

On 26 July 2005 the Met Office forecast was for 'heavy rain' in India's biggest city.

Down came the worst deluge Mumbai has ever witnessed. With an incredible 944 millimetres of rain in 24 hours, roads and urban railtracks flooded, leaving hundreds of thousands of commuters stranded. All long-distance trains were cancelled and both airports were closed. The power supply was switched off and mobile phones went dead. The city of 15 million people was cut off from the outside world. On their way home, hundreds of people got washed away trying to cross swirling floods. Many drowned in open gutters hidden below the murky water. According to the official count, 736 citizens lost their lives – hundreds succumbed later to infectious diseases spread by the floods. It took two long days for the black, toxic water to retreat because garbage had clogged storm-water drains and a river's mouth was blocked by a brand-new business complex.

Nine months earlier, and a thousand kilometres north, hundreds of turban-clad farmers had besieged the office of the Sub-Divisional Magistrate in Gadhsana, a small town in the desert of Rajasthan. For more than a month they had been demanding irrigation water from the Indira Gandhi Canal that carries water from the Himalayas to the desert in the west of India. They became more worried with every passing day as the time for sowing ran out. On the evening of 26 October, armed police with large bamboo sticks swooped on the protesters and dispersed the peaceful gathering. Some police brutally beat up farmers and looted their houses, sparking widespread rioting. The farmers burned down two police stations and the magistrate's office. In Rawla village police fired into the unruly crowd and killed three farmers.

Water spells daily trouble in India. Not a single city provides drinking water around the clock. Only the wealthy get water supplied to their homes through pipelines, though even then it is often erratic and at low pressure. Because the quality of piped water is doubtful, many families boil or filter it. But half the urban population lives in slum colonies and considers itself lucky to have access even to a community tap. Women are forced to waste long hours queuing with pots at a tap that often caters for hundreds of families. In rural India many still draw their drinking water from rivers, ponds or community wells. Indians have, on average, seen a steady decline in water availability, from 2,120 cubic metres per head in 1980 to 1,310 in 2000. Within the next 20 years it is expected to fall to just 850.

With most rivers polluted, groundwater levels falling and floods and droughts increasing their destructive potential, India is facing a severe water crisis. Because its population is still growing, it needs to produce more food and more water in future. Climate change could affect precipitation and mean more drought. The demand-supply gap would then widen further. To alleviate massive human destitution, India has to act. But the big question is: how?

Recently, Indian leaders have been digging into their files to revive a grand old plan to divert river water from 'surplus' regions in the north and northeast to 'deficient' regions in the south and west. The so-called 'Programme for Interlinking Rivers' would simultaneously end droughts and floods and act as a gigantic employment programme, its promoters claim. Thirty-one rivers would be linked through huge reservoirs and a network of broad, navigable canals. One 'garland' canal, parallel to the Himalayas, would connect most of the northern tributaries of the Ganges

Between the extremes of flood and drought, India is heading for a water crisis. But, argues Rainer Hoerig, the mightiest dam-building exercise the country has ever attempted is not the solution.

