



- According to the Union Ministry of Jal Shakti, the Ken-Betwa link project (KBLP) is the first of 30 such link projects under a National Perspective Plan (NPP) for water resources development and interlinking of rivers with 'surplus water' to those with 'deficit water', formulated in 1980 by the Ministry (then Union Ministry of Irrigation) and the Central Water Commission.
- The NPP is divided into two components — Himalayan Rivers Development that proposes 14 links & Peninsular Rivers Development that plans 16 links, as identified by the National Water Development Agency (NWDA).
- An idea first envisaged in 1995 after a feasibility study by the NWDA, the KBLP, part of the Peninsular Rivers Development, has moved at a slow pace.
- The first major breakthrough was, achieved on August 25, 2005 as the Central Government and the governments of Madhya Pradesh and Uttar Pradesh signed a memorandum of understanding (MoU) for the preparation of a Detailed Project Report (DPR).
- Entrusted to the NWDA, the report was completed in December 2008 & in February 2009, it was decided that the DPR will be prepared in two phases.
- In phase I, Daudhan Dam and its appurtenant works, two tunnels, two power houses and link canal will be included.
- The second phase, on the other hand, will see the construction of Lower Orr Dam and various barrages.
- After a tripartite MoU was signed between the Centre and the two States in March 2021 for the implementation of the project, it was finally approved by the Union Cabinet in December that year
- The project plans on transferring the declared surplus water of the Ken river by constructing the Daudhan Dam on it and using a 221-km canal, including a 2-km tunnel, to the Betwa river.
- Apart from this, the project is also expected to generate 103 MW of hydropower and 27 MW of solar power.
- It is also aimed at solving the water woes of the drought-prone Bundelkhand region by providing drinking water to 4.4 million people in about 12 districts of Madhya Pradesh and more than 2 million people in 10 districts of Uttar Pradesh
- As per an NWDA report, the project is also expected to provide annual irrigation to 8.11 lakh hectares and 2.51 lakh hectares of land Madhya Pradesh and Uttar Pradesh, respectively.
- Spread between the northern parts of Madhya Pradesh & southern Uttar Pradesh, the partly-hilly region covers 13 districts in the two States and has for long suffered droughts and water shortages, prompting locals to move to other cities for employment.

- The region is also among one of the country's most socio-economically backward regions.
- When the Union Cabinet approved the project in 2021, the National Green Tribunal was still deliberating a challenge to its green clearance.
- Uttar Pradesh, Madhya Pradesh & the Centre signed a tripartite agreement to transfer "surplus" water from the Ken basin in M.P. to the "deficit" Betwa basin in U.P.
- The Ken-Betwa project is part of the national river linking project which proposes to connect 14 Himalayan & 16 peninsular rivers with 30 canals & 3,000 reservoirs in order to irrigate 87 million hectares of land.
- It has the status of a national project, as the Centre will contribute 90% of the cost.
- It is India's first river linking project and will take eight years to complete.
- The During the Raj, British engineer Sir Arthur Cotton sought to link the Ganga & the Cauvery to facilitate navigation
- Ken & Betwa both are the tributaries of Yamuna
- The concept of linking of river is very old in India , the Periyar Project, under which transfer of water from Periyar basin to Vaigai basin was envisaged, was commissioned in 1895.
- Other projects such as Parambikulam Aliyar, Kurnool Cuddapah Canal, Telugu Ganga Project, and Ravi-Beas-Sutlej too were undertaken.
- ILR envisaged 30 river links both in the Himalayas & peninsular India, first conceptualised in the 1980s as part of the National Perspective Plan by the irrigation ministry to link rivers with 'surplus water' to those with 'deficit water'.
- The proposal to link the Ken & Betwa rivers to provide water to the parched parts of Uttar Pradesh was made by former Prime Minister Atal Bihari Vajpayee.
- Now, both the Centre & the State government wants to revive the idea.
- The detailed scheme, made public in 2002, included the Ken-Betwa Link Project that proposed to link the Ken River that flows through Panna in Madhya Pradesh & the Betwa River that runs through central Madhya Pradesh & southern Uttar Pradesh.
- Captain Dinshaw J Dastoor proposed a Garland Canal to redistribute the water from one area to another.
- The Union Cabinet approved the funding & implementation of the Ken-Betwa river interlinking project at a cost of ₹44,605 crore at the 2020-21 price level.
- The Centre would fund ₹39,317 crore for the project, with ₹36,290 crore as a grant and ₹3,027 crore as a loan.
- The project involves transferring of water from the Ken river to the Betwa river through the construction of Daudhan dam & a canal linking the two rivers, the Lower Orr Project, Kotha Barrage & the Bina Complex Multipurpose Project.
- The key projects are the Makodia & Dhaudhan dams
- In a "normal" year, Madhya Pradesh would use 2,350 MCM (million cubic metre) of water & Uttar Pradesh, 1,700 MCM.
- From November-May, the non-monsoon period, Madhya Pradesh would get 1,834 MCM & Uttar Pradesh 750 MCM.
- A sticking point was that Uttar Pradesh had demanded nearly 900 MCM and Madhya Pradesh was prepared to release only 700 MCM.
- A new body — the Ken Betwa Link Project Authority — will execute the project and is in the process of obtaining forest clearance for constructing the Daudhan dam.

