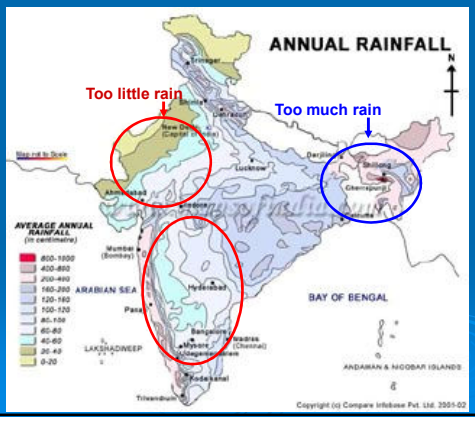
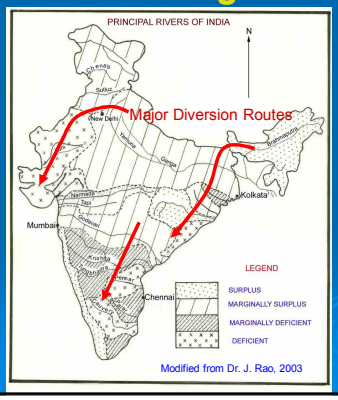
The Indian River-linking Project: A Geologic, Ecological, and Socio-economic Perspective

Rainfall Distribution in India

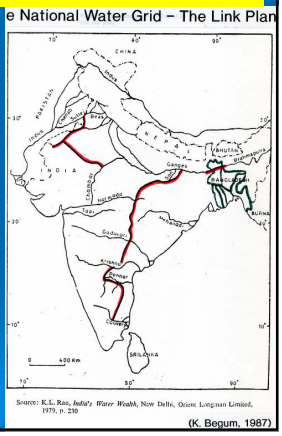


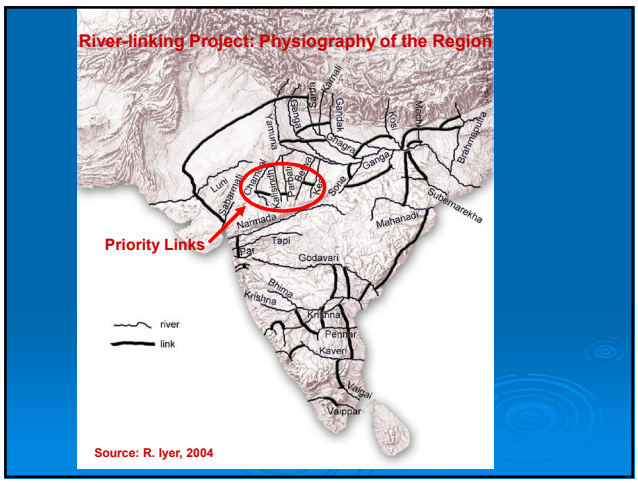
Diversion from "Surplus" to "Deficit" Regions

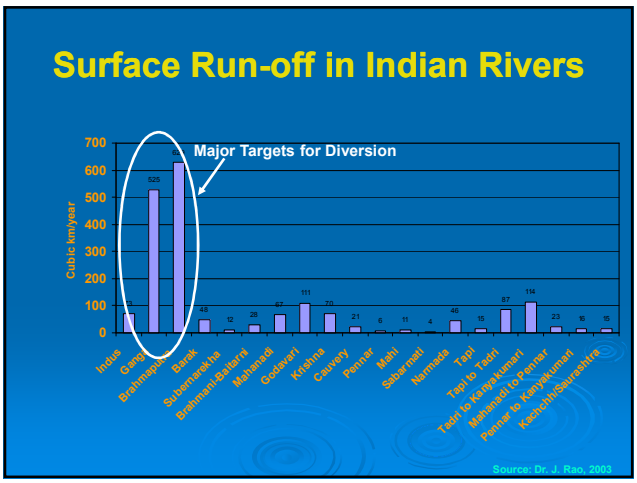


Abandoned ILRP (Indian River Linking Project)

- Dr.K.L.Rao in 1972 for connecting 2640 km. long Ganga - Cauvery link involving large scale pumping over a head of 550 m.
- The power requirement for lifting the water was huge, estimated to be 5000 to 7000 MW, for irrigating an additional area of 4 million hectares only. The scheme was also not having any flood control benefit.
- Dr. Rao had estimated this proposal to cost about Rs. 12,500 crores, which at 2002 price level comes to about Rs. 1,50,000 crores.







