WATER AND FOOD SECURITY AND GOVERNANCE IN ASIA

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A Region with Multiple Climate Hotspots

Source: Tushaar Shah and Uma Lele. 2011. Colombo Synthesis Report .Climate Change, Food and Water Security in South Asia: Critical Issues and Cooperative Strategies in an Age of Increased Risk and Uncertainty

Key Messages: Need for a Paradigm Shift in India

- "Growing Water Related Conflicts will be Asia's defining crisis of the 21st Century" (Chellaney 2011)
- **"We need to move beyond the "complacency of denial mode"**. Mihir Shah, Member of India's Planning Commission
- China and India started with similar conditions
- China's huge progress relative to India's has a lot to do with its Political Commitment , Governance, Institutions and Policies
- Contrasts between a "formal" Command and Control System and a Decentralized Democracy puts India at a disadvantage in the area of Water Management
- The difference starts with Constitutions and Property Rights
  - Land and water are state properties in China
  - Land and water are state subjects in a Federal India

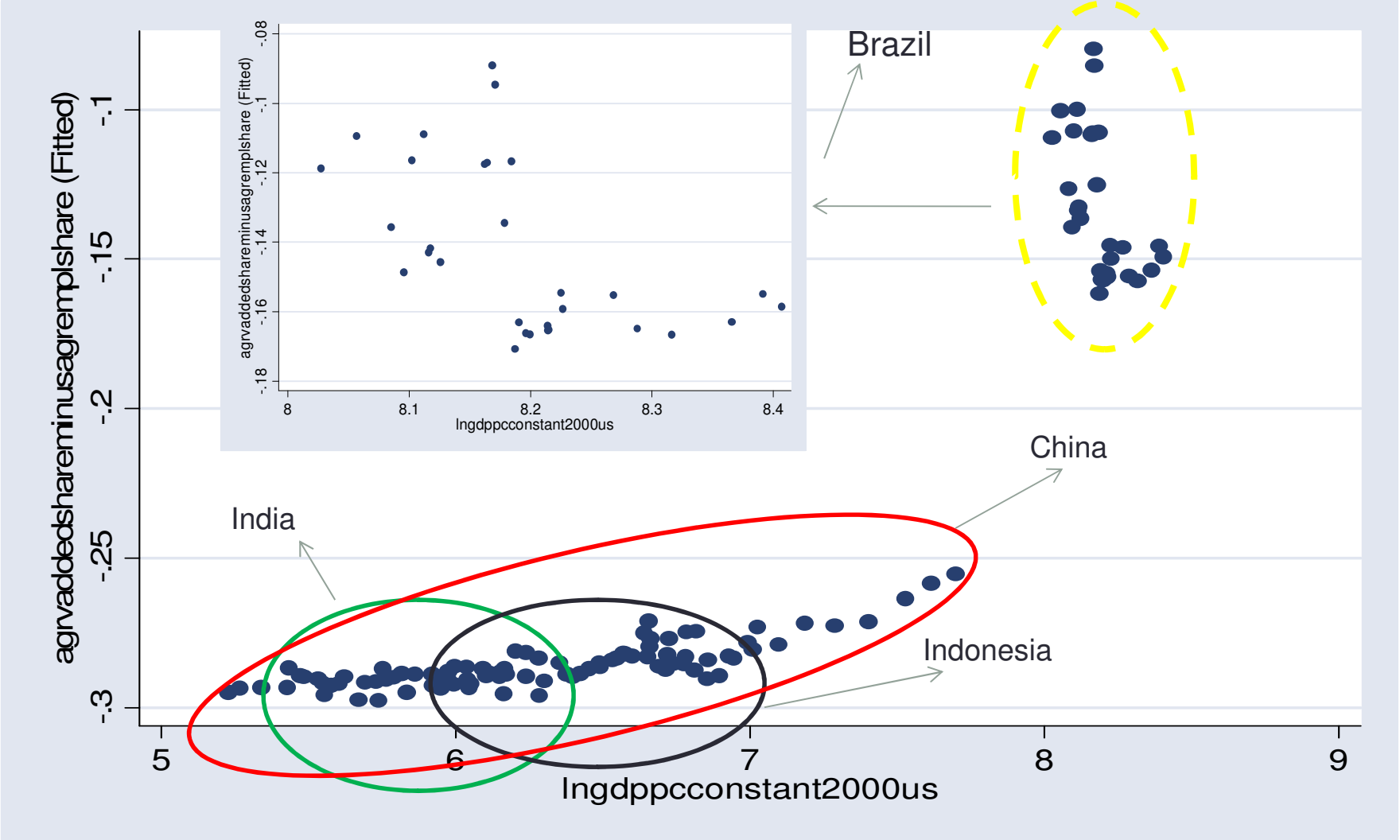
Water Related Conflicts are on the Rise

- Lower riparian anxieties in trans-boundary issues abound in Asia
- Treaties, agreements and memorandums with Nepal, Bhutan, and Pakistan related to Ganges, Brahmaputra and Indus rivers respectively
- Concerns about China diverting Brahmaputra waters via Tibet to northern China
- “China’s claims on part of the state of Arunachal Pradesh are driven by the water imperative”, a concern China dismisses
- Tensions between Pakistan and India on Indus, between Bangladesh and India on Farakka barrage, between Nepal and India on Mahakali Treaty and Panchewar project
- Bhutan is the only country with which India has a power sharing agreement that seems to work well
- China’s 2002 Water law., $60 Billion annual Investment in Water, Rapid Ag. TFP Growth, Greater Water Efficiency, More Diversification of Agriculture and Employment, Greater Reliance on International Trade for Food
- China in a stronger position to manage internal and trans-boundary Water issues
- Yet controversies in China about large dams, treatment of minorities, resettlement of nearly 19 million people

Within India Conflicts Among and Within States Abound

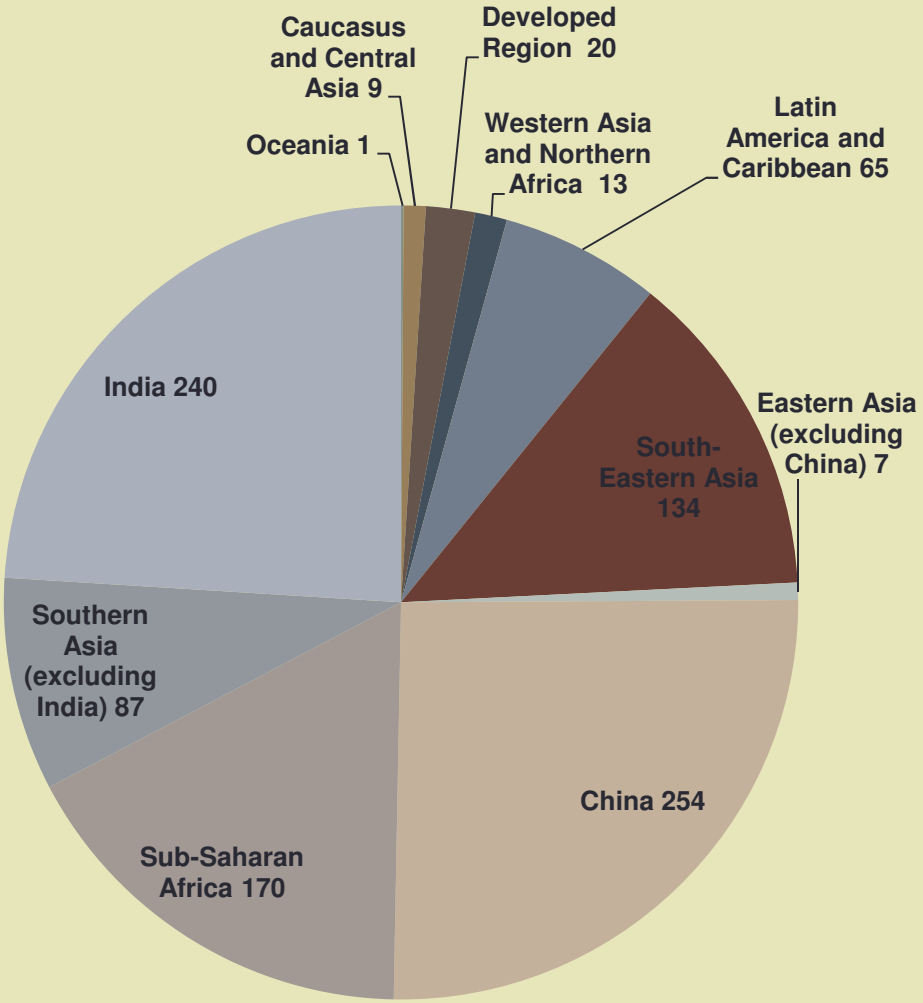
- Among state governments of Tamil Nadu and Kerala
- Andhra Pradesh, Maharashtra and Karnataka over Krishna waters
- Maharashtra and Andhra Pradesh in Nanded District
- Andhra Pradesh, Karnataka, Tamil Nadu, about Kaveri River
- India's Agriculture: Less diversified, Large Power, Water and other Subsidies, Unsustainable Groundwater Exploitation
- India's proposed framework law under Article 252 of the Constitution to bring water under concurrent list and giving community rights over aquifers instead of restricting these to landowners (Will require at least two states to agree before the Bill presented to the Parliament)
- Proposed Total Modernization of the Water Management in Irrigated and Rain-fed Agriculture $70 billion Water Investment in five years