#### SIGNIFICANCE OF PROJECT

- The project is slated to irrigate 10.62 lakh hectares annually, provide drinking water supply to 62 lakh people & generate 103 MW of hydropower and 27 MW of solar power.
- The project is proposed to be ready in eight years.
- It will be of immense beneficial for the water-starved Bundelkhand region, spread across Madhya Pradesh and Uttar Pradesh.
- This project will provide enormous benefits to the districts of Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen of Madhya Pradesh and Banda, Mahoba, Jhansi and Lalitpur of Uttar Pradesh
- The dam at Daudhan is proposed to be 77 metres high and 2,031 metres wide. A 221 km long canal will also be built to transfer the water from the Ken to the Betwa river basin
- The Ken Betwa Link project is a joint project between Uttar Pradesh and Madhya Pradesh
- About half of the benefits and downstream impacts in Ken and Betwa basins are to be faced by Uttar Pradesh, but the public hearings are not being conducted in UP at all; the proposed public hearing is only in MP.
- In fact, scientific studies clearly show that the Ken has at least four endangered and nine vulnerable species.
- It is expected to boost socio-economic prosperity in the backward Bundelkhand region on account of increased agricultural activities & employment generation.
- It would also help in arresting distress migration from this region
- The diversion of water from surplus to water-starved area will ensure food security, resulting in poverty reduction.
- As per the projection of the National Commission for Integrated Water Resources Development (1999), the country will require about 450 million

tonnes of foodgrains a year to feed 1.50 billion population in the year 2050.

- To meet this, the country needs to expand its irrigated area to 160 million hectares by 2050
- But the growth of canal irrigated area has not been significant in recent years due to various reasons
- As per the report on 'Composite Water Management Index' published by the NITI Aayog (2018), "600 million Indians face high to extreme water stress & about two lakh people die every year due to inadequate access to safe water"

#### PROBLEMS

- Among the most prominent is the project's potential impact on the wildlife inside the Panna Tiger Reserve as the project is expected to cause massive deforestation, felling of over 2.3 million trees with a girth of 20 cm or more, and harm the local ecology due to the Daudhan Dam's construction inside the forest.
- Former Union Environment Minister and Congress general secretary (communications) Jairam Ramesh has claimed that the project is likely to "submerge over 10% of the core area of the tiger reserve". Concerns have also been raised that the project may hurt the tiger reintroduction programme in the Reserve which revived the feline population after it had locally gone extinct in 2009.
- Apart from tigers, species like endangered vultures, mahseer fish, and gharials in the Ken Gharial Sanctuary are also feared to be impacted.
- The Central Government is also yet to release hydrological data of the two basins claiming they are sensitive by virtue of being subsets of the international Ganga basin.
- A Central Empowered Committee (CEC) of the Supreme Court had in a 2019 report also flagged various wildlife clearances to the project, claiming that the authorities had not considered its impact on the Gharial Sanctuary and the vulture nesting sites. It had also warned of serious impacts on the riverine flora and fauna of the Ken river as well as the unique ecosystem of the region.
- Experts also believe that the data government has banked on to conclude that the Ken river has surplus water is outdated and have demanded release of the latest figures.
- Between 2005 and 2008, the then Panna Collector, Deepali Rastogi, had written to various Central and State Government departments, claiming that there was no surplus water in the Ken river.
- In May, 2017, a group of 30 activists and experts had written to the Union Minister of Environment, Forest, and Climate Change, flagging several concerns regarding the project, including the possible displacement of at least 10 villages in Chhatarpur and Panna districts.
- Various types of clearances are required, such as:

- 1) Techno-economic clearance given by the Central Water Commission
- 2) Forest & environmental clearance by Ministry of Environment & Forests
- 3) Resettlement & rehabilitation plan of tribal population by Ministry of Tribal Affairs
- 4) Wildlife clearance by Central Empowered Committee.

