SARDAR PATEL UNIVERSITY OF POLICE, SECURITY AND CRIMINAL JUSTICE

KNOWLEDGE BEES

AGRICULTURE : CHALLENGES AND ISSUES

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Agriculture

Agriculture is defined as the cultivation and exploitation of animals, plants (including fungi) and other forms of organic life for human use including food, fiber, medicines, fuel and anything else.

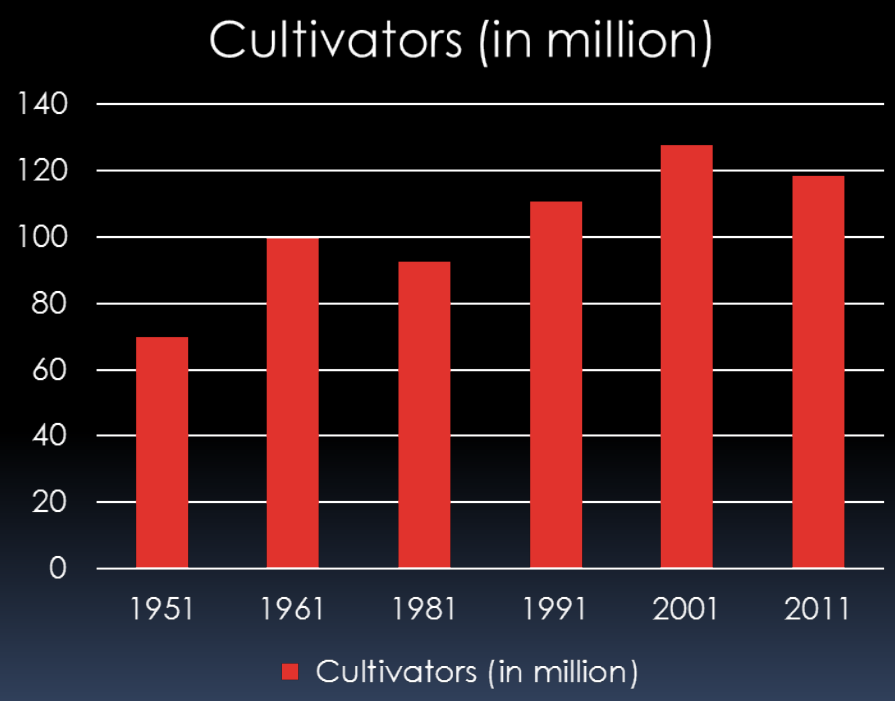
IMPORTANCE OF AGRICULTURE IN INDIA

Agriculture in India is more a ‘way of life’ than ‘mode of business’.

- J. L. Nehru

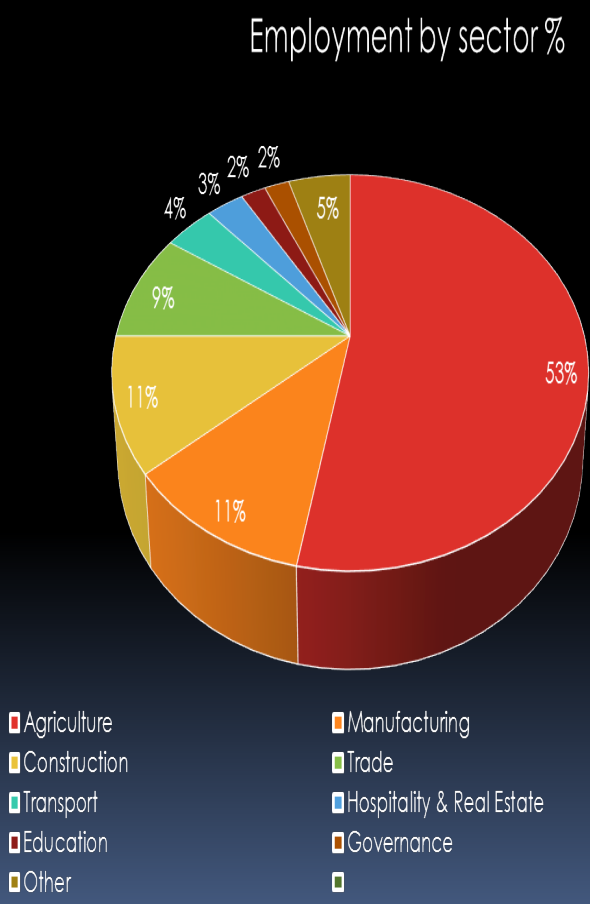
Source Of Livelihood

- Agriculture sector at present is primary source of livelihood to 65-70 percent of total population.



Source Of Employment

- India’s 53 percent of population is engaged in agriculture.
- It is the single largest private sector occupation.



Foreign Exchange Resources

- A large number of India’s export trade is based on agricultural products such as jute, tea, tobacco, coffee, spices and sugar.
- India is ranked seventh in terms of agricultural exports.
- Agricultural export constitutes 10 per cent of the country’s exports and is the fourth-largest exported principal commodity.
- It helps in increasing Foreign Exchange.

Source For Food For Domestic Consumption

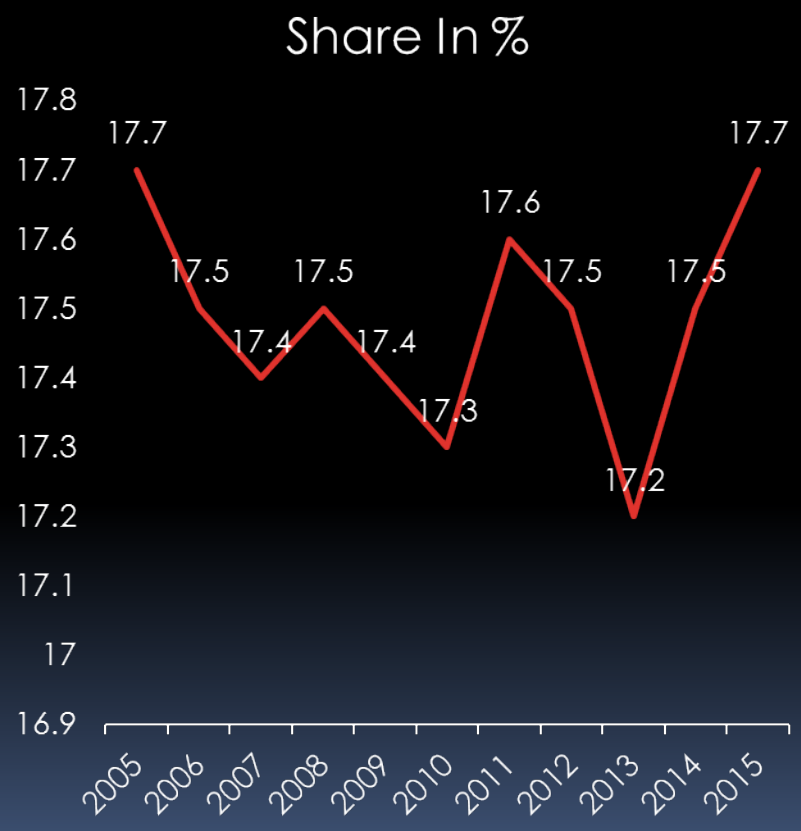
- We depend on agricultural outputs for our food requirements.
- India produces large quantity of food grains and major portions of food-stuffs produced is consumed within the country.

Source Of Raw Materials

- A number of industries are agro-based industries, and raw material to these industries is supplied from agricultural produce.

