

Chapter- 14

Other Aspects of the Project

14.1 Foreign Exchange Element

Majority of the requirements of plants and machinery, spares, equipments/instruments, etc proposed to be procured / hired would be met indigenously. However, at the time of construction, in case the need for importing of specific equipment arises, then the requirement of foreign exchange for the same would be dealt with, within the stipulated provision of foreign exchange policy of Government of India.

14.2 Fixing of Sill Level/Bed Level of the Canal Head Regulator at Gosikhurd

The ground levels around the foreshore of Gosikhurd reservoir have been studied. The FSL of Wainganga (Gosikhurd) – Nalganga (Purna Tapi) Link Project is considered as 241.0 m so that it can draw water even when the Gosikhurd reservoir is at its minimum drawdown level i.e. 241.29 m. An approach channel of about 1.42 km length with a bed level of 237.5 m is proposed from the reservoir upto RD 0 km of the canal alignment. The off-take/head regulator is proposed about 300 m away from RD 0 km on the foreshore of reservoir near village Rajoli so as to suit the ground level of 245.5 m (FRL). Sill level / Crest level of the proposed head regulator is considered at EL 236.5 m while the canal bed level is 235.0 m with a full supply depth of 6.0 m. Vertical lift type fixed wheel service gates of size 5.5 m wide x 9.0 m high, are proposed to control the discharge into canal. The details/design of proposed head regulator are given in **Chapter 6: ‘Design Aspects’**.

14.3 Fixing of Outfall Level of the Link Canal vis-à-vis FRL of Nalganga Reservoir

As per the information supplied by the project authorities, the FRL of the existing Nalganga dam, which is the tail end reservoir of the Wainganga-Nalganga link project, is 294.44 m. Whereas, as per the toposheet and DEM values of the dam location downloaded from the NRSA web site, it is observed that the FRL is about 310.0 m. Accordingly, the out fall FSL of the link canal

into the Nalganga reservoir is proposed at 310.527 m. Also, the elevation on the TP/TBM pillar erected by NWDA at the periphery of the Nalganga reservoir as measured by GPS during field investigations is 313 m, which corroborates with the toposheet/DEM data.

14.4 Revenue

14.4.1 Revenue from Irrigation

The proposed Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link project envisages diversion of 1772 Mm³ from the existing Gosikhurd (Indira Sagar) project on Wainganga river in Pranhita sub-basin of Godavari basin for extending irrigation, domestic and industrial water supply benefits in six districts of water stressed Vidarbha region of Maharashtra state viz. Nagpur, Wardha, Amravati, Yeotmal, Akola & Buldhana before outfalling into Nalganga project on Nalganga river in Tapi basin. The people in the proposed command area as of now are predominantly dependent on rain and ground water for their agriculture and allied activities as the region lags behind the rest of the state in irrigation infrastructure. The link canal will immensely benefit the Vidarbha region by envisaging to bring additional areas to an extent of 371277 ha under assured irrigation. In addition, the link will provide domestic water supply to the tune of 32 Mm³ in the command area. It is also planned to supply 397 Mm³ of water to meet the demands of various industries in the region. The link canal proposes to serve the command areas lying in upland areas through pumping and feeding about 40 enroute storages/tanks, which otherwise could not possibly be served through conventional projects. The canal top/bank solar power generation is also planned along the link alignment, which will add to the clean energy development in the region. The link project will thus bring economic prosperity to the acute water short and drought-prone command area lying in the vicinity of the link project and will serve as a boon for the Vidarbha region.

In light of the above, the main source of revenue from this project would be irrigation, domestic, industrial water supply and solar power generation. The net irrigation benefit on implementation of the link project is found to be Rs. 213381 lakh at 2017-18 price level. The additional revenue on account of levying the water charges (irrigation service fee) in the command area of 371277 ha will be Rs. 5569 lakh. The details on various benefits of the link project have been deliberated in **Chapter-8: 'Irrigation Planning and**

Command Area Development’, Chapter-9: ‘Power’ and Chapter: 13: ‘Cost Estimates’.

14.4.2 Revenue from Power

Gujarat Energy, Research and Management Institute (GERMI), Gandhinagar has been assigned with the consultancy study for setting up of grid connected solar (PV) power plant on canal top/canal banks and to assess possible solar power potential along the 426.54 km long Wainganga (Gosikhurd) – Nalganga (Purna Tapi) link canal. The study assessed the solar potential of the link project as 1884 MW. It will generate 3768 MU of energy considering 6 hours of sunshine on average in a day. This will fetch Rs 2637.6 crore per annum at the rate of Rs.7/ Kwh over a period of 25 years. The solar power can be used to offset the power requirement to lift the water in the link canal (in six stages) and the surplus power can be uploaded to the grid. However, the benefits from the solar power plants are treated as additional benefits and these are not considered while evaluating the link project for its economic viability.

