

G A N G A

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The Jakarta Flood 2007; ten odd people were killed and half a million people were homeless - Reuters/Supri

Civilization has come to a long way. The Earth surface has changed phenomenally in last five thousand years with the progress of civilization. But never before civilization was as urban as the present time; now more number of people on earth are leaving in cities than in villages. People are living away from nature in their urban world and slowly their ability to cope with nature and its phenomena is reducing, resulting large scale loss of life and property when natural disaster strikes.

The urban population contributes 70% of the non-renewable energy use. Recent studies of the World Resources Institute shows that approximately 21 million people worldwide could be affected by river floods every year, in which 15 countries including India, Bangladesh, China, Vietnam, Pakistan, Indonesia, Egypt, Myanmar, Afghanistan, Nigeria, Brazil, Thailand, Democratic Republic of Congo, Iraq, and Cambodia, account for nearly 80 percent of the total population affected. The study shows that



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annual expected urban flood damage in India alone is 6.4 billion US\$. Interestingly majority of the Indian cities are vulnerable to the river floods and are less resilient to the flood hazards due to climate change.

Number of cities like Jakarta is subsiding due to excess withdrawal of groundwater which increases their vulnerability to the flood. In India, Kolkata is also facing the similar threat. The unplanned urban growth is causing severe toll on nature which is affecting adversely to large number of people. Unfortunately, it affects more to the poor than the rich.

NEWS

Jakarta, the Sinking City

JAKARTA, Indonesia – The Ciliwung River flows from a volcano south of the Indonesian capital, Jakarta. It passes through the heart of one of the world's most densely populated cities but could not reach Jakarta Bay in its final stretch 1.5 km or so of its course, because the river would have to flow uphill to reach the bay. The same is true for the rest of the half-dozen sewage-choked rivers that wind through central Jakarta. Unable to defy gravity, they've been redirected to canals that drain into the sea. The reason is that Greater Jakarta, an agglomeration of 28 million people, sits on a swampy plain that has sunk 13 feet (4 meters) over the past three decades.

“Jakarta is a bowl, and the bowl is sinking,” said Fook Chuan Eng, senior water and sanitation specialist with the World Bank, who oversees a \$189 million flood mitigation project for the city. The channels of the Ciliwung and other rivers are sinking. The entire sprawl of Jakarta's north coast – fishing ports, boatyards, markets, warehouses, fish farms, crowded slums and exclusive gated communities – it's all sinking. Even the 40-year-old seawall that is supposed to keep the Java Sea from inundating the Indonesian capital is sinking.

Just inside the seawall sits the Muara Baru kampong, or village, that is home to more than 100,000 people. It is now at least 6 feet below sea level, and residents like Rahmawati, a mother of two small children, gaze upward from their front stoops to view the sea. “When there's a high tide, the ships float almost at the same height as the seawall – we can see the ships from here,” said Rahmawati. Flooding from overflowing rivers and canals in the area is at least an annual event that forces Rahmawati and the rest of the kampong to evacuate to public buildings nearby.

The cause of Jakarta's sinking is subsidence due to over extraction of groundwater. The problem is particularly acute in Jakarta because most of its millions of residents suck water through wells that tap shallow underground aquifers. Wells also provide



about a third of the needs of business and industry, according to city data. “It’s like Swiss Cheese underneath,” the World Bank’s Fook said. “Groundwater extraction is unparalleled for a city of this size. People are digging deeper and deeper, and the ground is collapsing.” The effect is worsened by the sheer weight of Jakarta’s urban sprawl. Economic development in recent decades has transformed the city’s traditional low-rise silhouette into a thickening forest of high-rise towers. The weight of all those buildings crushes the porous ground underneath.

In the megacities of Southeast Asia including Kolkata the impact of subsidence, due mainly to groundwater extraction, has been greater. Manila is sinking at a rate of around 3.5 inches a year. Ho Chi Minh City, Vietnam, is subsiding 3 inches a year, and Bangkok around an inch.