Role In Economic Development

- Agriculture has got a prime role in Indian economy.
- Agriculture is not only important but it also provides a base for development.
- In India, agriculture contributes about seventeen percent (17%) of total GDP. (2014-15)



Some Facts About Indian Agriculture

- India is the 2nd largest agricultural output in world.
- In 2013-14 India produced 95.9 millions of ton wheat.
- India is the second largest producer and one of the largest exporter of the cotton in the world.
- India holds 6th place with 7% world’s market share in medicinal and aromatic plants.
- India's horticulture output, comprising fruits, vegetables and spices, has reached to a record high of 283.5 million tonnes (MT) in 2014-15.

India's Position in World Agriculture production

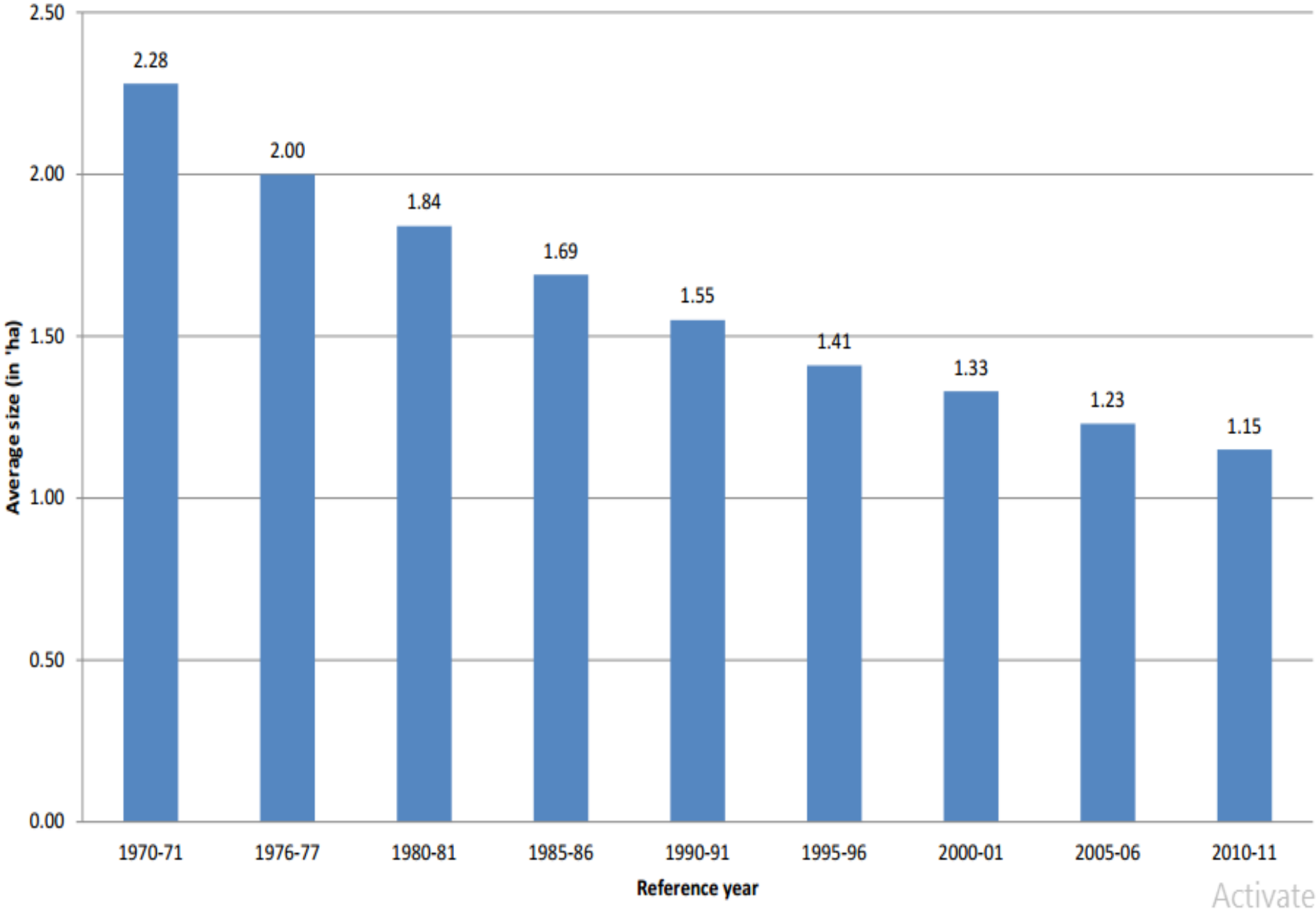
PRODUCT	GLOBAL RANK
Rice	2nd
Tea	2nd
Sugarcane	2nd
Wheat	4th
Tobacco	6th

CHALLENGES AND ISSUES

PROBLEM OF SMALL AND FRAGMENTED LAND HOLDINGS IN INDIA

- Land holdings in India are mostly fragmented.
- The average size of operational holdings has been steadily declining in the country in successive censuses.

Average size of operational holdings as per different Agriculture Censuses



- The average operational size of holding which was 1.23 ha. In 2005-06, has declined to 1.15 ha. In 2010-11 at All India level.

- The small and marginal holdings (below 2.00 ha) constituted 85.01 percent of total number of holdings in 2010-11.

- Small and fragmented land holdings are uneconomic, because cultivation becomes hard there.

PROBLEM OF LOW QUALITY SEEDS

- Seed is a critical and basic input for attaining higher crop yields and sustained growth in agriculture.
- Good quality seeds having strong germination Potential are becoming rare .

- Price of seeds are increasing every year.
- Good quality seeds are out of reach of majority of the farmers, especially small and marginal farmers because of exorbitant price of better seeds.
- Independent, informative and accessible information is not available to the farmers in the form and language they can understand about quality, quantity and accessibility of seed.