14.4.3 Revenue from Domestic Water Supply

The domestic water requirement as per prevalent norms of NWDA in the command area works out to 32 Mm³ and the corresponding benefit to be accrued will be Rs 112.0 lakh.

14.4.4 Revenue from Industrial Water Supply

The industrial water is proposed as 397 Mm³ which makes the benefit from the industrial water supply as Rs. 952800 lakh.

14.4.5 Revenue from Animal Husbandry

On introduction of irrigation in the command area, the availability of fodder crops would increase substantially. Also, the agricultural industry shall get boost due to increase in agricultural produce. Therefore, there is ample scope for additional revenue to the farmers from dairy development and poultry. Mini dairy units can be established by the farmers in addition to farming to

generate additional revenue. This will increase their income through sale of milk, surplus fodder & manure and appreciation of young stock. However, since augmentation of income of the farmers from animal husbandry as a result of introduction of irrigation is difficult to estimate, this benefit is not considered for evaluating the economic viability of the link project as per the guidelines for preparation of DPR of irrigation and multipurpose projects-2010.

14.4.6 Revenue from Fisheries

Pisciculture has been planned in the Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link project. Creation of 31 new storages/tanks and raising of six existing tanks will certainly increase the natural fish production manifold. Fresh water prawns and migratory fish may be cultured in the tanks/storages. This will increase the income of the population engaged in fisheries in the region. The utilisable submergence area for pisciculture is taken as 70 % of the total submergence of 19818 ha i.e. 13870 ha and the corresponding net profit is assessed as Rs. 3230 lakh.

14.4.7 Revenue from Canal Plantation

The length of canal after accounting the cross drainage and cross masonry structures and tunnels will be about 405 km. Canal plantation will be resorted along the canal banks, side slopes of road and spoil and within canal right of way. Similarly, the borrow area to be acquired for the project will be also be used for plantation. The net profit from this is estimated to be Rs 4866 lakh per annum.

14.5 Financial Resources

After completion of the Detailed Project Report (DPR) and the necessary CEIA studies, the following clearances will be obtained by the Govt. of Maharashtra as the project proponent from the respective agencies.

Sl. No.	Clearance	Agency
(i)	Techno-economic	Central Water Commission, TAC of MoWR, RD & GR

(ii)	Forest Clearance	Ministry of Environment, Forest and Climate Change (MoEF & CC)
(iii)	Environmental clearance	Ministry of Environment, Forest and Climate Change (MoEF & CC)
(iv)	R & R Plan of Tribal population	Ministry of Tribal Affairs (MoTA)

After obtaining the above clearances, the Detailed Project Report will be submitted by the State to the Ministry of Water Resources, RD & GR/NITI Aayog for investment clearance. The year wise requirement of funds for the construction of the project is furnished in **Chapter-10 ‘Construction Program, Manpower Deployment and Plant Planning’**.

14.6 Future Utilisation of Facilities Created (Buildings)

Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link envisages construction of 31 new storages, raising of six existing storages, lifting arrangements at six locations, 426.54 km long link canal (comprising of open canal, pipe lines and tunnels) and a no. of major cross drainage/cross masonry structures. Various facilities and assets shall be created during the construction period as required in the project such as buildings, roads, heavy equipments and machineries. In order to facilitate the office accommodation, stores and residential accommodation for the construction teams, two categories of buildings i.e. permanent and semi-permanent/ temporary are proposed to be constructed at various construction colonies/ sites and also in the near vicinity of Nagpur/Wardha/Amravati/Akola/ Buldhana. After the commissioning of the project, the permanent buildings will be utilized for operation and maintenance of the project while the remaining infrastructure can be utilized for the future projects likely to come up in the vicinity or for offices of other State/Central Govt. organisations.