Difference between the Share of Value added in Agriculture and the Share of Employment in Agriculture With Respect to Per Capita Income Brazil, China, India and Indonesia (1980-2009). Structural Transformation and Productivity Growth, World Bank, Lele et al 2012

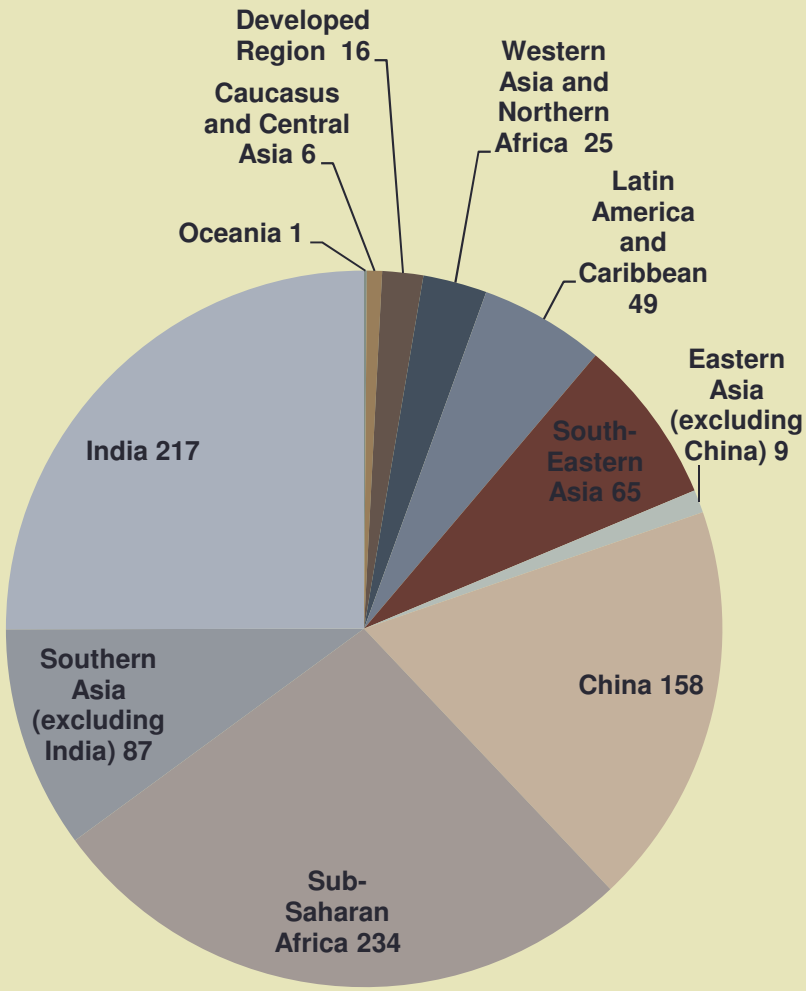


Changing Location of Global Hunger

No. of Undernourished by Region, 1990–92 and 2010–12



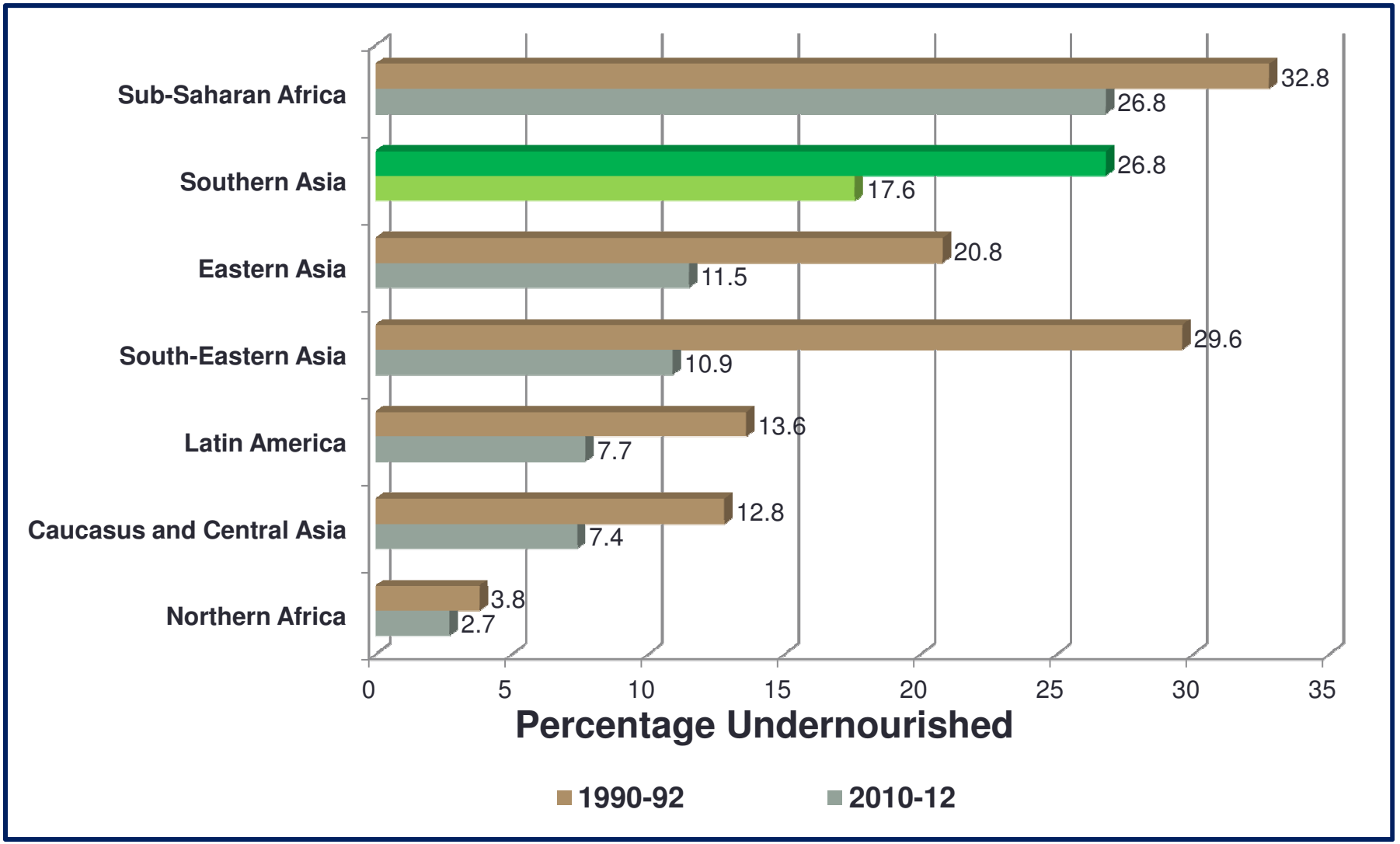
1990-92
Total=1000 million



2010-12