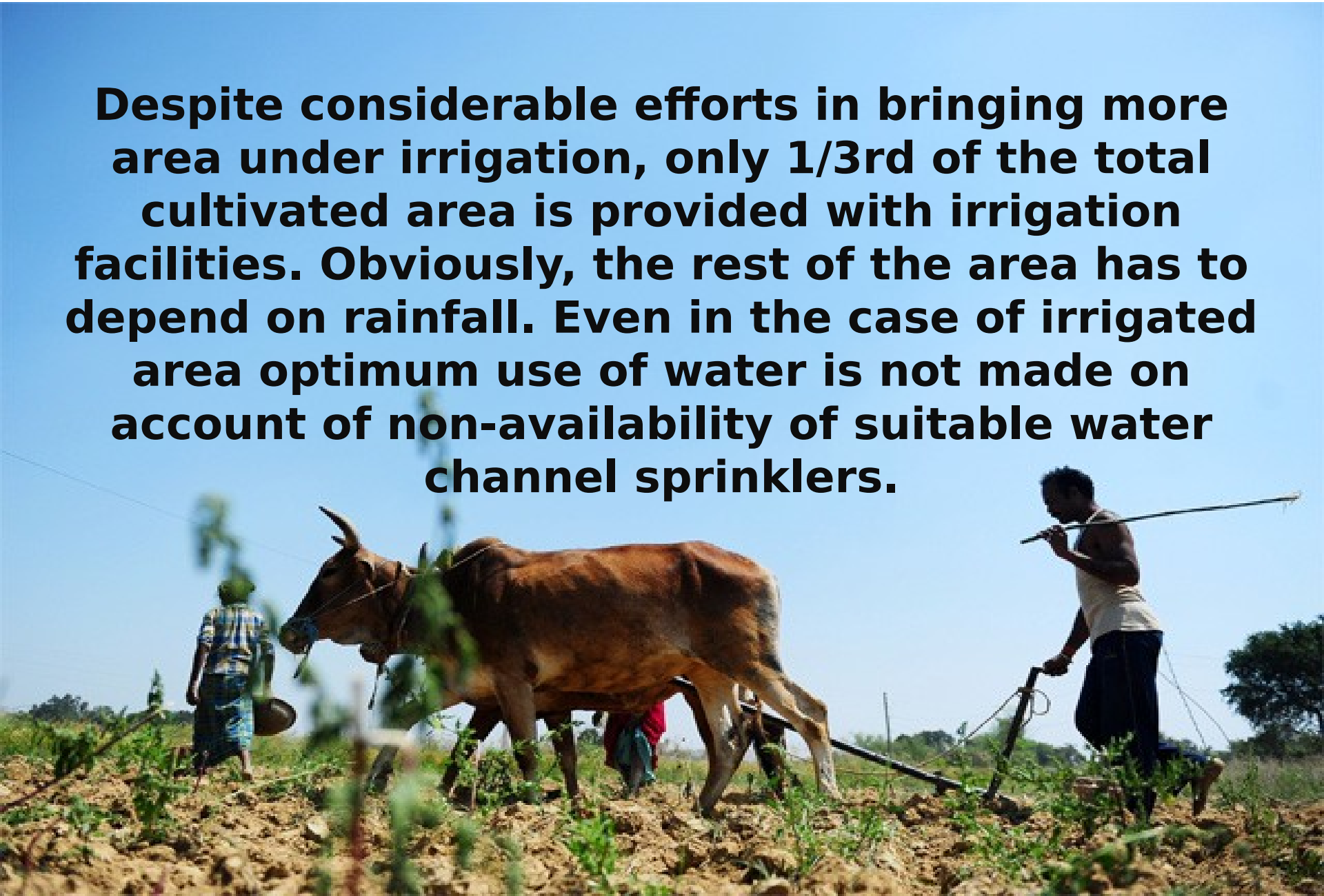
Highlights

1. Lack of irrigation facilities

2. Three phases in evolution of Indian irrigation

3. How do our farmers irrigate today?

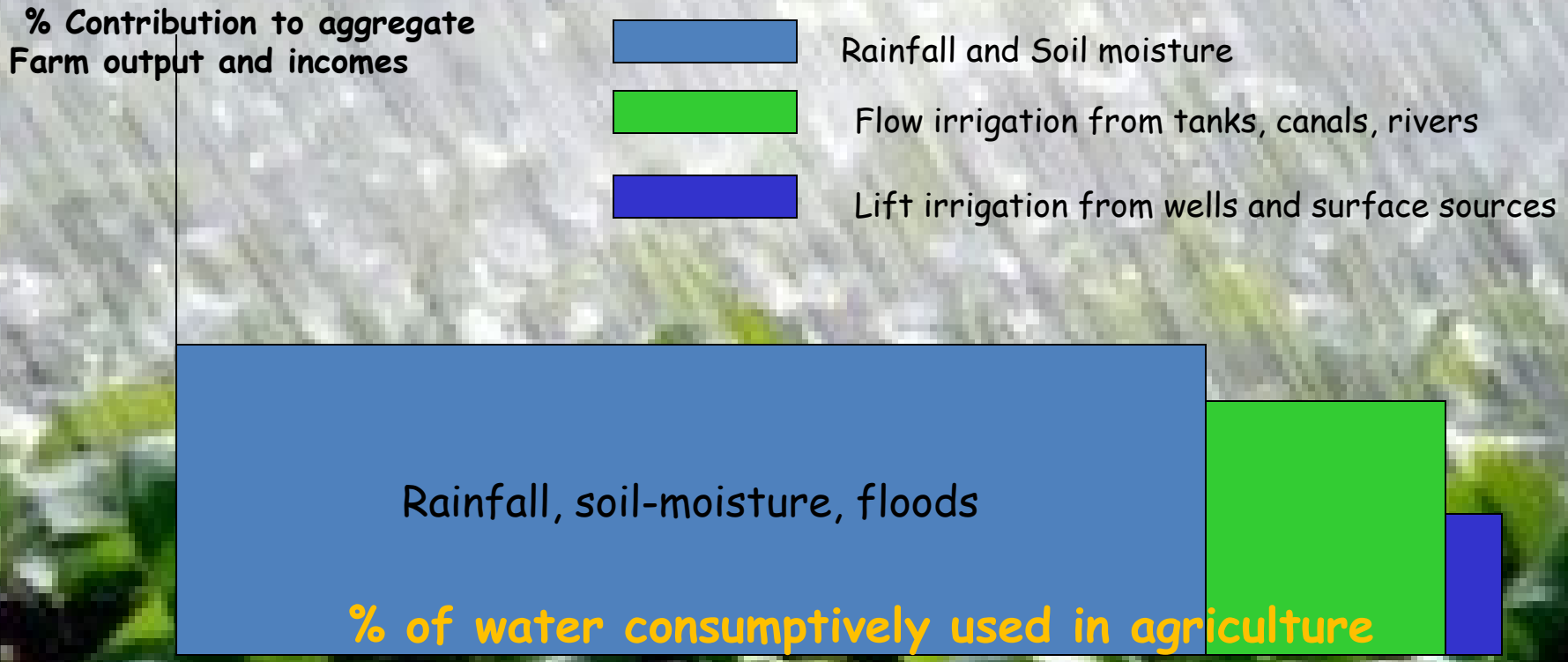
LACK OF IRRIGATION FACILITIES:



Despite considerable efforts in bringing more area under irrigation, only 1/3rd of the total cultivated area is provided with irrigation facilities. Obviously, the rest of the area has to depend on rainfall. Even in the case of irrigated area optimum use of water is not made on account of non-availability of suitable water channel sprinklers.