14.7 Legal Aspects of Wainganga (Gosikhurd) - Nalganga (Purna Tapi) Link Project

14.7.1 Effect of Wainganga (Gosikhurd) - Nalganga (Purna Tapi) Link on the Territory of Other States

Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link envisages construction of 31 new storages, raising of six existing storages, lifting arrangements at six locations, 426.54 km long link canal (comprising of open canal, pipe lines and tunnels) and a no. of major cross drainage/cross masonry structures. The link off-takes from existing Gosikhurd reservoir on Wainganga river of Godavari basin and outfalls in existing Nalganga reservoir on Nalganga river of Tapi basin. It is planned to integrate existing Lower Wardha reservoir on Wardha river of Godavari basin and existing Katepurna reservoir on Katepurna river of Tapi basin as balancing reservoirs, besides supplementation of water to the new & existing storages including Bembla reservoir on Bembla river of Godavari basin. As the Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link is an intra-state link of Maharashtra, the entire project area of the link consisting of existing storages viz. Gosikhurd, Lower Wardha, Bembla, Katepurna, Nalganga, six other existing enroute storages and 31 new storages, the link canal and all the appurtenant works, lifting arrangements, CD/CM works etc. are located in the state of Maharashtra.

The total submergence under the storage tanks is 19818 ha. A total of 109 villages will be affected by submergence with 26 being fully affected, 3 partly submerged and only land pertaining to 80 villages coming under submergence. The affected villages are located in Kuhi, Umred, Hingna and Nagpur talukas of Nagpur district, Seloo, Arvi and Wardha talukas of Wardha district, Dhamangaon and Nandgaon Khandeswar talukas of Amravati district, Ner taluka of Yeotmal district, Barshi Takali and Akola talukas of Akola district and Shegaon taluka of Buldhana district in Maharashtra. A population of 15640 as per census-2011 is likely to be affected due to the link project. The link project requires about 395 ha of forest land (241 ha under the storages and 154 ha for the link canal) located in the above districts. Also, the enroute storages are proposed/located on minor streams only and the catchments intercepted by them are marginal and are limited to within the respective talukas, where these are proposed. Thus, there will be no effect of the link project on the territory of any other State than Maharashtra.

14.7.2 Existing Inter-state Agreement on Sharing of Water

There is an existing Inter-State agreement on sharing of Godavari waters among the States of Maharashtra, Madhya Pradesh and Andhra Pradesh dated 7th August, 1978. The Godavari Water Disputes Tribunal in its Award ordered that this agreement be observed and carried out. As per this agreement, subject to the use of Pranhita sub-basin waters by the State of Madhya Pradesh in the upstream, the State of Maharashtra can use all waters of the river Wainganga and/or its tributaries upto Gosikhurd. Thus, the link project is planned by the State to utilize only the surplus waters available in the catchment of Wainganga upto Gosikhurd which is duly in accordance with the GWDT Award/Inter-State agreement in force.

14.8 Sharing of Water, Power and Other Benefits

The Wainganga (Gosikhurd) - Nalganga (Purna Tapi) Link Project being an intra-State link project of Maharashtra, all the benefits to be accrued from the project viz. domestic, irrigation industrial and power are planned in the six districts viz. Nagpur, Wardha, Amravati, Akola, Yeotmal and Buldhana of the Vidarbha region, within the State. Thus, no inter-state sharing of water, power or any other benefit is involved in the link project.

14.9 Public Co-operation and Participation

The project will provide impetus to all-round development of the region and reduce the socio-economic imbalance by enhancing agricultural production and employment opportunities. Hence, good co-operation and whole hearted participation is anticipated from the beneficiary areas.

On the other hand, out of 40, 37 proposed en route storages (31 new + raising of 6 existing storages) involve submergence issues. But, keeping in view the market value of land and liberal R&R package in accordance with the latest Govt. of India Act, there is likelihood of acceptance from the affected population to the project. Moreover, it has been perceived while carrying out topographical surveys that the farmers are in favour of such large water resources project in the region keeping in view the chronic and continuous spell of droughts vis-a-vis ever growing irrigation, domestic and industrial water

needs. Thus, the people in the region feel that Wainganga (Gosikhurd) - Nalganga (Purna Tapi) link project is essential to provide the necessary impetus to the irrigation development in the Vidarbha region and are expected to extend their full cooperation in the implementation of the project.

14.10 Public Awareness

The details of the link proposal have been communicated by the State Government to the concerned District Collectors of the Project area, which in turn were circulated to the local revenue officials in the project area. The benefits to be accrued from the proposed project have been brought to the notice of the general public during the field surveys and other investigation works of the project by the NWDA officials as well as by the respective State authorities from time to time highlighting the importance of the scheme to meet the water shortage of the region and its likely contribution to the overall development of the region in innumerable ways. Thus, the people in the vicinity are well conversant of the link project and are eagerly looking forward to its early implementation.