Total=868 million

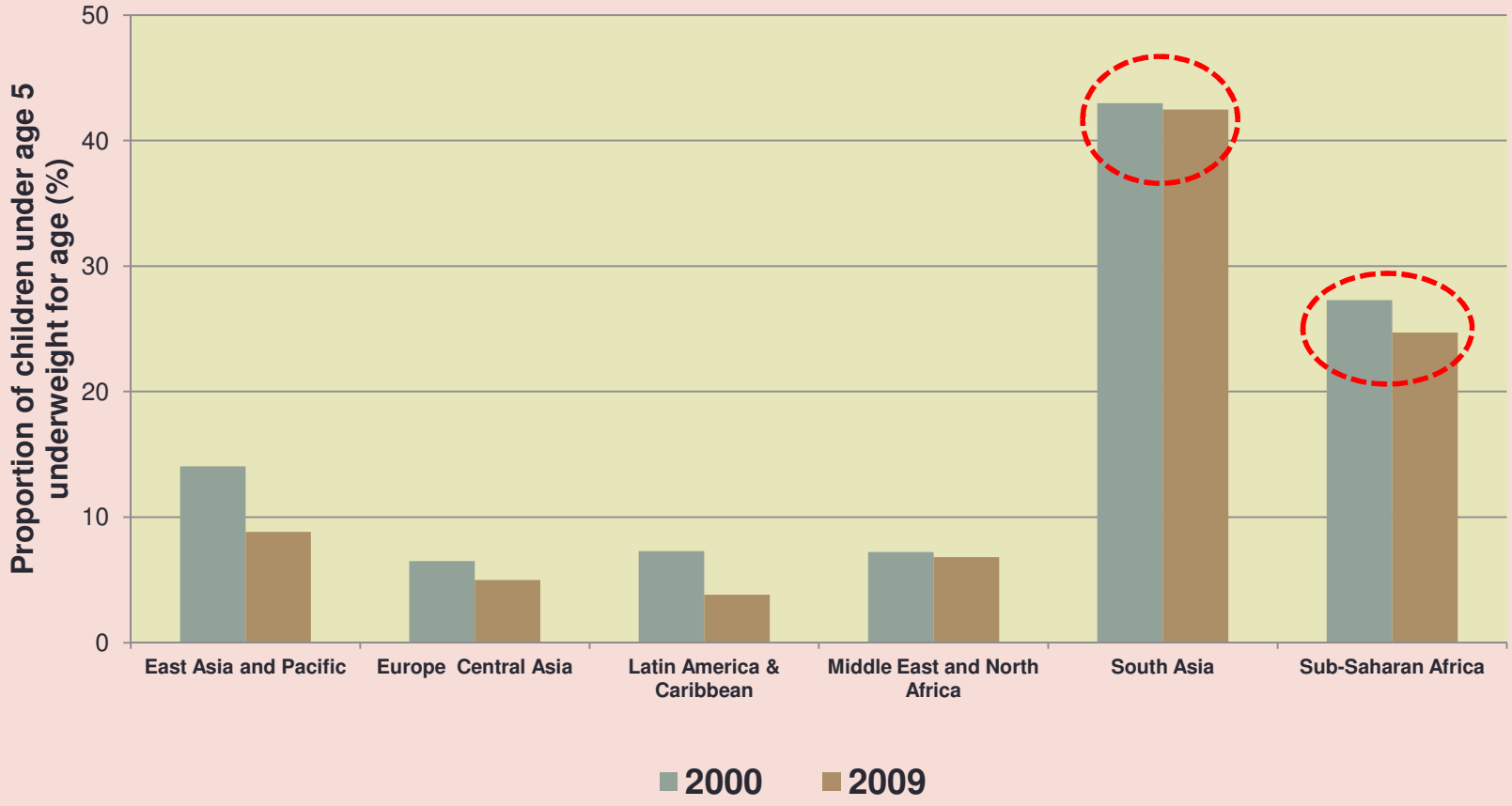
Data Source: The State of Food Insecurity in the World 2012

Progress Towards MDG 1 By Region



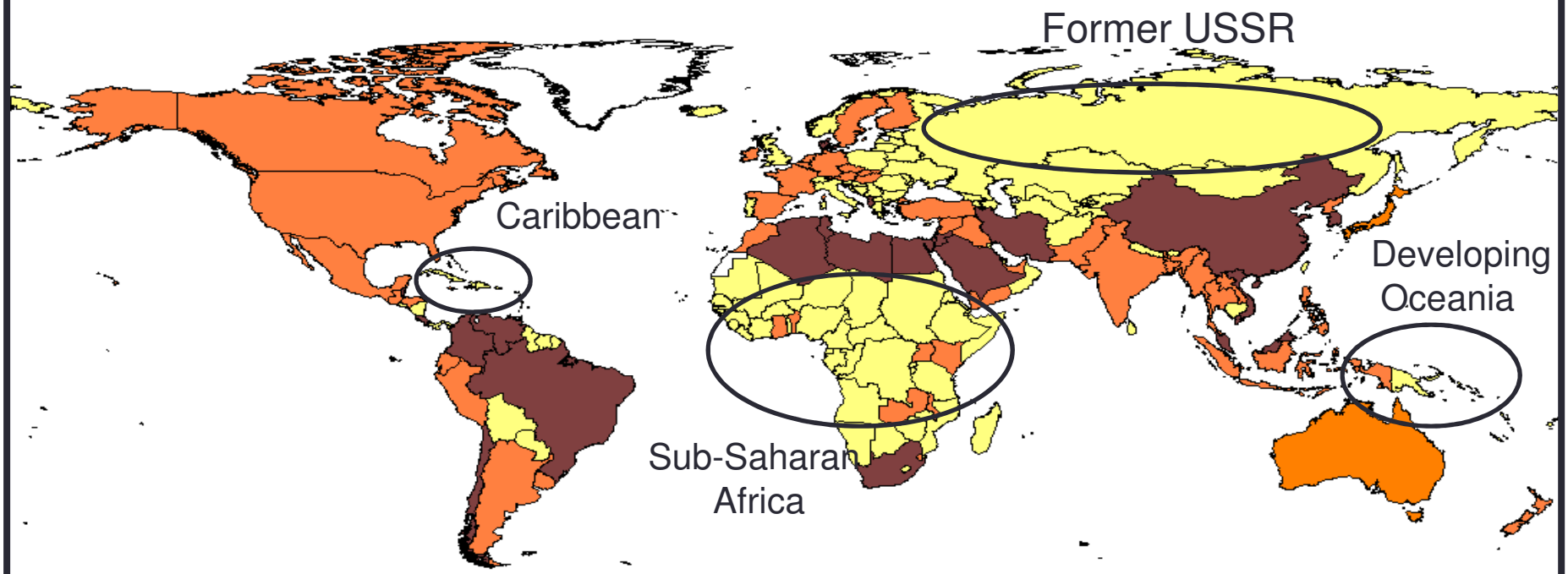
Data Source: The State of Food Insecurity in the World 2012

*Highest child malnourishment rates are in South Asia



Data Source: United Nations Children's Fund, World Heath Organization and WDI, World Bank

Long-run Average Agricultural TFP growth (1971-2008) (% per year)