Cost & Timeline of the Project

- Proposed cost = $120 billion (Indian Rs. 5,600 billion 56000 Crores), which is likely to be much higher at the end(Rs100000 Crores)
- For comparison, India's annual budget = Rs. 3,300 billion; and annual irrigation budget of states = Rs. 10 billion
- Progress report by April, 2004
- Prioritized Ken-Betwa (UP-MP) link @ Rs. 40 billion & Parbati-Kalisindh-Chambal link @Rs. 30.8 billion (Rajasthan-MP signed a MoU): Feasibility study by 2008 (Rs. 1.5 billion)
- Completion by 2016 (dictated by the Supreme Court of India on October 31, 2002)

How Expensive is the Programme?

- **Cost/benefit analysis**
  - **India's annual budget = Rs. 3,300 billion (i.e. 59% of river-linking's cost of Rs. 5,600 billion)**
    - **(Rs 56000 Crores which may cross Rs 100000 Crores)**
  - **India will need international financial assistance (e.g. from WB, ADB, Texas State Govt. with the help from Sam Kannappan – a NRI)**

Summary of the Project

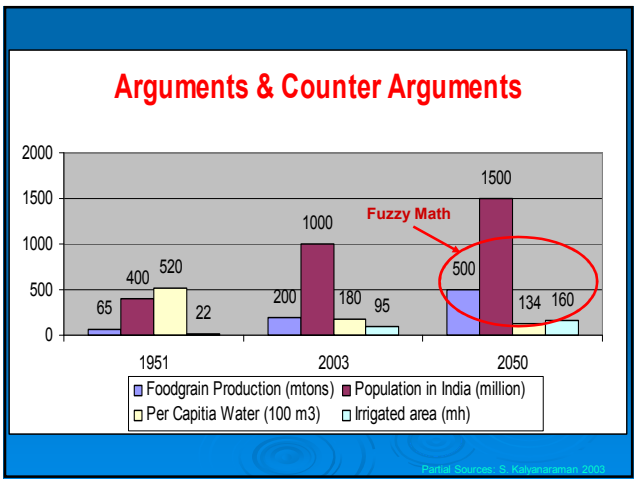
- Transfer of 173 BCM of water from Brahmaputra & Ganges rivers to rivers in south & west via 30 links (14,900 km long and 200 m wide)
  - 14 Himalayan links (on the Ganges-Brahmaputra and their tributaries, mainly affecting Bangladesh and NE Indian States)
  - 16 Peninsular links (mainly affecting middle states in India)
- 35 reservoirs on various rivers in India, Bhutan, & Nepal
- 2,940-4,000 sq.km. land will be acquired
  - Can be as much as 8,000 sq. km (the Assam Tribune: Jan 18, 2004)
- 4,83,409 people will be displaced for 16 peninsular links only
  - For the record, 400,000 people displaced from Narmada valley are not rehabilitated yet

Arguments for the Indian River-linking Proposal

- To equalize the spatial variations in rainfall in India (11 mm in Rajastan – 12,000 mm in Assam – 1200 mm is national Average)
- To utilize "surplus" & "unused" river flow in "water-deficit" areas in southern & western India
- To control twin problem of flooding-drought in the basin
- To irrigate additional 40 mha (400,000 sq.km)
- To produce additional food-grains for estimated 1.5 billion people by 2050
- To generate 35,000 MW of electricity
- Additional benefits: flood control, navigation, water supply, fisheries, salinity control, and pollution control

Counter Point: Not Everyone in India Agrees

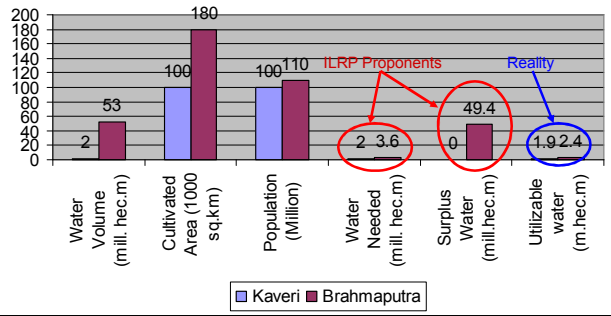
- Dispute between states and co-riparian countries in the basin
  - **Opposed:** Kerala, Bihar, West Bengal, Assam, Punjab, Chhatisgarh, and Goa
  - **Conditionally agreed:** Uttar Pradesh, Gujarat, Karnataka, Andhra Pradesh, Orissa, and Maharashtra
  - **Agreed:** Madya Pradesh, Haryana, Rajastan and Tamil Nadu