- If implemented, the Bundelkhand-based project will submerge prime forest spread over 4,000 hectares & destroy 11 lakh trees.
- The Panna tiger reserve itself will be bifurcated by the dam, leaving even less forest space for the beleaguered tigers.
- Clearances are proceeding at breakneck speed, even though every committee set up by the government has advised against it.
- The Environmental Impact Assessment (EIA) report for the Ken-Betwa river-linking project states that more than 5,000 people will have to move into labour camps to construct the dam.
- Experts from the EIA Resource & Response Centre, who submitted their concerns to the Forest Advisory Committee, have argued that the permissions given by the Standing Committee of the National Board of Wildlife are outside their jurisdiction
- The Standing Committee can only give permissions for projects that benefit wildlife. How can drowning the tiger's habitat be of any benefit to wildlife?
- A number of other experts have written letters to the Expert Appraisal Committee of the Ministry of Environment & Forests asking them to revisit the Terms of Reference on the basis of which the project has been given approval.
- Professor Brij Gopal, a geologist wrote a letter to the EAC on January 17, 2016 stating that "the proposal for K-B linking is based on the assumption that River Ken basin is water-surplus, which is not supported by any hydrological data
- The proposal is rooted in the desire to construct four projects in upper Betwa basin for growing rice & sugarcane in place of pulses & millets, while Panna district gets no water from the project."
- Focusing on less water-intensive crops & reviving traditional water bodies like tanks and village ponds could have been ways to bring water to a dry region without having to destroy seven lakh trees or flood two sanctuaries.
- When the Standing Committee of the National Board for Wildlife gave a go-ahead to the project, even the site inspection report had not been completed.
- There were also concerns that vulture and gharial habitat in the region would be affected. Here too, the committee noted, that only "3% of the vulture habitat" would be affected.

- According to Dr. M.K. Ranjitsinh, Member of the State Wildlife Board, Madhya Pradesh the area under submergence is the most productive for wildlife. It provides fodder and grass for the ungulate population
- It will submerge the habitat of the chousingha & other species like the vulture.
- It is not the quantum but the quality of habitat that will be affected Secondly, it will bisect the park & reduce the habitat for wildlife.
- According to Dr. Ranjitsinh, the past record of the Irrigation Department for most other projects is 50-60% of what they promise.
- The key wildlife species that will be affected include tigers, endangered vultures, mahseer fish, & gharials in the Ken Gharial Sanctuary.

#### GEOMORPHOLOGICAL RISKS

- The Pokhra basement fault, emanating from the Himalayas, passes precisely through Panna and the Ken River catchment.
- The authors of a recent paper conclude, "Fluvial modification in the Panna region demonstrates that Indian basement faults are also active far south of the Himalayan deformation front, and may be linked to intraplate seismicity and active tectonic modification of the landscape." Since IIT Roorkee has also studied this subject (and kept MoEFCC in the loop), this would normally be worth examining.
- National Water Development Agency (NWDA) applied for forest clearance in 2015 but the Stage I forest clearance accorded in May 2017 stipulates several conditions that would imply a fundamental restructuring of the project.
- The conditions include that the proposed 78 MW power house shall not be constructed in the forest area and that no building material is to be taken from the forest, among others.
- Then, the wildlife clearance recommended by the standing committee of the National Board of Wildlife in a meeting in 2016 has also been challenged by the central empowered committee (CEC) of the Supreme Court in a scathing report of August 2019.
- CEC concluded that the standing committee had not examined the "Impact of the project on the downstream Gharial Sanctuary and the vulture nesting sites", and has "not taken into account the decision of this Hon'ble court
- The CEC report notes "the loss of the special & unique ecosystem of gorges, rocky cliffs & riverine flora and fauna on either bank of the River Ken."
- According to report the wildlife including micro flora and fauna which have evolved in this ecosystem will, on commissioning of the project, perish forever
- There are alternative methods to develop water resources in any basin or sub-basin, including rainwater harvesting, groundwater recharge,

watershed development, protecting wetlands, forests, soil moisture, optimising existing storage infrastructure, sustainable cropping patterns, demand-side management, reuse and recycling of sewage, and so on.