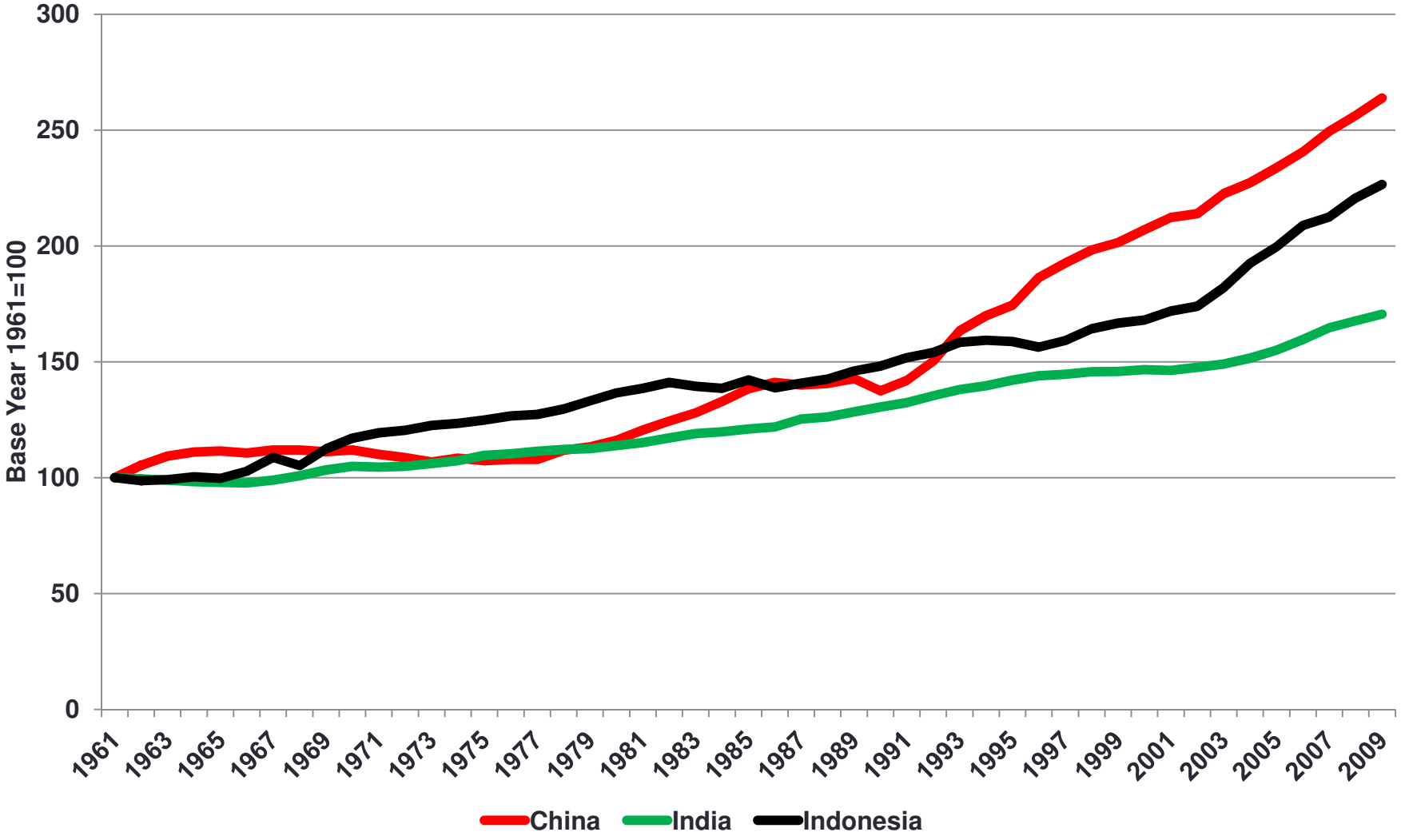
Average annual TFP growth

> 2%
1-2%
< 1%

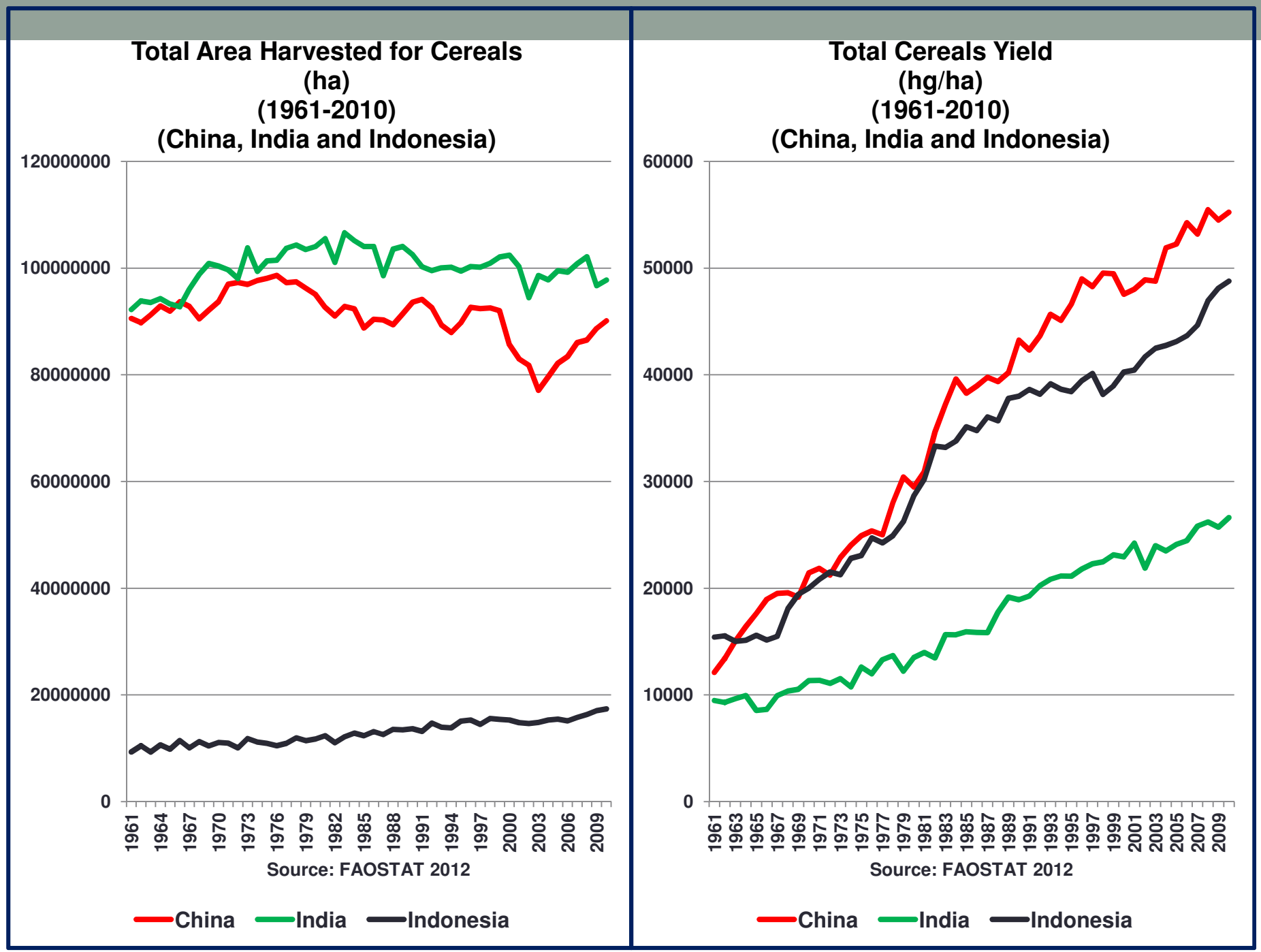
Circled regions show persistently low TFP growth

Source: Keith Fuglie, Productivity Growth in the Global Agricultural Economy.

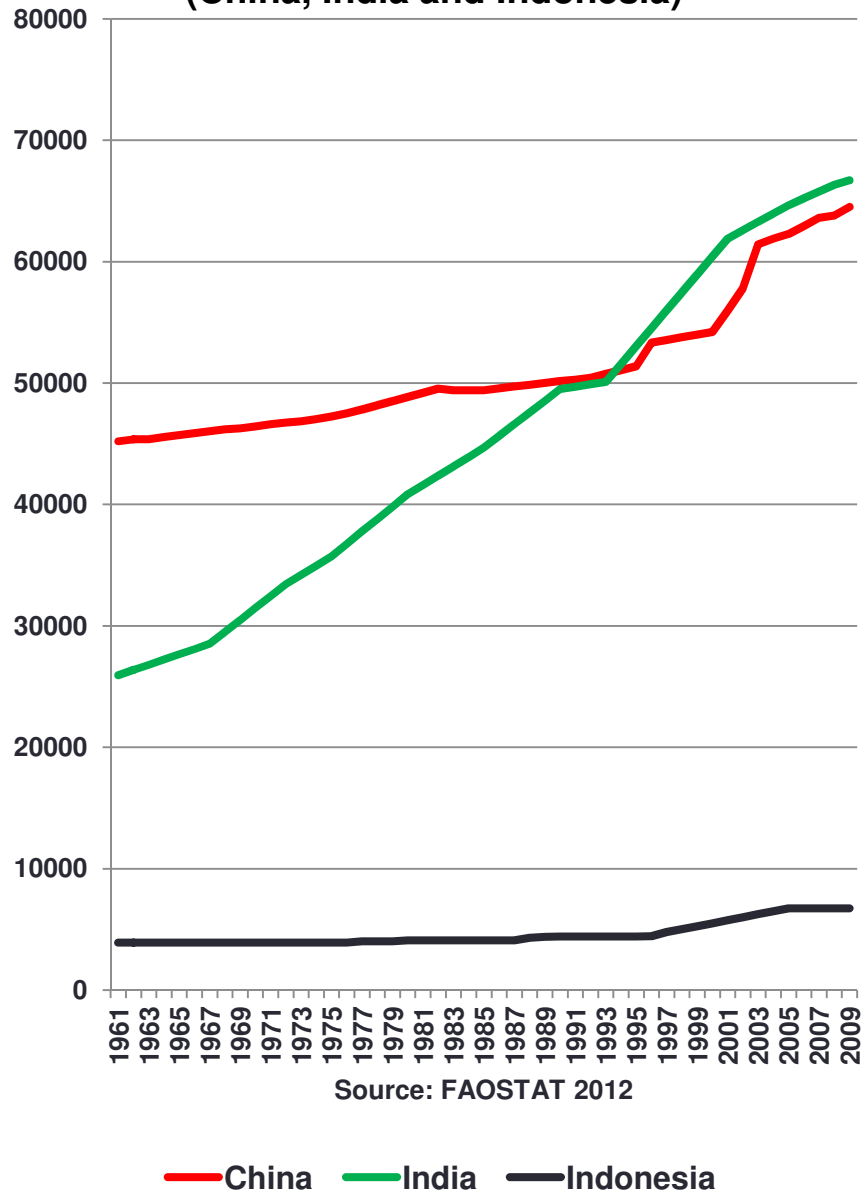
Agricultural TFP Growth
China and Indonesia Surging Ahead of India
(1961-2009)