About Kolkata a report by P.S. Ray, of the National Remote Sensing Centre, who had studied the city’s groundwater level through laser mapping stated “Signatures of subsidence have already been felt in the Rajabazar-Sealdah area,”.

The phenomenon has been most pronounced in Asia, home to the top five nations in terms of population growth in vulnerable coastal areas. In China, that population rose 29 percent to 162 million during the 20-year period; in India, the increase was 43 percent

to 88 million; and in Bangladesh, it was 46 percent to 68 million.

(Source : Reuters by Bill Tarrant, The Telegraph 16th January 2009)

International Conference on “Water in Mountain”

The International Conference on “Water in Mountain” took place in Oct, 2014 in France. The conference issued an alert to the need to quickly adopt strategies to adapt to the impact of global warming on water resources in the mountains. With the decrease of snow cover and glacier melt, the water regimes of all major rivers coming from mountains are now changing. However, the flow regularity of these rivers is crucial for the supply of drinking water to populations, and for the economic development at the foothills and the plains.

India Rivers Week

The first India Rivers Week was organized from 24th to 27th of November 2014 in New Delhi. The event was aimed at bringing together different stakeholders involved in protection and conservation of rivers of India and to deliberate upon the main threats to Rivers, as well as the way forward. The meet, aimed at activists, community groups,



researchers, government bodies, etc., was jointly organized by WWF India, INTACH, SANDRP, Toxics Link and PEACE Institute Charitable Trust. Over 150 delegates participated the meet from all over the country. Theme of the Week was “Rivers in Crisis” and four days of deliberations saw intense discussions in the groups on topics ranging from dangers of interlinking rivers, to river restoration to legal framework for river protection to dam decommissioning. The Conference was inaugurated by a keynote delivered by Shri Ramaswamy Iyer, while Shri Jairam Ramesh, former Union Minister of Environment and Forest & Rural Development was the Chief Guest at the inaugural session. The IRW also saw the establishment of Bhagirath Prayas Samman: Recognition of Herculean Efforts towards saving Rivers. The First Bhagirath Prayas Samman were presented to three initiatives: one organizational and two individual. The Koel Karo Jan Sangathan, Dr. Latha Anantha and Akhil Gogoi were the first recipients of the award. Sushri Uma Bharti, Minister for Water Resources, delivered the valedictory address in which she stressed the centrality of the theme and committed before the gathering that Government will not undertake Interlinking of rivers if the ecological impacts of the project are negative. The India Rivers Week will come

out shortly with a Delhi Declaration on Rivers which will not only reflect the deliberations, but also the way forward for governance and sustainable management of our rivers.

(Source: Dams Rivers and People Vol 12 Issue;10-11 Nov. Dec 2014)

RIVERS OF INDIA

Rivers Of Bihar & Jharkhand

River Hinglo

Hinglo is a tributary of the Ajay river in Jharkhand & West Bengal. It has its source in the Santhal Parganas, runs parallel to the Ajay river for some distance and flows into it a little after Bhingarh. It has a watershed area of 2009 ha. A dam across the Hinglo provides irrigation in the areas between the Ajay & the Kopai, but environmentalists also blame the dam for causing flood. Hinglo Dam has a capacity of 17,102,000 cu. m. However, as a result of improper management of water resources for canal irrigation, the bed of the river has risen and the canals have become derelict. Moreover, the dam is silted up. During the last phase of the monsoon season when extensive rainfall occurs, the dam cannot take in all the water and much water was released. This surplus voluminous water overflows the bank of the



river and the canal causing massive flood in the area.

Burha River

Burha River, also called Burhaghagh river, flows through the Latehar dist. of Palamau division in Jharkhand.