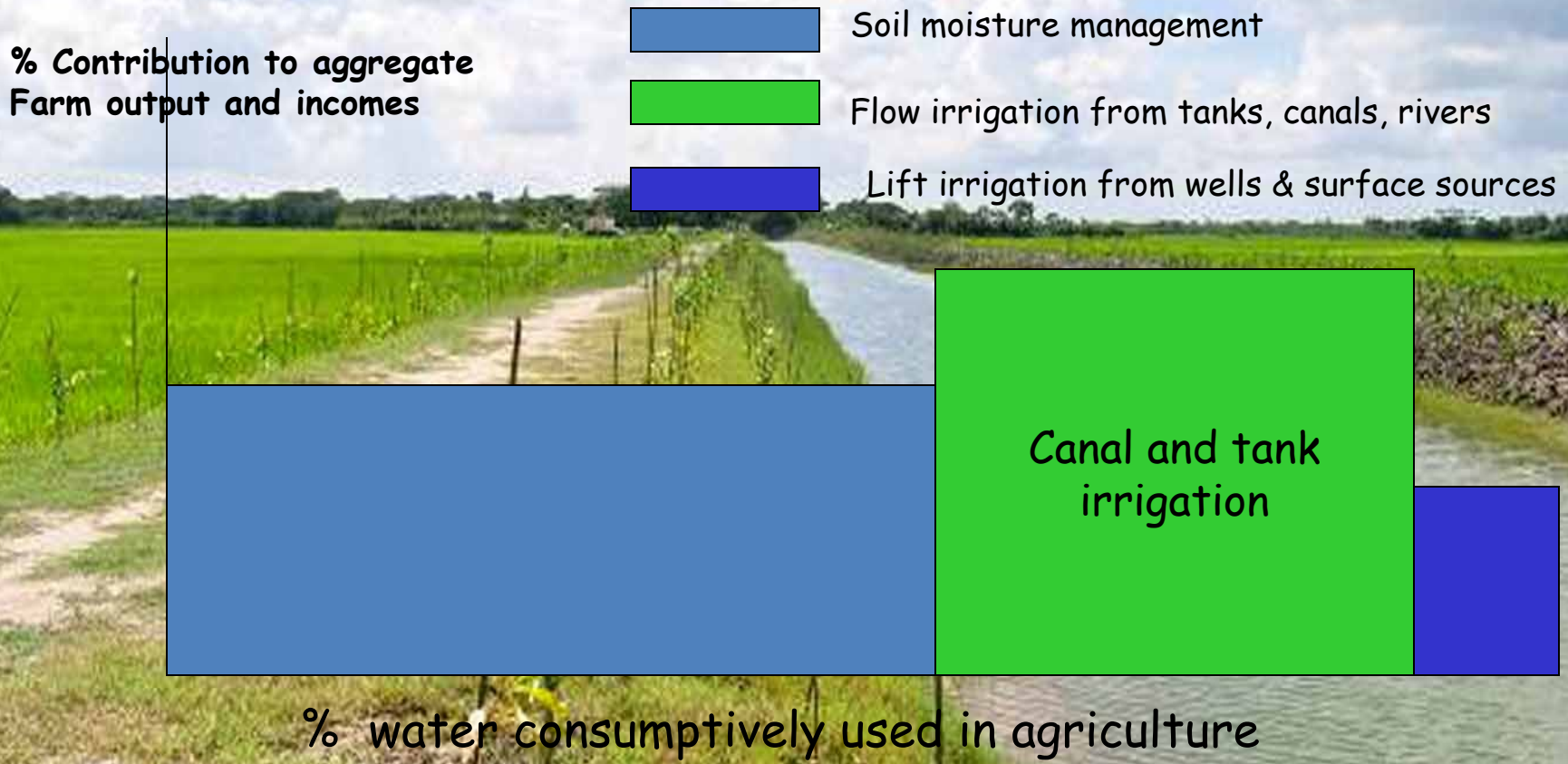
ERA OF ADAPTIVE IRRIGATION-UP TO 1830

- *Community was the unit of irrigation management*



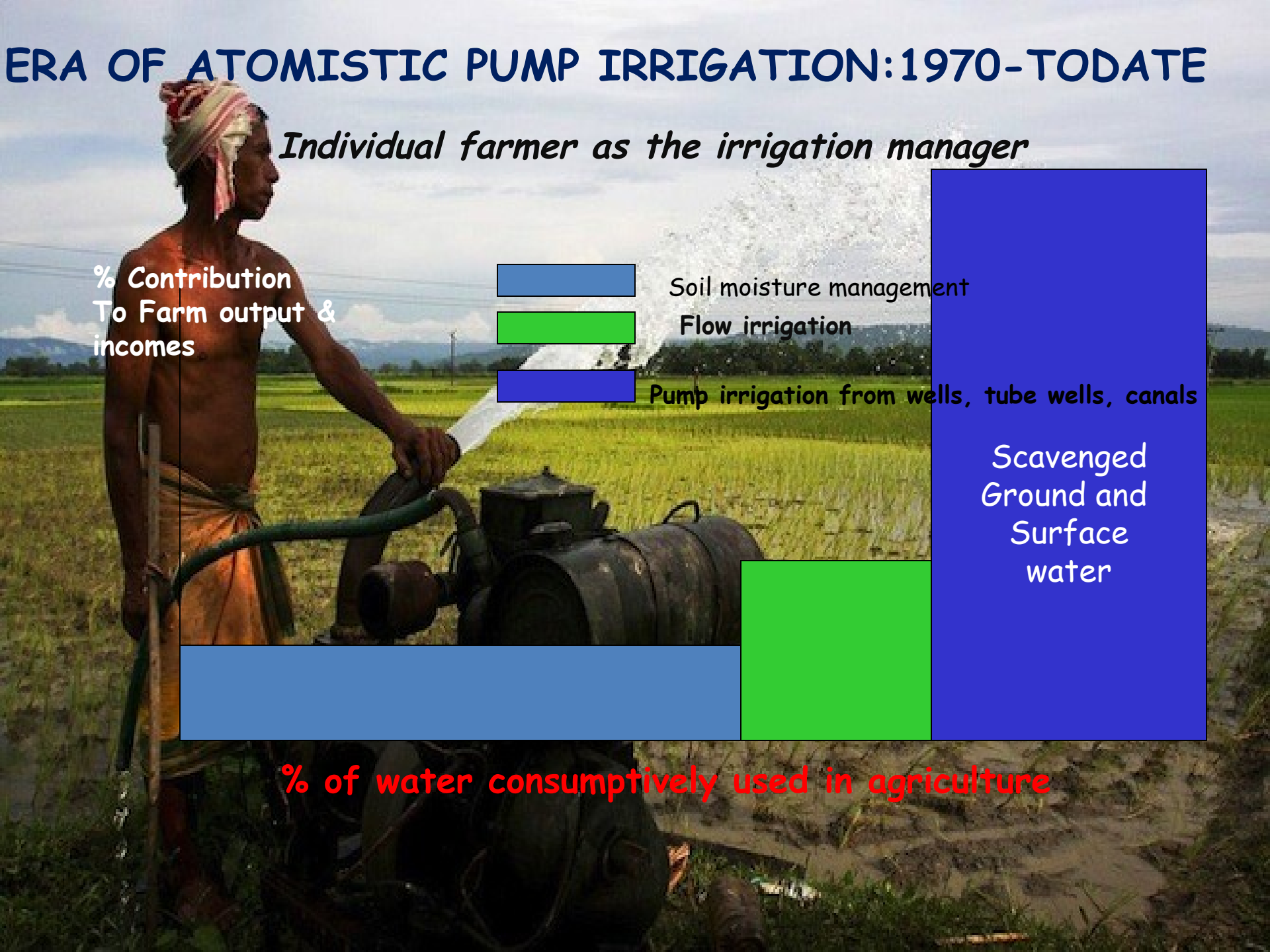
ERA OF CANAL CONSTRUCTION-1830-1970

- ***State emerged as the architect, builder, manager of irrigation***



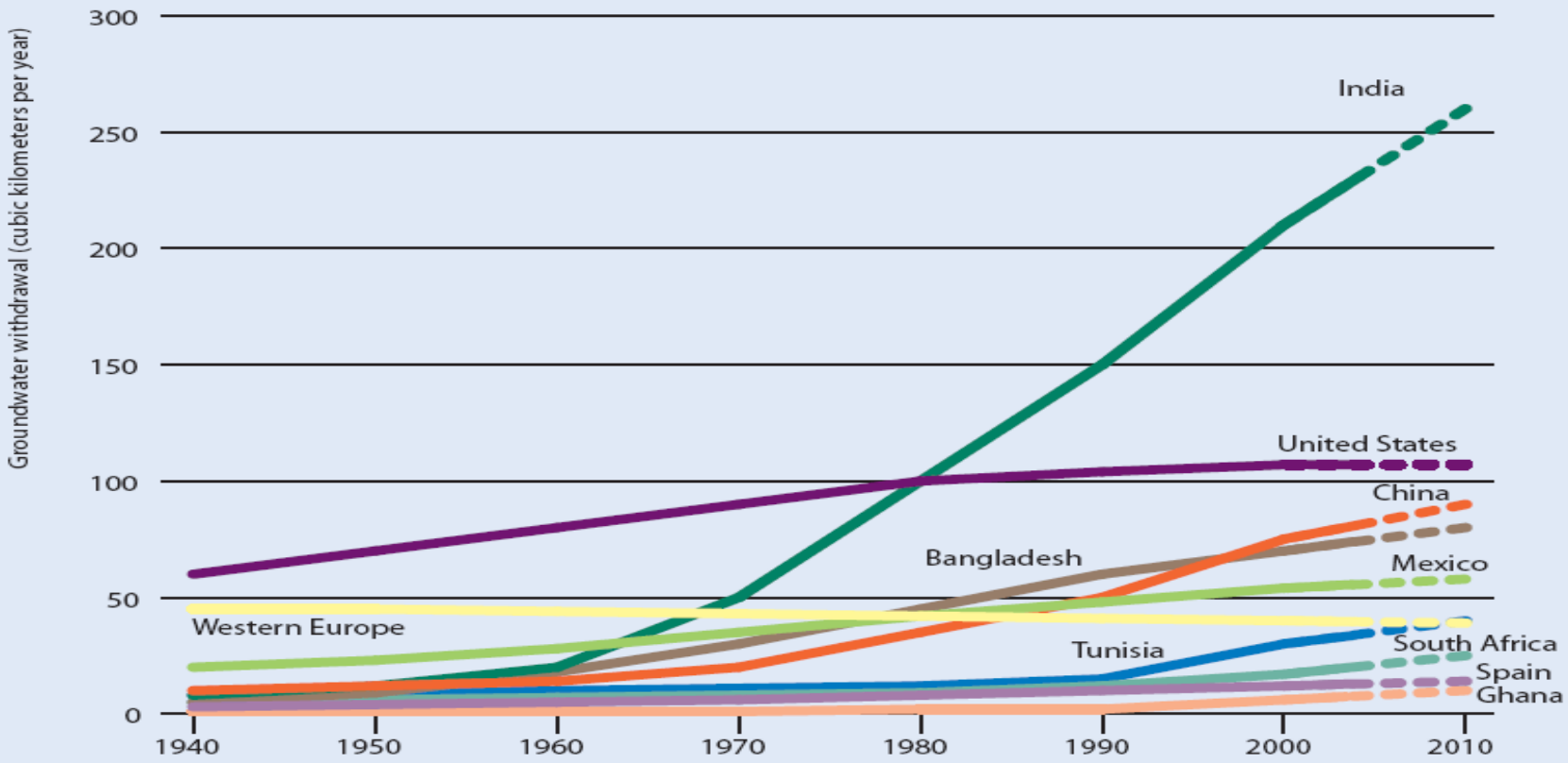
ERA OF ATOMISTIC PUMP IRRIGATION:1970-TODATE

Individual farmer as the irrigation manager



Today India is the world's groundwater champion!

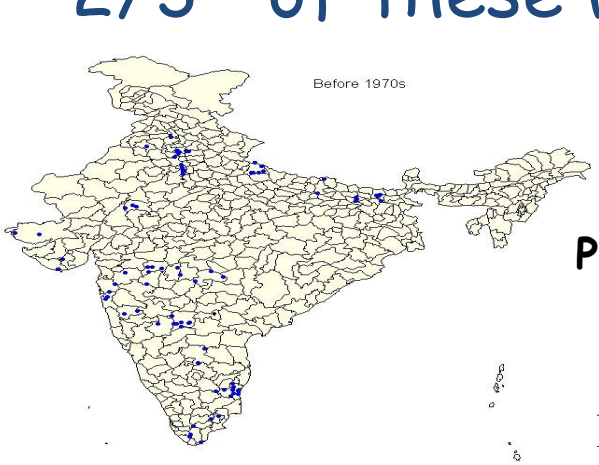