Data Source: Fuglie's Worksheet 2011

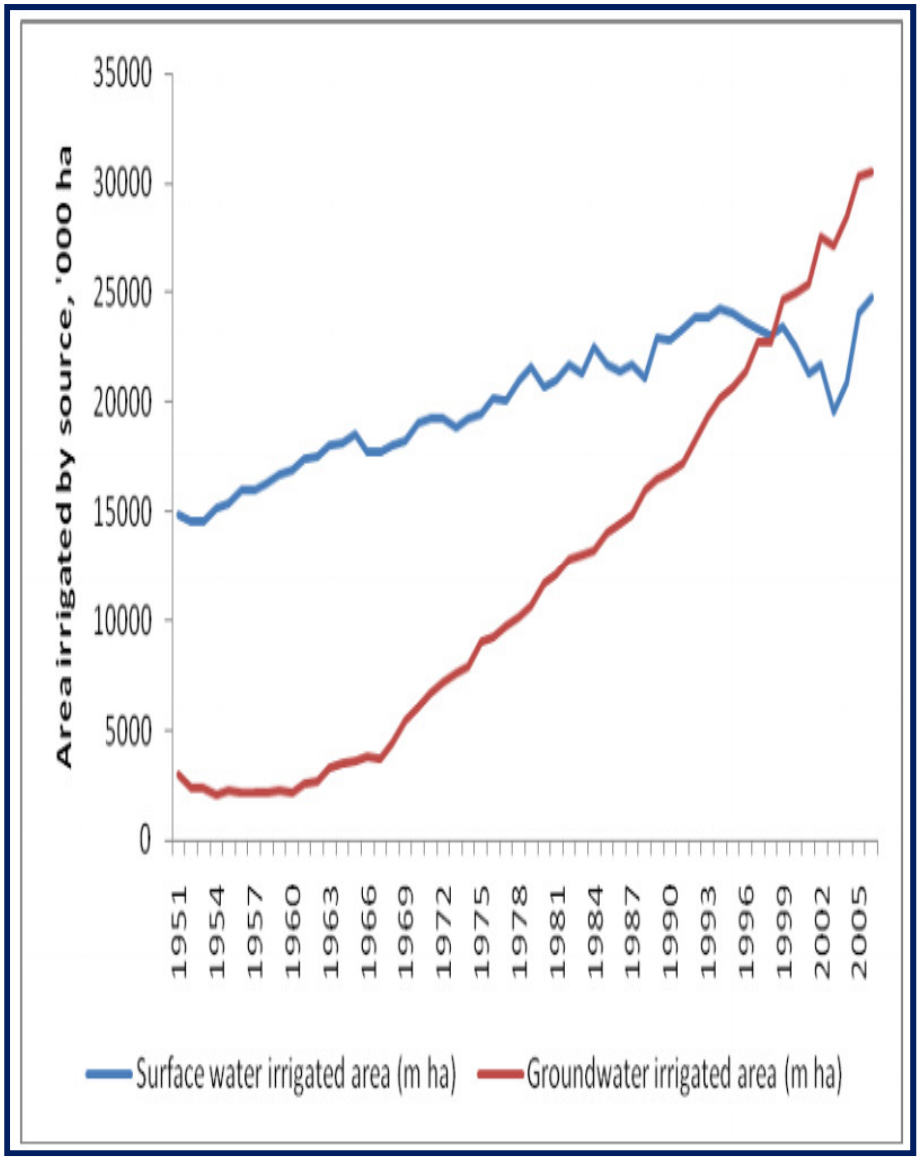

Total Area Harvested for Cereals
(ha)
(1961-2010)
(China, India and Indonesia)
120000000
100000000
80000000
60000000
40000000
20000000
0
1961
1964
1967
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
Source: FAOSTAT 2012
China
India
Indonesia
Total Cereals Yield
(hg/ha)
(1961-2010)
(China, India and Indonesia)
60000
50000
40000
30000
20000
10000
0
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
Source: FAOSTAT 2012
China
India
Indonesia

Total Area Equipped for Irrigation (1000 ha, 1961-2009) (China, India and Indonesia)



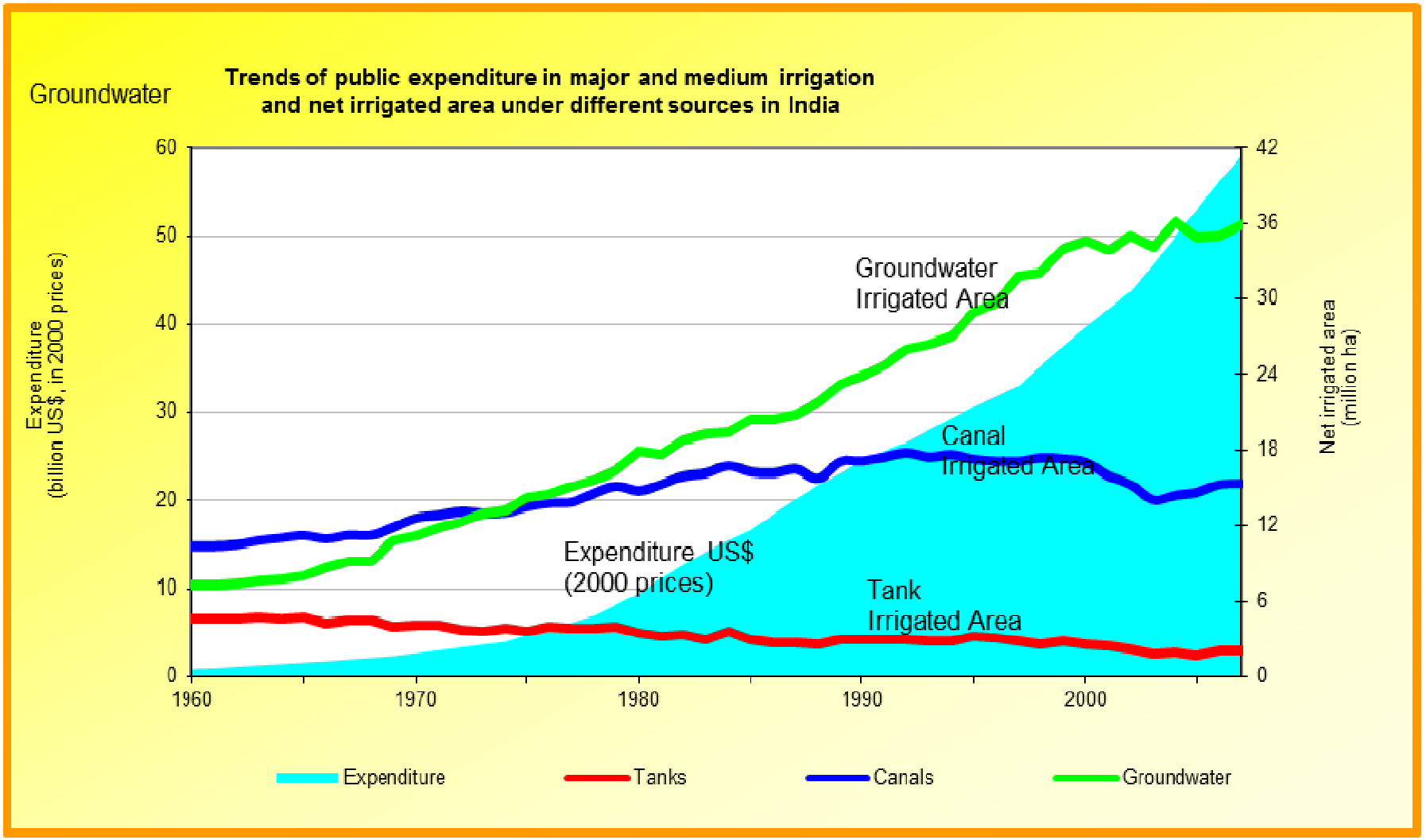
Source: FAOSTAT 2012

Growth of Surface and Ground Water in India (1951-2007)