A little to the south of Betla National Park is the wide bowl shaped Chhechhari valley with a high hill range around it. The rim of the bowl forms the watershed from which dozen of rivulets arise. These join together to form the Burha River, one of the major tributaries of N.Koel. Chhechhari Valley is surrounded by lofty hills on all sides. This valley is a complete basin with the scrap of the great tableland of Surguja in the west; on the south, the range that overlooks the Barwe valley in Ranchi dist; on the east Netarhat and Pakripat, and in the north the spur crowned by the fort of Tamolgarh and Burha pahar, 910 m. high, round the foot of which flows the river of the same name, which is the only outlet for the waters of the valley.

In its upper reaches the Burha river leaps through three waterfalls. Lodh falls or Burhagaugh falls (142m. high), Gutamgaugh falls (136.57m.) and Gharaghugra falls (7.62m.). At some places, the river forms the state boundary between Jharkhand & Chhattisgarh. It carries a large volume of water during rain over a rocky river bed, but

during dry months, it almost dries up. From Lodh falls to Bagechampa, it flows through beautiful forests and above Kutku at Bagechampa it flows into N.Koel.

Kharkai River

It is one of the major tributaries of the Subarnarekha river. According to some view, the name Kharkai is derived from the Sanskrit word 'Kharakaya' meaning as fast flowing river ("Khara" means fast and "kaya" means body). It flows through Adityapur region of Jamshedpur.

The river arises in Mayurbhanj dist. Odisha on the northern slopes of Darbamela hill and the western slopes of the Tungru Pahar of the Simlipal massif. It flows past Rairangpur and heads north to about Saraikela, and then east, entering the Subarnarekha in NW Jamshedpur. Its tributaries in Odisha include the Kardkai on the left, the Kandria, Nusa and Barhai on the right, and the Karanjia on the left. For about 9 km. below the junction with the Karanjia, the Kharkai forms the boundary between Odisha and Jharkhand states. After entering Jharkhand, its tributaries include the Torto Ligara on the left. Its last major tributary is the Sanjai, extending from the left, for about 17 km. as the river flows above its mouth. The valley of the lower Kharkai is quite wide. Iron ore is mined in the mountains of headwater of



the Kharkai. The Kharkai dam is located at Ichha, Odisha.

Deo River

It flows through W.Singhbhum district of Jharkhand. It rises on the western side of the Gamharia Plateau & flows into the south Karo River after a course of about 56 km. It receives the Puilgara, a fair-sized mountain stream from Santara forest block. Deo irrigation project is a medium irrigation project benefitting Mayurbhanj and Keonjhor district.

Ganga the Eternal River

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Mythology of River of Ganga

Water is the most sacred symbol of spirituality as at once it is the purifier and origin of the real and imagined source of life. The sanctity of water remained part of the Indian tradition from its beginning in the Indus valley over four thousand years ago and has remained so over time. Water in general and Ganga water in particular is used today in every rituals of Indian life.

Water from Ganga is an integral part of worship of any Hindu God. The primacy of the Ganga as a living tradition is continuing over two thousand years.

The story of Ganga has evolved through centuries in the form of elaborate myth. It begins with king Sagara, a just and mighty

ruler, the name in Sanskrit signifies ocean. After years of being childless he went to mount Kailash with his two wives Keshini and Sumati. He lived there and practising austerity and praying for a son. The great sage Bhrigu living in the mountain granted his wish. But his pronouncement was like Greek mythology which also brought misfortune with boon; “ you will beget many sons” he pronounced “and you will have immeasurable fame, one of your wife will have one son while other will have 60,000 sons.”

Sagara returned to his kingdom and in time Keshini given birth to a son and Sumati in turn brought forth a gourd containing sixty thousand male seeds which the nurses hurriedly placed in a jar filled with ghee. After a while they attained to maturity and evolved to manhood.

Sagara was jubilant and enjoyed the blessings during the long years of peace. He aspired the title of Chakravartin the conqueror of the world, a term referring to both the temporal and spiritual ascendance. To achieve this he undertook the yagna Ashvamedha (Horse Sacrifice). A horse was turned loose for a year, and the country where in wandered would become the land of the king. This could be countered but only through war. At the end of the year the king will be proclaimed as the king of the



world and the horse will be sacrificed in the yagna. The horse was freed to wander and all the kings of the earth accepted Sagara as their king but the Gods in heaven were scared with Sagara's empire touching ocean to ocean. They thought eventually he will reach the heaven so they stole the horse and tied him near the ashram next to the sea of great hermitage Kapila who was under deep meditation.