Troubled water

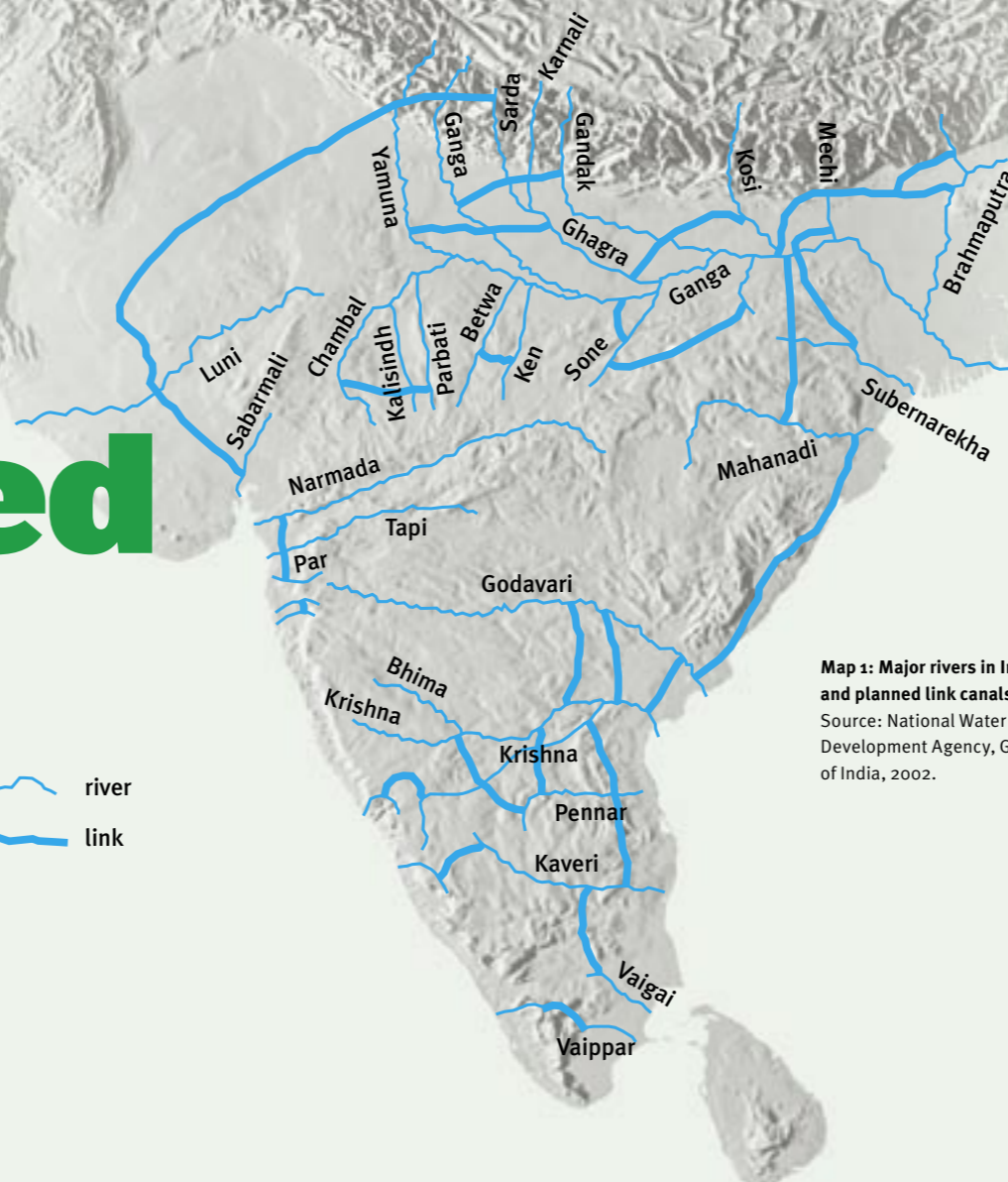
as well as the Brahmaputra river system. It would feed the 'surplus' water into a second grid linking major peninsular river basins, enabling water to flow from north to south. The high dams needed to create the reservoirs would be fitted with turbines to generate an estimated 34,000 megawatts of electrical power. Pumping stations would have to lift water over hills and ranges. The canals would open up new avenues of inland transport and serve new irrigation projects, potentially watering an additional 35 million hectares of farm land. The cost of the programme is calculated at around \$120 billion – equal to a quarter of India's present Gross National Product.

No less a person than the President, Abdul Kalam, in his address to the nation on Independence Day, 15 August 2005, said he wanted to 'implement this programme with a sense of urgency' and added: 'I feel that it has the promise of freeing the country from the endless cycle of floods and droughts.' Barely a fortnight later two states signed a memorandum of understanding to establish the first link between the rivers Ken and Betwa, southeast of the capital. A second link is to be inaugurated soon.

India is the third-largest dam builder in the world, after China and the US. The 4,291 large dams built so far have helped to grow more grains, making the country self-sufficient in food production. Large dams also provide roughly a third of India's electricity. But since 1947 – the year India became independent – an estimated 40 million people have been displaced by dam projects. There is no national policy for rehabilitating them and most have landed up as beggars or daily labourers. Millions of hectares of precious natural forest and fertile alluvial farmlands have been buried under reservoirs.