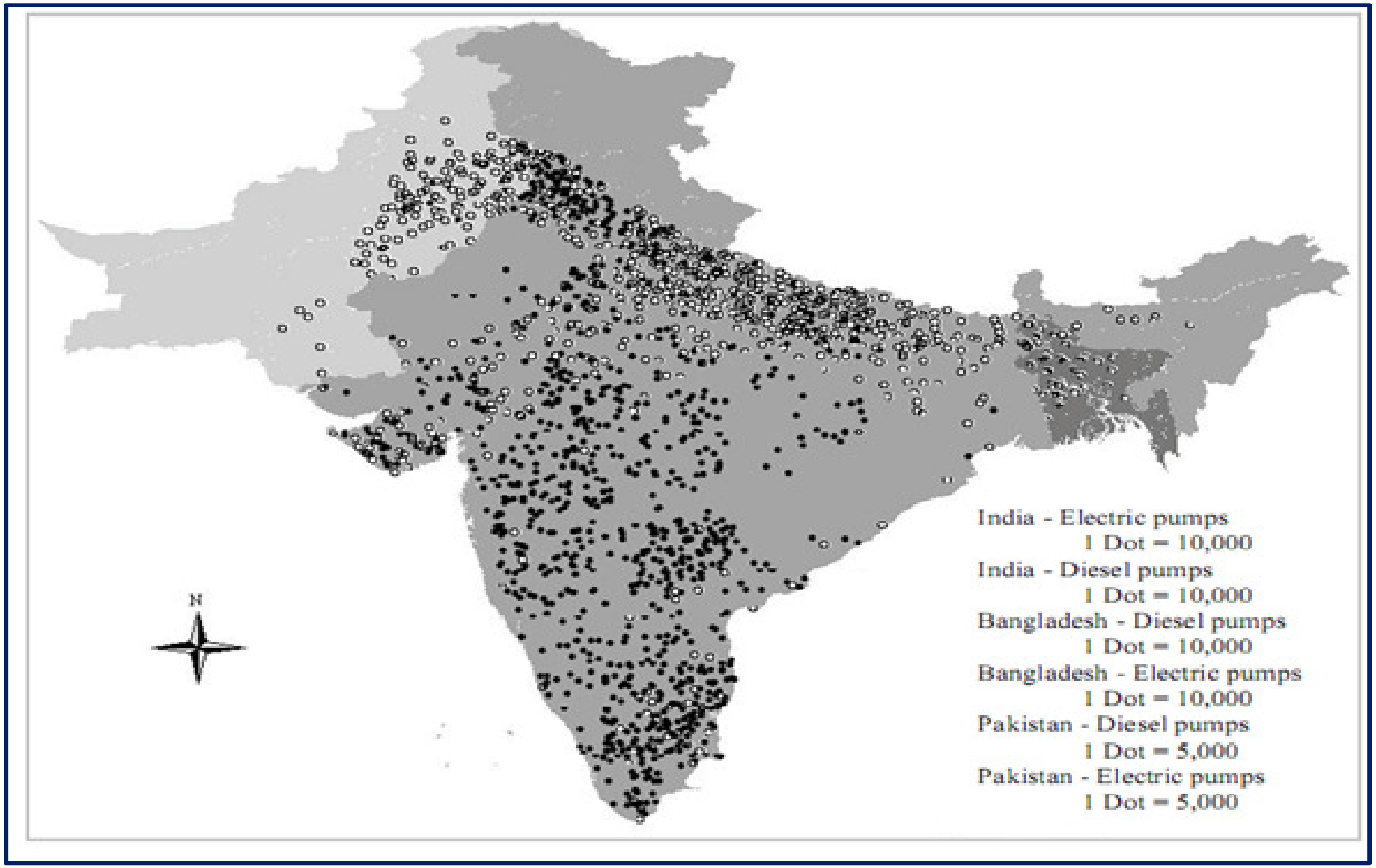
Source: Jean Marc Faures and Aditi Mukherji .2011. Trends and Drivers of Asian Irrigation

Irrigation Investment and Irrigated Area in India



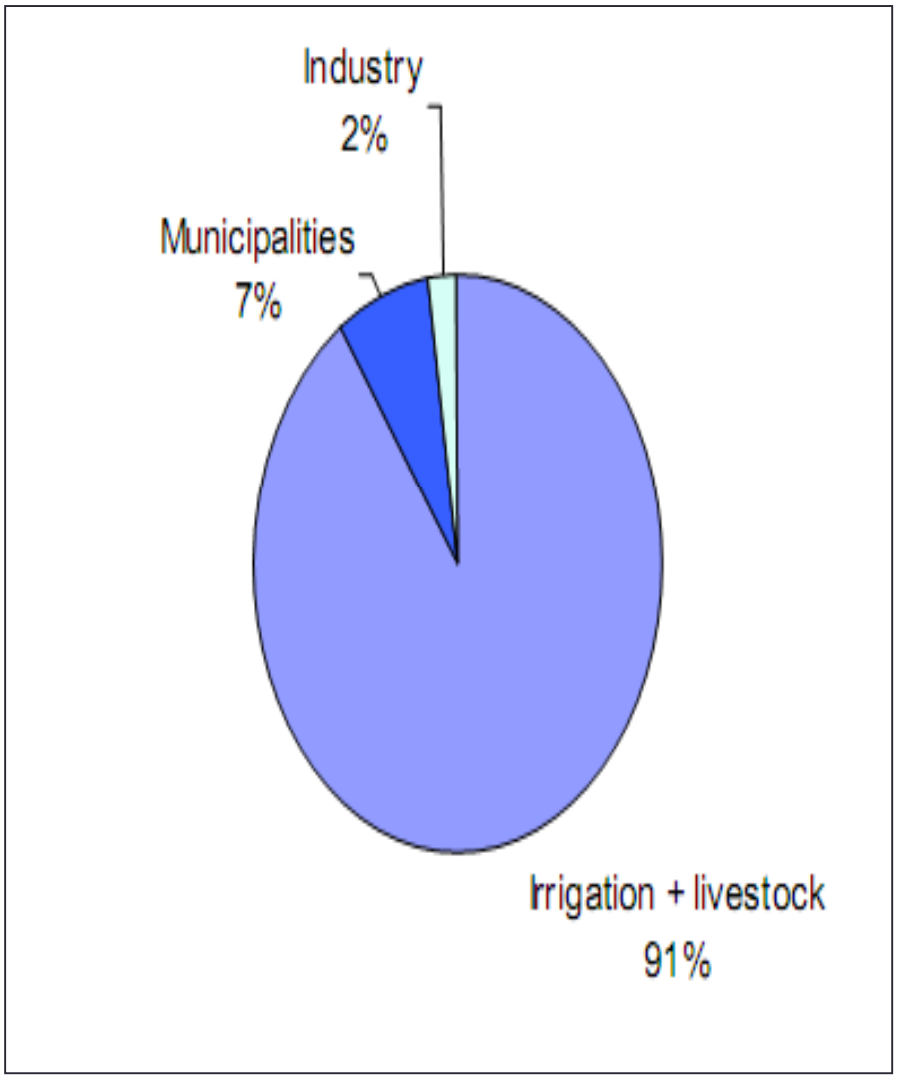
Source: Strategic Analyses of the National River Linking Project (NRLP) of India, Series 5. Proceedings of the Second National Workshop on Strategic Issues in Indian Irrigation. International Water Management Institute 2009

Distribution of Electric and Diesel Pump-sets in South Asia

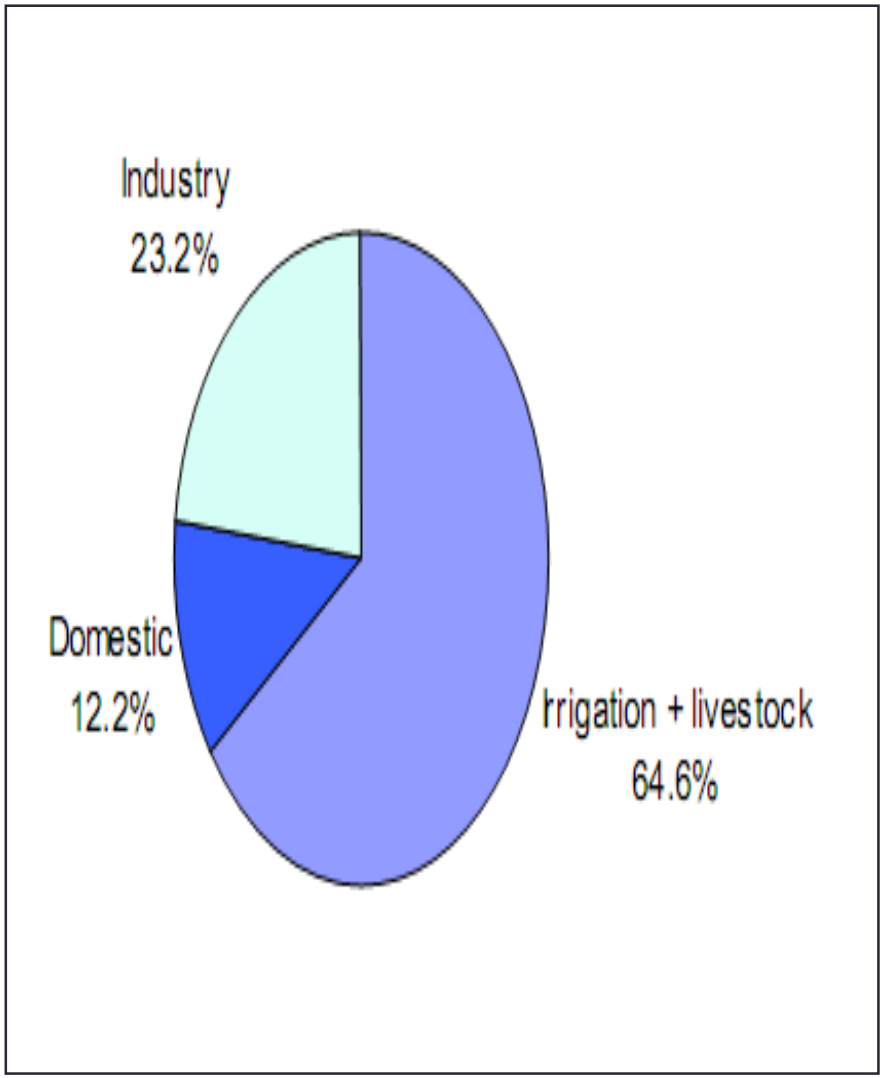


Source: Tushaar Shah (2009) Climate change and groundwater: India's opportunities for mitigation and adaptation