When the horse did not return Sagara told his sons to search the horse and bring it to the place of yagna. As a result Sagara's sons haunted every place on earth from jungles to the mountain, rooting up the earth. And lastly they found the sacrificial horse tied near Rishi Kapila next to sea. They thought Rishi Kapila is responsible and they accused the great sage hurling imprecations for stealing the sacrificial horse. The ascetic's fury was roused and with his anger the fire of his glance turned the Sagara's sons into ashes. When they were not returned king sent his Grandson Anshuman and he brought the sad news and also Rishi Kapila's promise that they will attain heaven when the waters of Ganga were brought from heaven to purify their ashes.

Sagara grew old and died unable to bring Ganga from heaven. Anshuman and his descendents lack the single minded devotion to bring the celestial river from heaven. At

last a descendent of the royal family; Bhagiratha become king. A seeker of the truth handed over the rein of the kingdom to his counselors and retired to Himalayas. There he spent years in penance and ascetic practices. The Gods were pleased and his wish was granted. Lord Shiva agreed to hold Ganga when it fell from heaven to check it's tumultuous fall which will rock the earth. Shiva standing on the Himalayas commended Ganga to descend. Ganga with her pride thought "who this God calls me down? I shall sweep him away". And with her current circling the moon she jumped over Shiva. Shiva understanding Ganga's thoughts, angered, caught the river in his dense matted hair like forest of time and held her there. Ganga wandered in that dense hair again and again but could not found way out. But Shiva out of kindness to Bhagiratha released the river from her lock which entered lake Manasaovar dividing into seven streams flowing different corners of the earth and the seventh the Alokanda (the river's name as it passed Badrinath) followed Bhagiratha on his long journey down the Himalayas a thousand miles across plains, through the jungles and then delta to Kapila Rishi's ashram, and there at the end of the world, graced the ashes of the sons of Sagara, lifting them to paradise.



The descent of the Ganga on earth is known as Gangavatarana. This Gangavatarana theme has been depicted by ancient artists on rocks in Mamallapuram, 32 miles south of Chennai in the sea shore. A colossal sculpture cut from the east face of the rock depicts the river rushing out from its source in the distant Himalayas. The entire stone pulses with life Gods, mortals, animals all hurrying to witness the event- the celestial river tumbling down from heaven to nourish humanity and restore the sons of Sagara.

The early settlement in Ganga valley

The Aryans settlement in Ganga valley stated after they acquire certain skills during their stay in Punjab. The development of trading and agriculture and acquiring of boat building skills enhanced the first tentative efforts towards larger settlements such as at Koushambi and at Hastinapur and at Ahichatra in Upper Ganga valley.

The first proto-urban site in the Ganga valley is Hastinapur dates back twelfth century B. C. In the Mahabharata Hastinapur is the great capital of the Kuru Dynasty. It was swept away by the Ganga after several generations of its ruler king Parikshit who may have reigned ninth century B. C. The archeological record shows Hastinapur was abandoned by eighth century B.C.

Other towns emerge along the river. The Yajur Veda mention about Kampilya, almost midway between Hastinapur and Kaushambi while east of the Ganga Yamuna Doab the enormous clay rampart of Rajghat (Banaras) dates from about 800 B.C. It shows even in Vedic period growing settlements along the Ganga valley.

In the end people grow to worship the things they need. In India above all these things include water and the sustenance of the fields. As a result Ganga who served them in so many ways become the Goddess, the mother, a living being.

Besides assimilating their beliefs to the new environment, the Aryans carried certain other things in their totality. The myth of river Sarasvati, the great vedic river lingers in the memory of the immigrants as they continue their journey east.

(source: The Ganges in Myth and History by Steven G Darian)

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