Supreme Court of India on ILRP

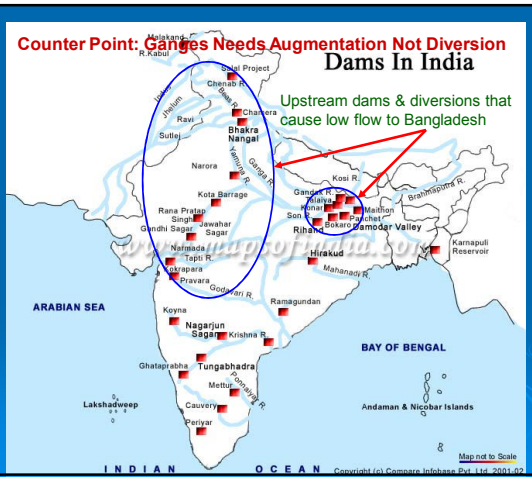
- As a result of a Public Interest Litigation (PIL) case, the Supreme Court has issued an order in October 2002 to consider ILRP by 2016.
- Questions remained to be answered:
  - How can the Judges decide on a matter that involve specific knowledge of geology, hydrology, ecology, and sociology?
  - Do the Judges of a country have authority to decide on transboundary resources that belong to countries other than India?
  - Can similar PIL cases be filed by citizens and environmental groups as a counter to the proposed ILRP in India?

Counter Point: No Surplus Water in Brahmaputra

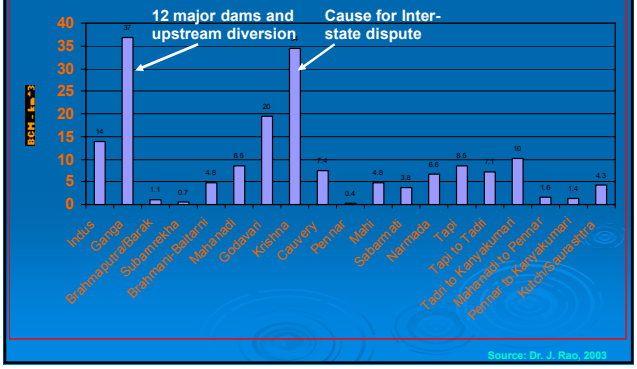


Sources: Kalyanaraman 2003 & J. Rao 2003

Counter Point: Ganges Needs Augmentation Not Diversion

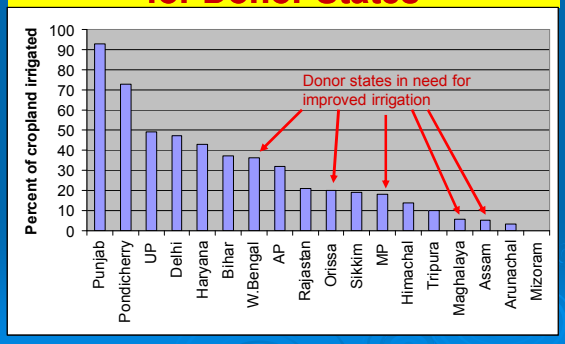


Live Storage in Indian Rivers



Source: Dr. J. Rao, 2003

Counter Point: Irrigation Needs for Donor States



Source: Dr. J. Rao, 2003

Counter Point: Environmental Degradation in Downstream areas

- Environmental & Ecological issues
  - Impacts on downstream environments, navigation, agriculture, industry, fisheries, salinity intrusion, mangrove forest (the Sundanban), and coastal ecosystems in Bangladesh

- Bengal delta (Both in Bangladesh and West Bengal will undergo erosion and submergence due to the lack of sufficient fresh water and sediment supply