India – Water Withdrawal by Sector (Total 761 km^3 in 2010)

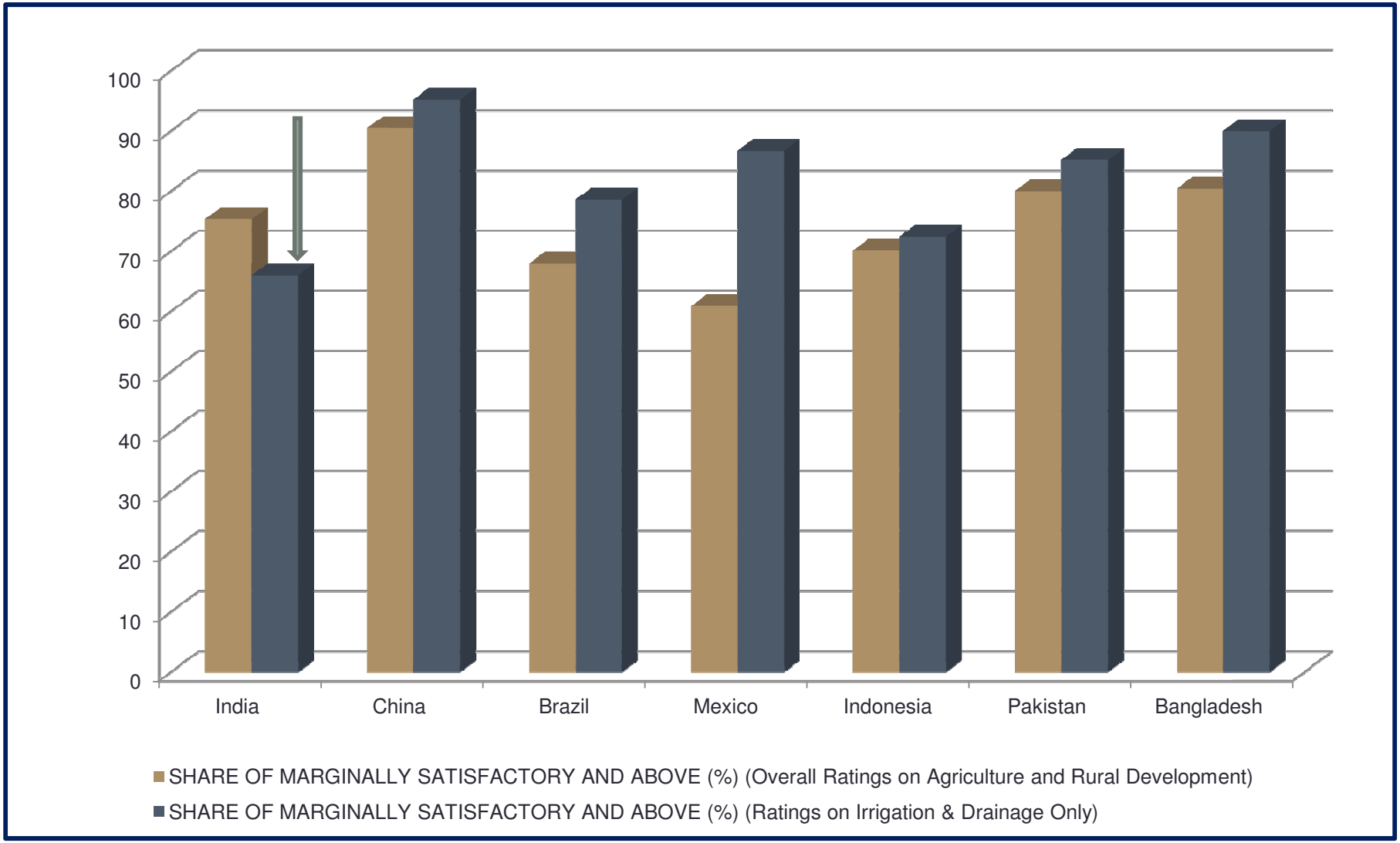


China – Water Withdrawal by Sector (Total 554.1 km^3 in 2005)



Source: AQUASTAT, FAO

Share of Marginally Satisfactory and Above Projects in Agriculture and Irrigation Rated by Independent Evaluation Group Among World Bank's Top 7 Irrigation Borrowers (1972-2011)

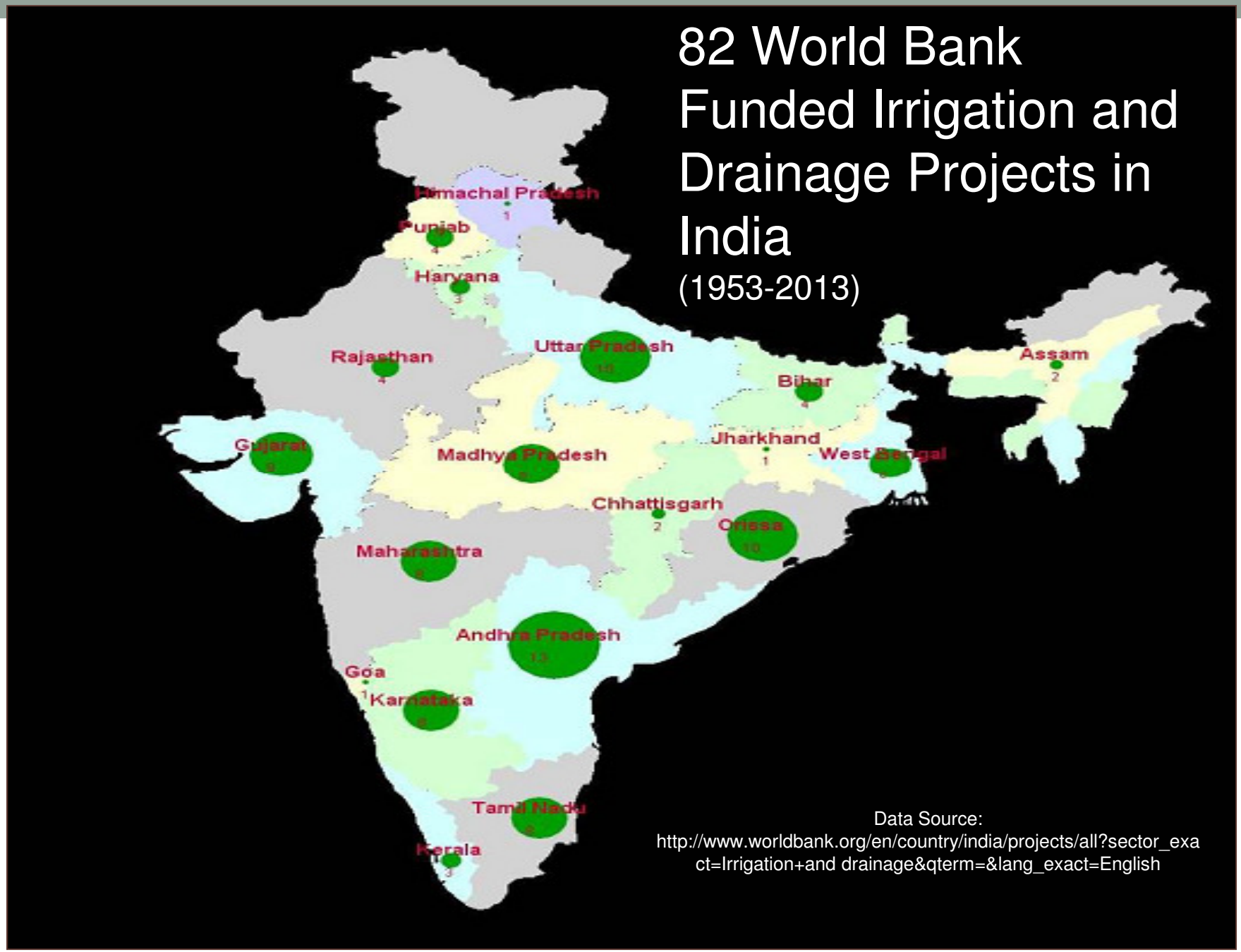


Source: http://ieg.worldbankgroup.org/content/ieg/en/home/ratings.html

Note: Marginally satisfactory and above includes Highly satisfactory, Moderately satisfactory, Satisfactory and Marginally satisfactory

