08 Crore at price level of 2015-16 with a funding pattern of 90% (Centre) : 10% (State). The break-up of cost of project is:
 - Daudhan Dam - 8,294.92 Crore
 - Link Canal - 4,844.88 Crore
 - Ken Left Bank Canal - 4,452.12 Crore
 - Power House (I) - 343.72 Crore
 - Power House (II) - 121.44 Crore
- Project to be implemented by a SPV GOI (MP: NHPC). State Governments will execute canals, other conveyance systems, command area development, land acquisition, compensatory afforestation, R&R issues etc. in their respective territories.
- SPV responsible for construction, regulation, operation and maintenance of all components including sale of Hydro Power.

National Water Development Agency

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KBLP Funding

Year –Wise financial requirement vis-a-vis physical progress

| <i>Year</i> | <i>Financial Requirement in Crore (%)</i> | <i>Physical Output (%)</i> |
|---------------------|-------------------------------------------|----------------------------|
| <i>First Year</i> | <i>33*</i> | <i>16.72</i> |
| <i>Second Year</i> | <i>16</i> | <i>24.37</i> |
| <i>Third Year</i> | <i>8</i> | <i>13.61</i> |
| <i>Fourth Year</i> | <i>10</i> | <i>10.66</i> |
| <i>Fifth Year</i> | <i>11</i> | <i>10.66</i> |
| <i>Sixth Year</i> | <i>12</i> | <i>10.66</i> |
| <i>Seventh Year</i> | <i>8</i> | <i>10.66</i> |
| <i>Eighth Year</i> | <i>2</i> | <i>2.66</i> |
| <i>Total</i> | <i>100</i> | <i>100</i> |

**includes cost of land acquisition and CAMPA fund (NPV, CA and CAT)*

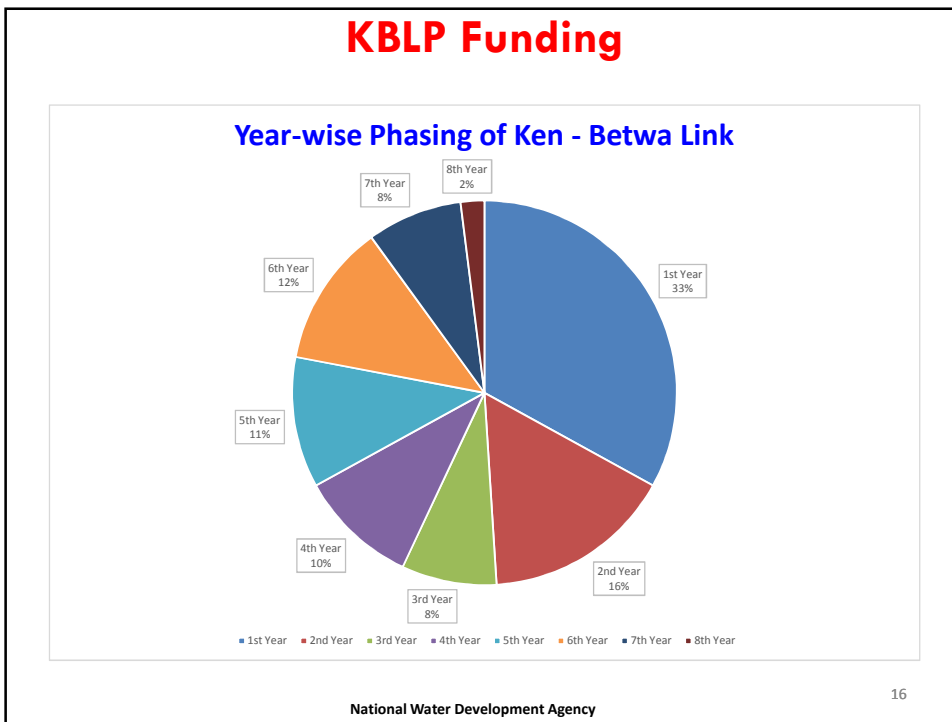
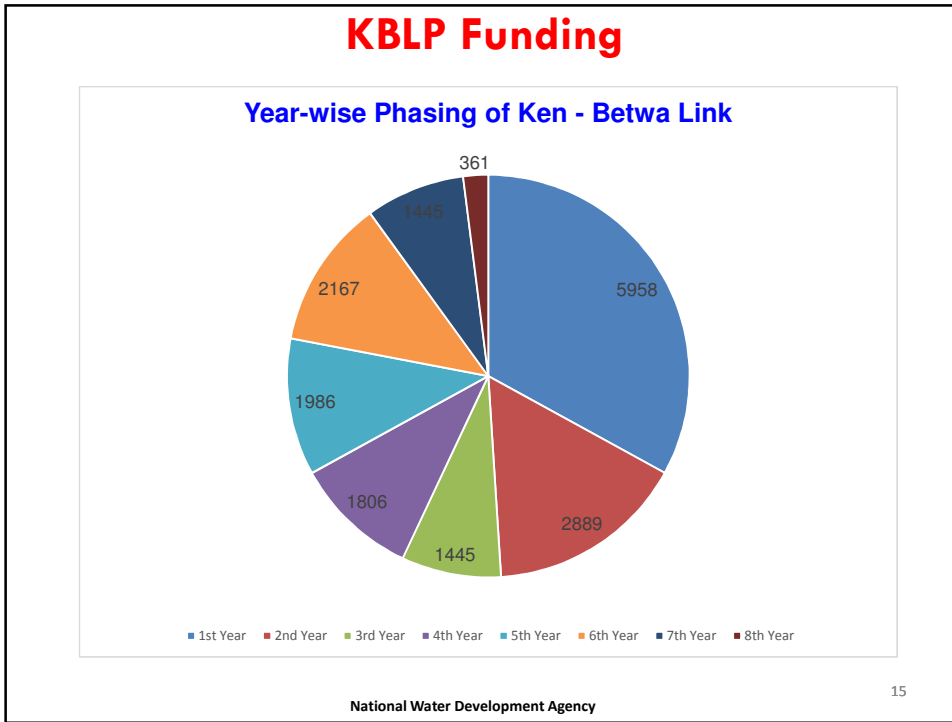
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KBLP Funding

Year –Wise requirement of fund in Crore

| Year | Estimated Cost of the project (Year-wise phasing) | Cost of power houses of project to be funded by Centre | Remaining cost of project | Central Assistance through ACA under State Plan 90% | Cost to be borne by beneficiary States of MP & UP as per share of water 10% |
|-------|---------------------------------------------------|--------------------------------------------------------|---------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------|
| 1 | 5958.84 | 153.50 | 5805.34 | 5224.81 | 580.53 |
| 2 | 2889.13 | 74.42 | 2814.71 | 2533.24 | 281.47 |
| 3 | 1444.57 | 37.21 | 1407.36 | 1266.62 | 140.74 |
| 4 | 1805.71 | 46.51 | 1759.19 | 1583.28 | 175.92 |
| 5 | 1986.28 | 51.17 | 1935.11 | 1741.60 | 193.51 |
| 6 | 2166.85 | 55.82 | 2111.03 | 1899.93 | 211.10 |
| 7 | 1444.57 | 37.21 | 1407.36 | 1266.62 | 140.74 |
| 8 | 361.14 | 9.30 | 351.84 | 316.66 | 35.18 |
| Total | 18057.08 | 465.14 | 17591.94 | 15832.75 | 1759.19 |
| Say | 18057 | 465 | 17591 | 15832 | 1759 |

National Water Development Agency



Thanks