Development in groundwater withdrawal in selected countries



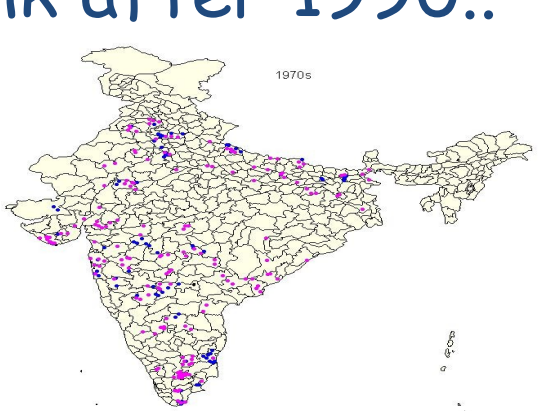
Source: Shah 2005.

Credit: Comprehensive Assessment of Water Management in Agriculture
Publisher: Earthscan www.earthscan.co.uk

India today has some 25 million irrigation wells. 2/3rd of these were sunk after 1990..

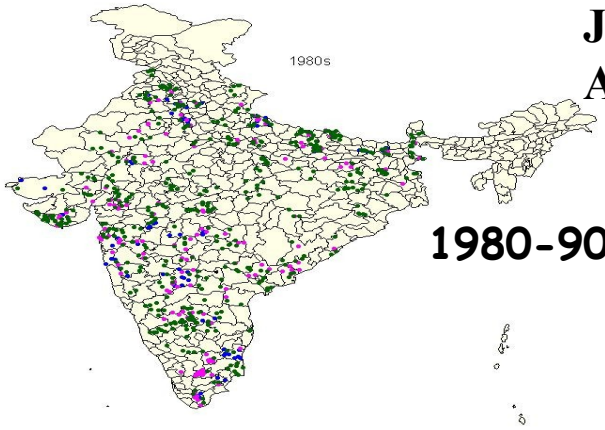


Pre-1970

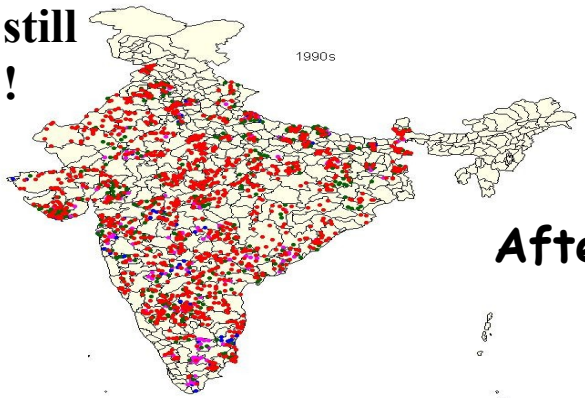


1970-80

India's Groundwater Juggernaut is still Accelerating!!!