82 World Bank Funded Irrigation and Drainage Projects in India

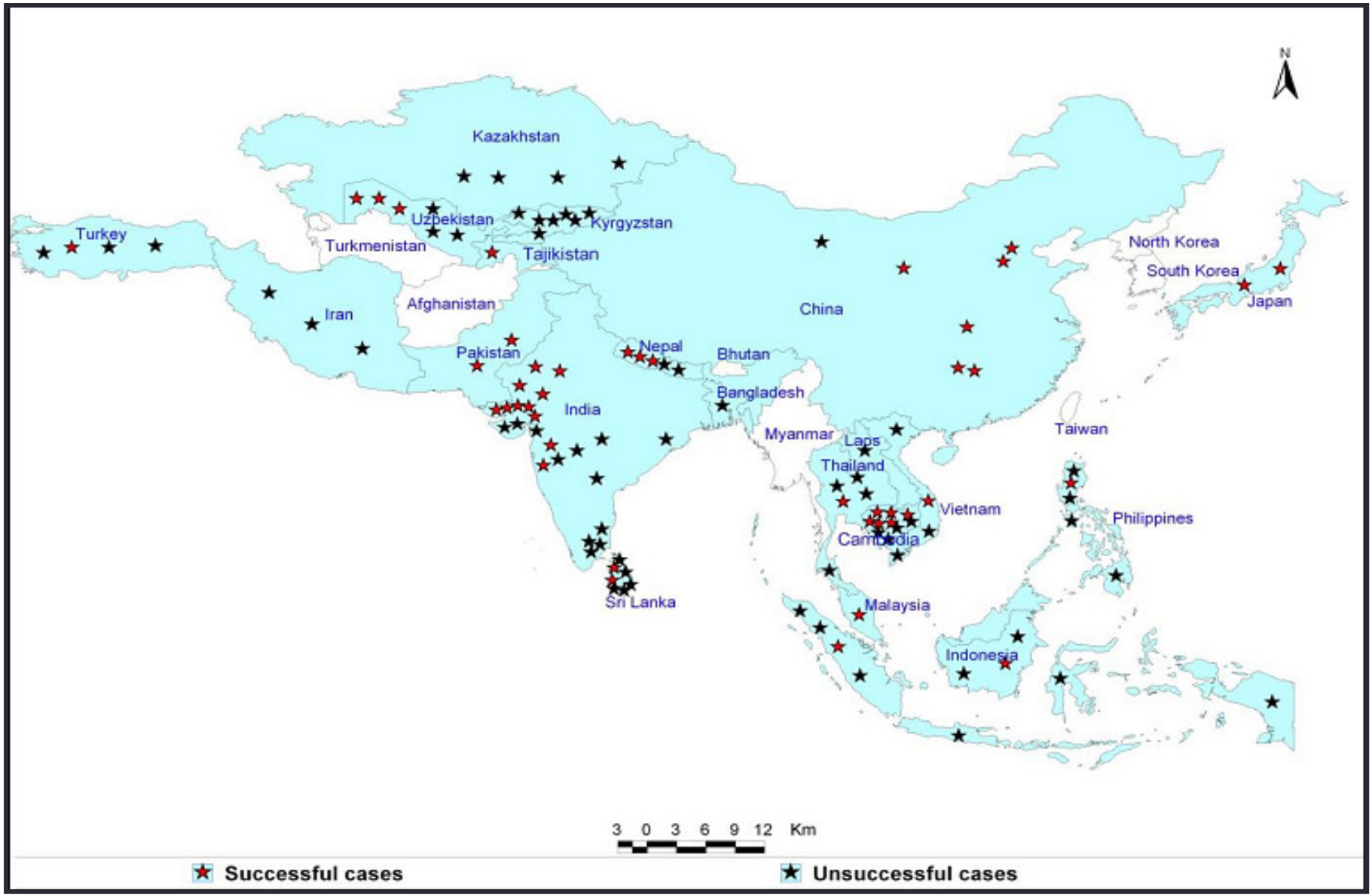
(1953-2013)



Data Source:
http://www.worldbank.org/en/country/india/projects/all?sector_exact=Irrigation+and drainage&qterm=&lang_exact=English

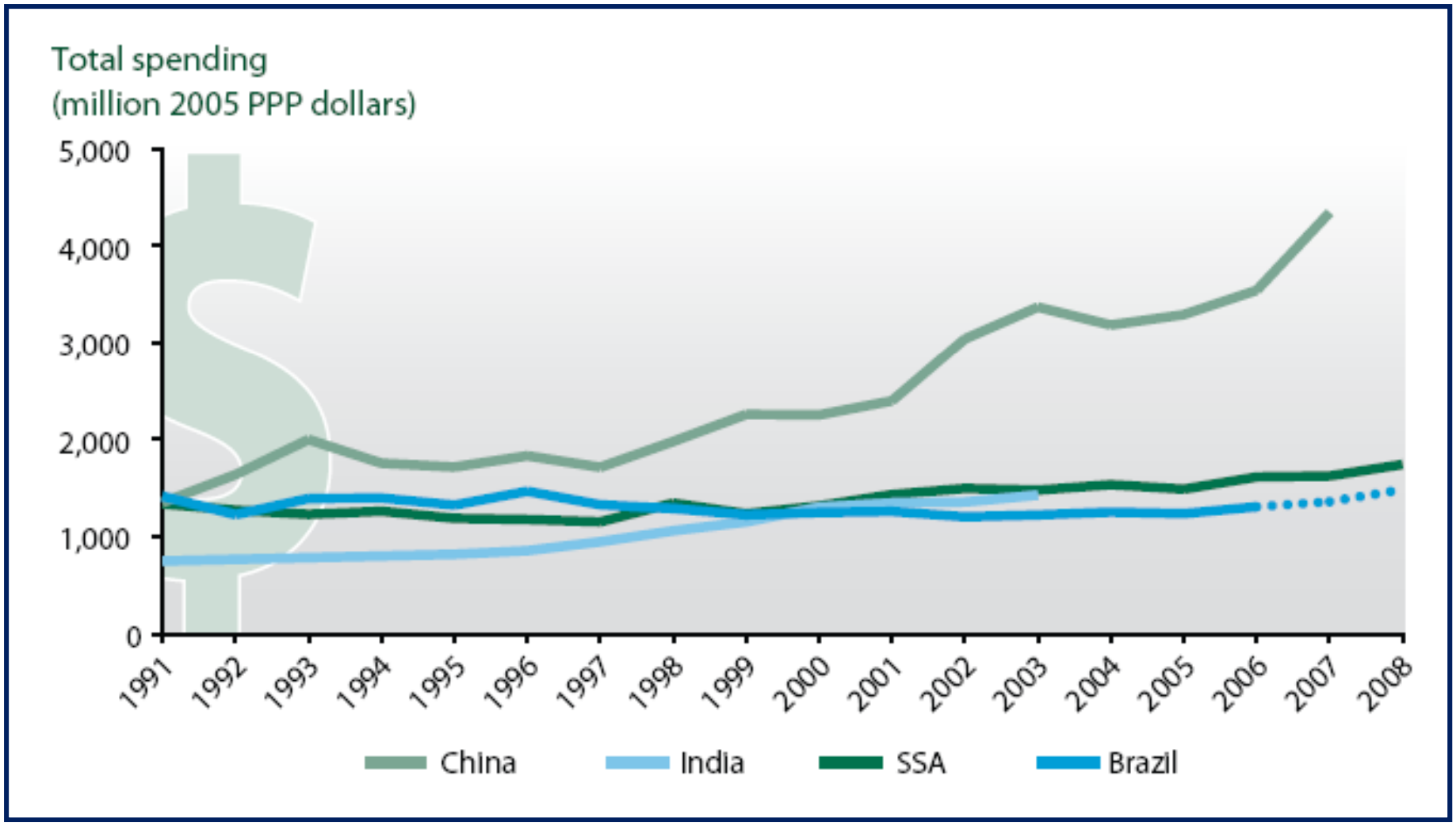
Distribution of Successful and Failed Cases of PIM

Review of 108 Documented Cases of PIM in Asia



Source: Mukherji et al 2009. Irrigation reforms in Asia: A Review of 108 Cases of Irrigation Management Transfer. Background paper # 3. Submitted to Asian Development Bank, October 2009.

China Stands out in Public Agricultural R&D Spending Relative to Brazil, India and SSA



Source: ASTI as reported in Beintema and Stads (2011)

Needed In Water and Food Management

- New development ethos,
- Correct top-down bias of bureaucratic management,
- Promote accountability
- Control political clienteles.
- Overcome path dependency and rigidity and
- Bring about a new era of public systems management reform
- Shift from Power Subsidies to Reliable Power Supply to Agriculture
- Improve Groundwater recharge and establish rules for water access and use and pricing power and water to reflect scarcity values
- Improve Information on Water Resources and Management
- Increase investment in Human and Organizational Capital
- Clarify property rights over water


Thank You