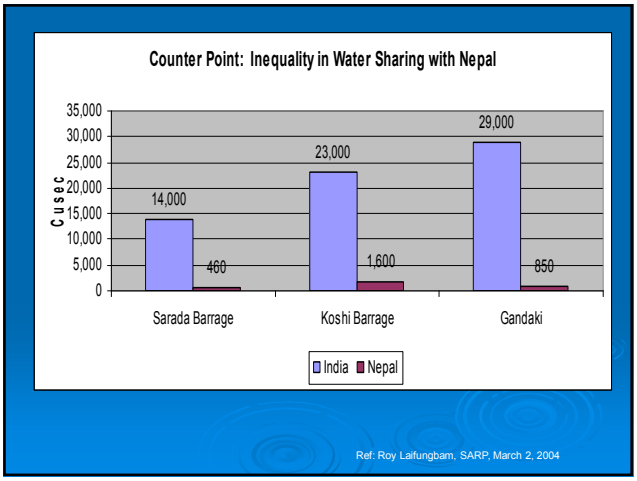
Points to Ponder

- International dispute over common rivers
  - Bangladesh opposes to any Inter-basin transfer of rivers
  - China asked AIRC to produce a feasibility report for B-Putra

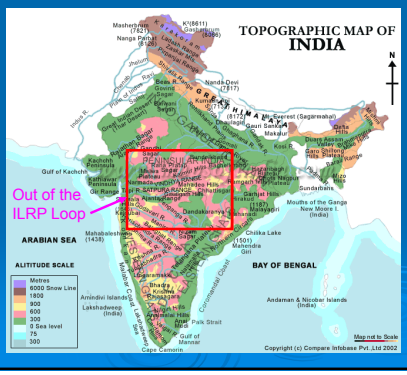
  -China wants to generate 40,000 MW of hydroelectricity from B-Putra
- Lack of transparency & credibility on Indian Govt.'s part
  - In spite of The Freedom of Information Bill, 2002 published in the Gazette of India as Act No. 5 of 2003, no details about the river-linking scheme are available to public
- Technical issues (e.g., topography, reservoir induced seismicity, sedimentation behind dams)

Counter Point: Upstream Interests Are Not Considered

- Nepal's interests are not a top priority in the plan
- Flood Control in Assam will not be addressed since the diversion dam will be downstream of flood prone areas
- Assam is upstream of Bangladesh, but downstream of China; and experts favors inclusion of riparian nations in water resources management plans
- Water-logging upstream of dams, and increased salinity in irrigated soils (Rajstan is the case in point)
- China is planning to dam the Tsangpo (upper Brahmaputra) to generate 40,000 MW electricity and irrigate the additional 40 Mhec (400,000 sq.km) area



Counter Point: Drought Prone Areas Will Not Benefit



Point To Ponder: Lessons From Other Projects Are Not Encouraging

- **Central Asia - Aral Sea in Former USSR**
  - Largest human-induced environmental degradation caused by upstream diversion
  - Augmentation plan is being considered
- **China - Yantze-Yellow River Diversion Plan**
  - 1300 km long canals
  - $59 billion
  - Totalitarian govt. plans at the face of opposition
- **Spain – Diversion Plan from North to South**
  - Postponed by the newly elected govt. & then abandoned in June 2004
- **USA – Colorado & Klamath Rivers Diversion**
  - Colorado delta has declined to 5% of original size
- **Australia – Snowy River Diversion**
  - Environmental degradation is monumental
  - Scheme is modified in recent years

What Are the Alternatives?

- Management of water on a local scale
- Improve efficiency (from 30% to over 40%) of water use in irrigation
- Change crop patterns and cycles
- Rainwater harvesting
  - Case studies in Rajastan, Maharastra, & Gujrat
- Sub-surface dams on riverbeds to increase the baseflow (Rao, 2004)
- Exploration of groundwater
- Desalinization plants along coastal areas (Indian President favors it)

Integrated watershed management plan among co-riparian countries

The Bottom Line

- The proposed Indian river-linking project (ILRP) is not based on understanding of the environment and ecosystem that rivers support
- ILRP is not a feasible project on technical, environmental, socio-economic, and legal grounds
- ILRP will likely to cause tremendous devastation to the environment and economy of Bangladesh, India, and Nepal
- A watershed-approach in water resources management is needed in order to achieve prosperity and stability

What Can Be Done?

- **Be informed, inform others, and be engaged in the debate**
- **Communicate with other stakeholders in the basin, talk to them – not talk at them**
- **Be organized, form alliances, raise the issue at international fora**
- **Analyze the issue scientifically**
- **Demand transparency and accountability**
- **Find a solution that all can live with**

How Should We Deal with Our Conflicts Over Water Resources?

"Come together, speak in concord, let your minds comprehend alike, let our efforts be united, let our hearts be in agreement, let our minds be united so that we all live in peace." – Riga Veda

End