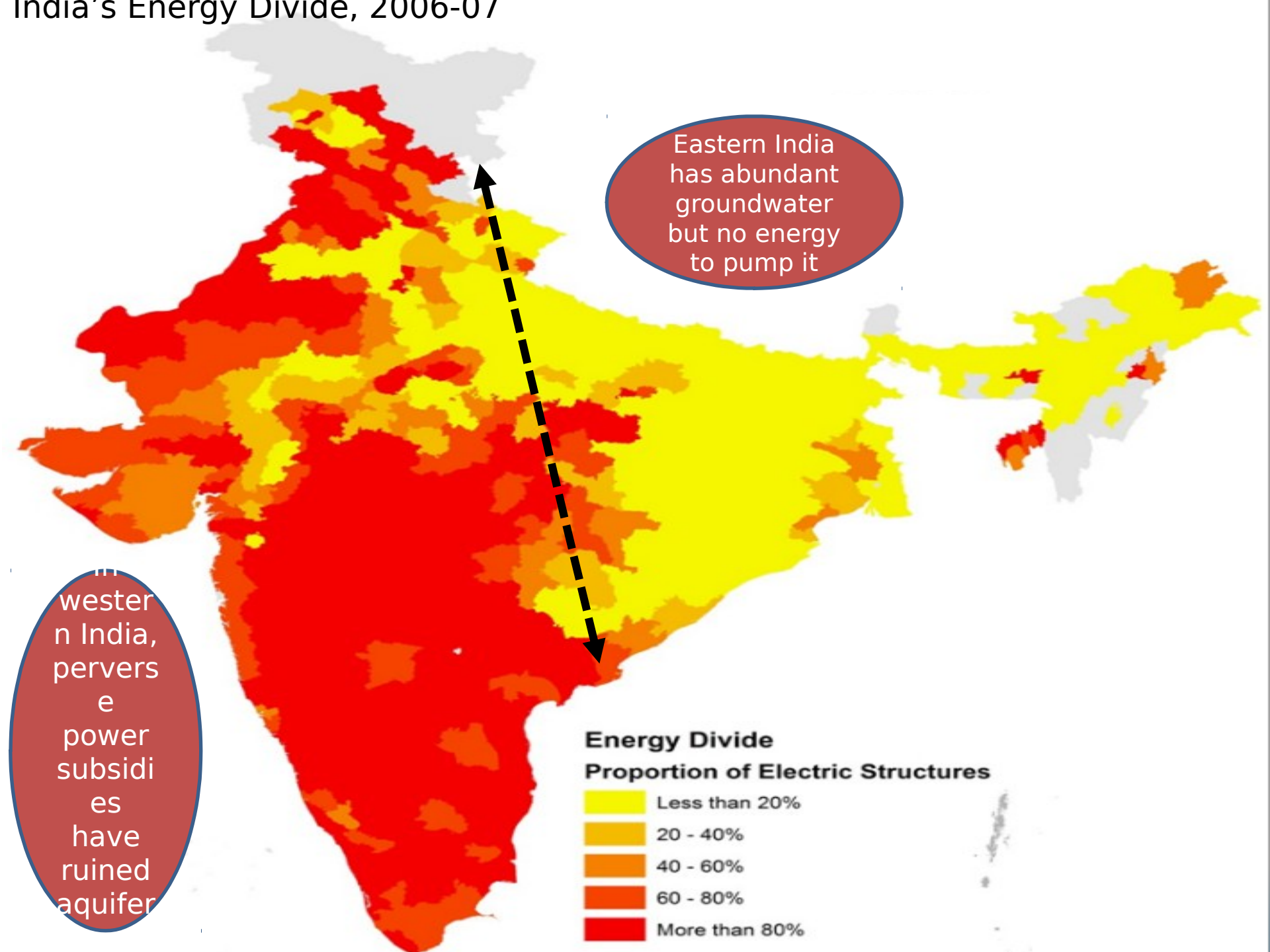
1980-90



After 1990

Over 70% of irrigated areas are served by groundwater wells.
Yet, India's
Irrigation investments are focused on canal irrigation, neglecting groundwater.

India's Energy Divide, 2006-07



Pradhan Mantri Krishi Sinchai Yojana

- PMKSY has been approved with an indicative outlay of Rs.50000 crore over a period of five years from 2015-16 to 2019-20
  - to ensure access to some means of protective irrigation to all agricultural farms (Har Khet Ko Pani) in the country,
  - to produce 'per drop more crop', thus bringing much desired rural prosperity.
- The programme is an amalgamation of on-going schemes of Ministry of Water Resources, River Development and Ganga Rejuvenation, Ministry of Agriculture & Cooperation and Ministry of Rural Development.

SOURCES

earthscan
publishing for a sustainable future

IWMI
International Water Management Institute

PMKSY
Pradhan Mantri Krishi Sinchayee Yojana
Department of Agriculture, Cooperation & Farmers Welfare
Ministry of Agriculture & Farmers Welfare, Government of India

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Problem of soil Erosion

Soil erosion is the loss of soil from the land surface due to gravity, wind, water or ice.

Erosion is a continual, natural process occurring in all regions of Earth. Soil erosion is one of the problems faced in Agriculture.

Impacts of soil erosion

1) The top soil is the fertile soil. Nature takes about 100-400 years to build one centimetre of this soil.
2) Top layer of soil contains most of the organic matter and nutrients. Loss of this soil reducing soil fertility and affecting its structure badly.
3) Soil erosion decreases the moisture supply by soil to the plants for their growth. It also affects the activity of soil micro-organisms. Thus deteriorating the crop yield.
4) Soil erosion by wind cause sandy storms, which damage the crops. Further these sandy storms reduces the rainfall in particular area. Soil eroded by water get deposited on river beds, thus increasing their level and causing floods. These flood have various devastating effects, such as killing human and animals and damaging various crops.

GRAIN STORAGE PROBLEM

- Since 2010, the problem of insufficient storage capacity has attracted both political and media attention. The food ministry has also said that about 1454.27 tonnes of grain was rendered unusable because of insufficient storage facilities. As of April 1, 2012, the country has the total storage capacity of 34 million tones. But the total food stock reached 62.9 million tones as of March 1, 2013. Because of less storage space, rice is sold at low prices in the international market.

Environmental influence on stored product

- Storage losses- losses in weight due to insects, rodents and birds. Deterioration through fungus growth and rotting.
- Loss in quality
- Loss of motivation in farmers to grow more , because he is not able to store his harvest
- Damage of sacks, which cause waste during transportation.
- Decline of germination capacity.

Food grain wastage: Data

- FCI, responsible for procurement and distribution of food grains, shows that the damaged quantity rose threefold in five years — from 6,346 tonnes in 2010-11 to 18,847.22 tonnes in 2014-15. While 3,338.01 tonnes were damaged in 2011-12 and 3,148.44 tonnes were damaged in 2012-13, as many as 24,695.45 tonnes suffered damage in 2013-14. A total of more than 56,000 tonnes of food grains, including 27,000 tonnes of rice and 26,000 tonnes of wheat, were damaged since 2010.

- In 2014-15, Odisha topped the list with 7,108 tonnes, mainly due to the havoc wrought by cyclone “Phailin” in the coastal regions, followed by J&K (6,120 tonnes), where inundation caused by the unprecedented floods of September 2014 was the culprit. They were followed by Andhra Pradesh with 2,262 tonnes and Karnataka (747 tonnes). In 2013-14, West Bengal topped the list with 12,539 tonnes followed by Bihar (3,909.408 tonnes).

INADEQUATE TRANSPORT

- One of the main handicaps with Indian agriculture is the lack of cheap and efficient means of transportation. Even at present there are hundreds of villages which are not well connected with main roads or with market centers.
- Most roads in the rural areas are Kutcha (bullock- cart roads) and become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market and are forced to sell it in the local market at low price. Linking each village by metalled road is a gigantic task and it needs huge sums of money to complete this task.

Inadequate transport affects agricultural marketing

Agricultural marketing still continues to be in a bad shape in rural India. In the absence of sound marketing facilities, the farmers have to depend upon local traders and middlemen for the disposal of their farm produce which is sold at throw-away price.Here the problem is the rate of transport .