Today there is hardly any new dam project that does not meet with popular resistance. Protest actions by farming communities and indigenous people in the Narmada Valley have continued for more than 15 years and spawned solidarity campaigns around the world. They have made the World Bank withdraw its credit lines and convinced the Supreme Court in New Delhi to place

~~~~~ river  
 ——— link



**Map 1: Major rivers in India and planned link canals**  
 Source: National Water Development Agency, Govt of India, 2002.

a ban on construction for five years. Large dams have definitely lost their shine as harbingers of development – and not just in India.

No wonder, then, that the Programme for Interlinking of Rivers, the mightiest dam-building exercise the country has ever attempted, sparks heated debates. Critics warn the diversion project will prompt numerous conflicts over water both within and between states. Bangladesh has already indicated that it cannot tolerate any diversion of water from the rivers flowing into its territory from India. Several Indian state governments have publicly declared that they have no water to share. Students in Assam formed a human chain to protect what they called 'their' Brahmaputra. Villagers marched in protest in Madhya Pradesh, where the first river link is to be established.

Though no official figures have been provided, it can reasonably be calculated that the reservoirs and canals envisaged in the Programme will submerge up to 20,000 square kilometres of forests and fields, villages, roads and bridges. That means between 2.5 and 4 million Indians would lose their homes and livelihoods. Will the Government reward them for their sacrifice by providing better means of living?

Critics allege that any large-scale diversion of river

water will throw the ecological equilibrium out of balance, endangering wildlife and ecosystems as well as livelihoods. Experiences with similar projects in India and other countries demonstrate that large-scale river diversions change the water chemistry, sedimentation patterns and flow regimes of rivers and can seriously impede their capacity to purify themselves. Their ability to sustain life is then put at risk.

India is a riparian civilization. Since ancient times Indians have revered their rivers as lifelines, depicted as incarnations of benevolent goddesses. Even today, millions of pilgrims visit festivals like the Kumbh Mela at the confluence of the Ganges and Yamuna. Since most of the rain falls within four months during the monsoon season, people have developed storage systems – village ponds, underground tanks, bamboo pipelines and the like, some of which can still be seen functioning today. Such water management technologies do not require large investment and can be used by local communities according to their needs. Unfortunately, many have fallen into decay.

The idea of linking India's rivers was born during British colonial rule. Eventually, in 1980, engineers in the National Water Developing Agency started designing plans for a national water grid. Meanwhile, water science moved on. Water management experts and ecological scientists increasingly questioned the judiciousness of constructing large-scale projects. If social and environmental costs were included, many large dams would not be profitable, they said. The latest research emphasizes that rivers are not mere channels through which water flows but complex ecological systems in which the life-cycles of many different species are intertwined. This discovery is not far removed from what the wise men of ancient India taught.

Environmentalists and social activists mourn the shroud of secrecy that seems to cover the riverlink project. They demand a public debate before plans take concrete shape. Critics point to hundreds of irrigation projects that have not been completed due to lack of funds. They argue for increasing the abysmally low level of efficiency in irrigation works and doubt whether large-scale engineering can provide a sustainable solution. India, of all places – with its vast corpus of living traditions and a blossoming civil society – can provide small-scale solutions with people's participation. Rajender Singh and his friends, for example, have revived a river in Rajasthan through afforestation, check-dams and community work, while Anna Hazare has greened his village in the arid tracts of Maharashtra through watershed development, with the active involvement of every villager. Innovations in agriculture, like the so-called 'system for rice intensification', use less than half the usual amount of water to produce a quarter more rice, as has been proved by a research institute in Tamil Nadu.

Around 3,000 years ago the wise men who compiled the Upanishads, the most sophisticated spiritual textbook of the Hindus, praised India's rivers and lakes: 'These waters are the source of everything, of what is visible and invisible. These waters are the image of All.' Today, with accelerating industrialization and rapid population growth, India seems poised to destroy its holy rivers. The riverlink project could just be the fatal blow.

**Rainer Hoerig** is a media correspondent who has worked from India for the last 16 years. He specializes in environmental and human rights issues. [www.rainerhoerig.com](http://www.rainerhoerig.com)