- No such assessment has been made for any basin or sub-basin in India.
- The claims of Ken having surplus water may be unrealistic as the river is not perennial, in the past sometimes, it has slowed to a trickle
- Another difficulty will be that the Ken flows 60-70 feet lower than the Betwa and at least 30% of the 103 MW power generated will be used for pumping the water up
- In the Budget 2022-23 is the implementation of the Ken-Betwa Link Project with an estimated cost of ₹44,605 crore.
- The Ken Betwa interlinking is in a very difficult terrain: The project is in the Central Plateaux & Hills Region of the Agro Climatic Regions of India.
- The project methodology of the interlinking of rivers demands the agro climatic characteristics to be taken into account.
- The detailed project report of KBLP prepared by the project proponent National Water Development Agency (NWDA) says: "The main objective of the Ken-Betwa link project is to make available water to water-deficit areas of the upper Betwa basin..." However, the upper Betwa region is outside the Bundelkhand and has higher rainfall than the region.
- The Panna district, one of the least irrigated areas of Madhya Pradesh, will, suffer maximum destruction, while getting very little benefit from the project.
- Downstream, Uttar Pradesh's Banda district too stands to suffer adverse impacts that have been flagged by state officials.
- Ken river is comparatively smaller than the Betwa still it is considered as water surplus river
- According to Central Empowered Committee of Supreme court, the Ken basin and Bundelkhand are being asked to pay the price for past blunders in over-designing the lower Betwa projects
- The feasibility document of the project lists these problems, but they were ignored in the engineering design.
- 44 per cent of the soils in the link are plateau soils; another 10 per cent are hill ridges and dissected flood plains.
- In the Upper Betwa Sub Basin – more than two-fifths of the cropping pattern is jowar, fodder and wheat. Only 1 per cent or so is paddy.
- But the project is designed to give 48 per cent irrigation for paddy.
- In some soils water delivery for paddy can cause havoc.

- For the Ken Betwa project, is a totally different experience for engineers than the canal irrigation experience in the Punjab, Western UP & the Gangetic Plains with its alluvial soils.
- The Orchha valley where the Betwa would end is not a paddy producing region. As it is a black cotton soil & is difficult to irrigate.
- A journalist based in Bhopal, named Bhaduri, had written an article on the adverse impact of The Tawa Project in the Narmada upstream of Sardar Sarovar.
- The farmers wanted controlled water supply to boost yields in long staple cotton or even pulses or oilseeds.
- Also the rich animal heritage of the area: the famous cattle breeds need fodder. Most households have animal wealth.
- Many have more than one cattle. Again the area is famous for its quality wheat and irrigated yields are high.
- According to the NWDA, the reservoir of Daudhan dam will involve “a submergence of 9000 ha area, out of which 5803 ha comes under Panna Tiger Reserve.
- Various studies have asserted that the Ken and the Betwa basins suffer floods and droughts together, that the subcontinent’s rainfall and sedimentation patterns stand to be altered, and that the Betwa

basin can be replenished more affordably by maintaining environmental flows and bolstering natural storage.

- Experts have instead suggested that the project is a ploy to pacify the electorate in Bundelkhand — as its approval months ahead of State polls in Uttar Pradesh also suggested — and/or to improve water supply to reservoirs in the lower Betwa thanks to other upstream blockades.

#### LAND ACQUISITION & REHABILITATION

- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR Act) states that in case of an irrigation project, as far as possible, a minimum of one acre should be allotted to each family that owns agricultural land in the affected area.
- This land should be given in the command area of the project, that is, the area that gets water from the irrigation project. Further, each person included in the record of rights from the affected family should be considered for this entitlement.
- The Madhya Pradesh government’s special package states that families can either opt for the Collector’s compensation and solatium (which is 100 per cent of the compensation) or the special package, whichever is higher.



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