CLIMATE CHANGE

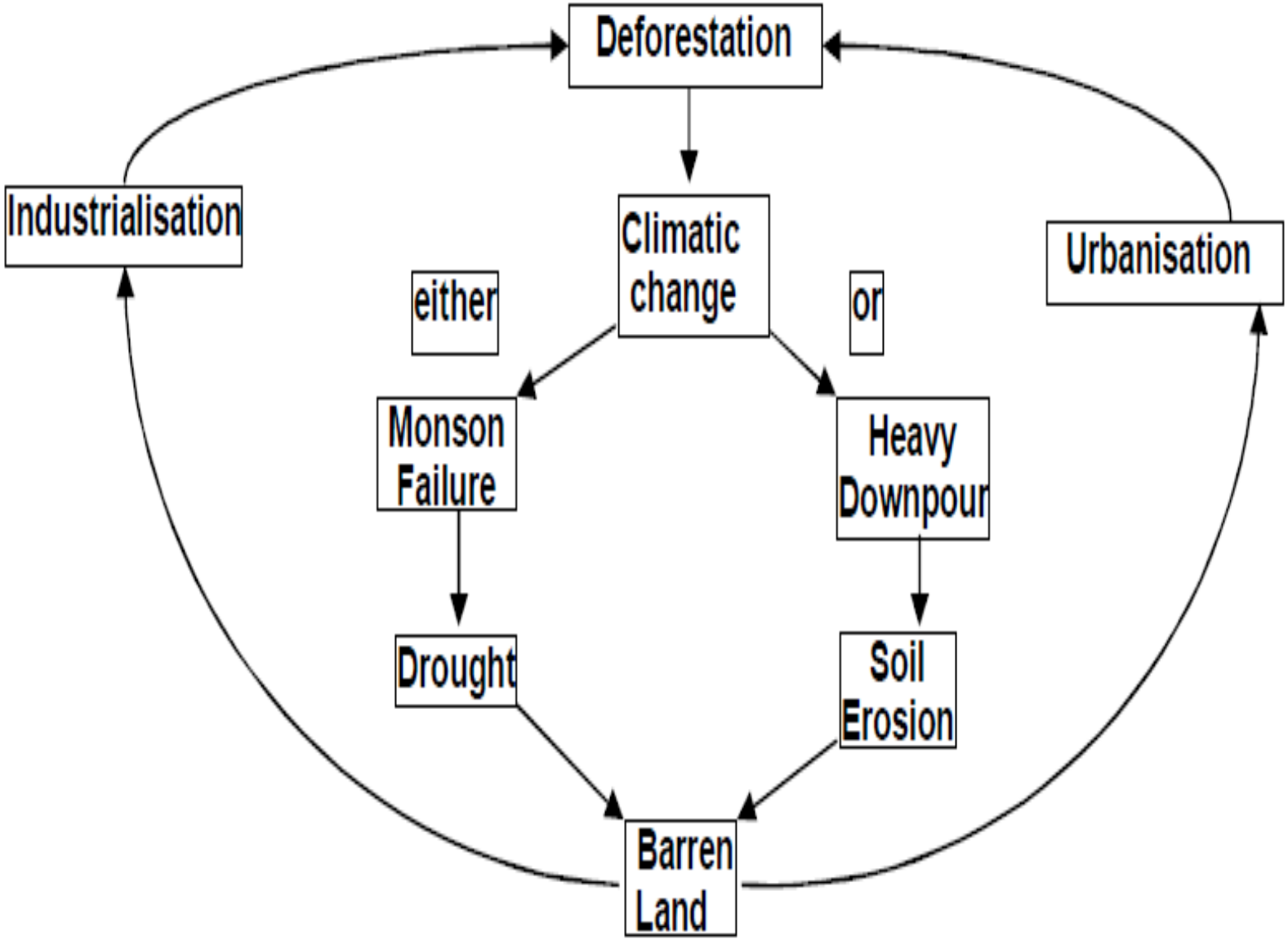
Climate change is any significant long-term change in the expected patterns of average weather of a region (or the whole Earth) over a significant period of time. It is about abnormal variations to the climate, and the effects of these variations on other parts of the earth. These changes may take tens, hundreds or perhaps millions of years. But increased anthropogenic activities such as industrialization, urbanization, deforestation, agriculture, change in land use pattern etc. lead to emission of greenhouse gases due to which the rate of climate change is much faster.

Effects of Climate Change

The major impacts of climate change will be on rain fed or un-irrigated crops, which are cultivated on nearly 60 percent of cropland. A temperature rise by 0.5oC in winter temperature is projected to reduce rain fed wheat yield by 0.45 tonnes per hectare. Possibly there might be some improvement in yields of chickpeas, rabi maize, sorghum and millets and coconut on the west coast and less loss in potatoes, mustard and vegetables in north-western India due to reduced frost damage. Increased droughts and floods are likely to increase production variability.

The vicious circle of climatic change.

Flow Diagram of the vicious circle of climatic change



SUICIDE BY FARMERS

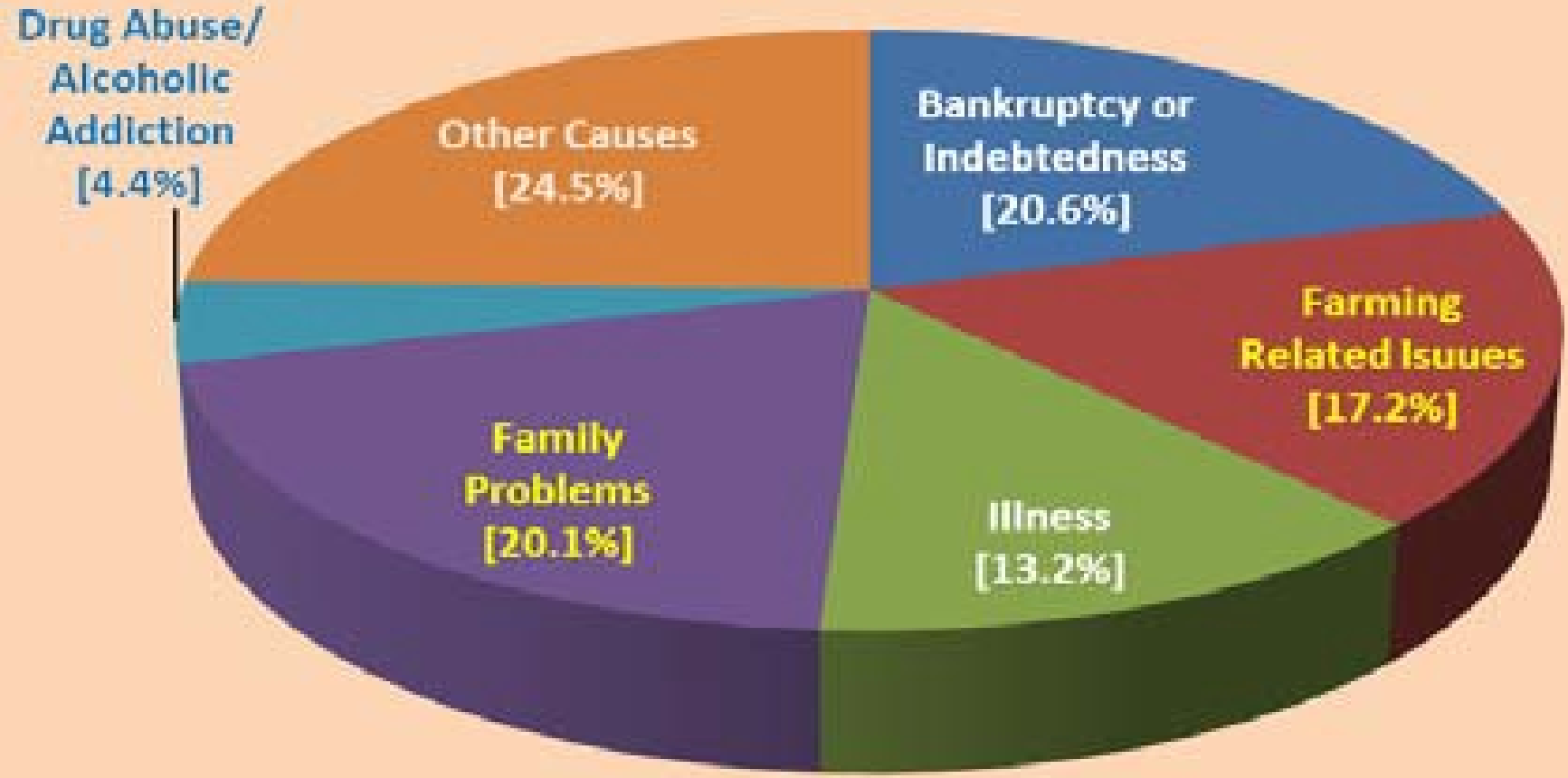
There is a wide array of factors that has led to the increasing spate of farmer suicides in India. The lands are not as productive as before, the markets are failing, the debts are piling up, and the pests cannot be kept at bay. Since the 1990s, farmer suicides in India have made headlines. The high number was first noticed in the state of Maharashtra and then the media began reporting it happening in other parts of India.

WHY SHOULD WE TALK ABOUT FARMERS' SUICIDES

Agriculture sector has a pivotal role in Indian economy. The share of agriculture sector in G.D.P. of India was 44.0% during 1973-74 . Agriculture provides the principal means of livelihood for over 60 percent of India's population. In Indian planning agriculture is sector ignored except in a few five years plan.

Nowadays the problem of farmers' suicides is one of the vital concerns that need to be addressed by the Government. Considering the paramount importance of this issue, the NCRB, for the first time, has collected detailed data on farmers' suicides.

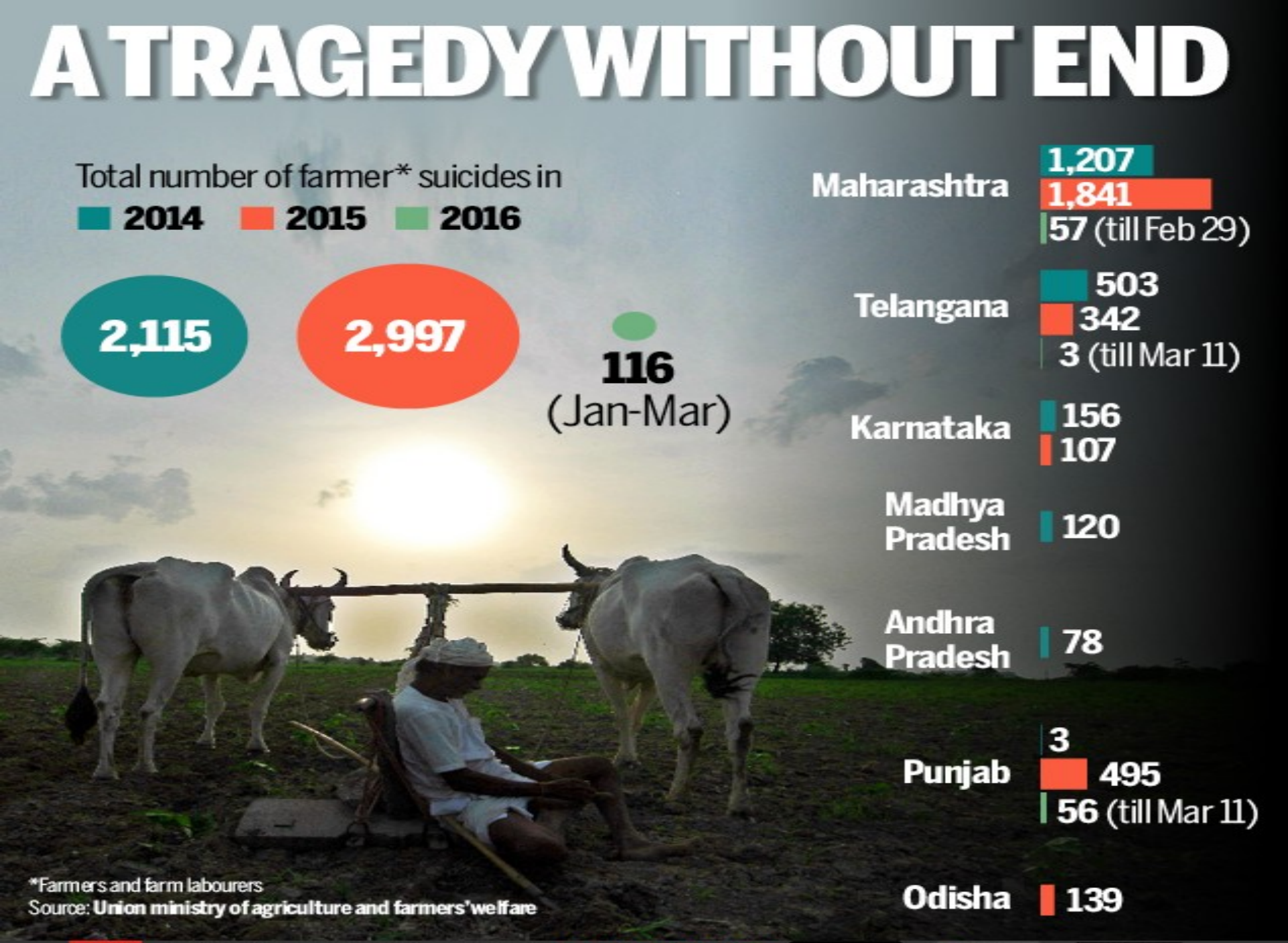
'Bankruptcy or Indebtedness' and 'Family Problems' are major causes of suicides, accounting for 20.6% and 20.1% respectively of total farmers' suicides during 2014. The other prominent causes of farmers' suicides were 'Failure of Crop' (16.8%), 'Illness' (13.2%) and 'Drug Abuse/Alcoholic Addiction' (4.9%).


Drug Abuse/ Alcoholic Addiction [4.4%]
Other Causes [24.5%]
Bankruptcy or Indebtedness [20.6%]
Farming Related Isuues [17.2%]
Illness [13.2%]
Family Problems [20.1%]

FARMERS' SUICIDE STATISTICS

- On an average 38 farmers commit suicide everyday in India, one Indian farmer commits suicide every 32 minutes between 1997 and 2005 and since 2012, this has become one suicide every 30 minutes.
- • 1803 women farmers committed suicide in 2012.
- • 13754 farmers committed suicide in the country in 2012.
- • Almost 75 per cent of farmer suicides have occurred amongst the small and medium farmers.

A TRAGEDY WITHOUT END



In the 20 years since the Indian government first started keeping track of farmer suicides, about 300,000 farmers have ended their own lives. According to the 2011 census, the suicide rate for farmers is 47 percent higher than the national average.

GOVERNMENT SCHEMES

M.S.P

GOVERNMENT HANDLING OF THE ISSUE

1> MSP, overall agricultural strategy of the country, PDS, storage/granaries, lack of export market creation.

2> India lacks the required number of storage facilities

3> Exports in agricultural sector are also not very encouraging

4> The Minimum Support Prices (MSP) offered by the Government

SOLUTIONS

- **Consolidation of village lands and cooperative farming will ease the burden of fragmented land holdings.**
- **Banks too will be willing to lend money**
- **The overall risk of a crop failure is less in this case –planned strategy**
- **Agricultural credit and farm mechanization for small and marginal farmers**
- **Irrigation problems can be addressed by Government – force**

- **When proper techniques --water**
- **Irrigation problems as well as problems due to single/traditional crop dependence --national level planning**
- **Seed problems –in house**
- **Scientific research –to boost the yields**
- **Sometimes small innovations at the grass root levels can solve a host of problems—knowledge sharing**

- **Some sustainability solutions are proper crop management on the basis of water availability,**
- **For organic farming**
- **Storage facilities can be boosted**
- **A 700 ton cold storage cum warehouse will cost around Rs. 1.5 crores –reasonable for village**
- **At the National level an agricultural strategy or policy**
- **Proper management of PDS**
- **Food wastage –in national**

GOVERNMENT SCHEMES'

1--M kisan **http://mkisan.gov.in/**

Gives the power of mobile to farmers to information /advisories as per his or her preference in text or voice

2—Soil Health **http://soilhealth.dac.gov.in/**

Government takes samples to laboratory to analyze

3—Pradhan mantri bima yojna
http://agri-insurance.gov.in/

4—Gramin Bhandaran Yojna

Main objectives of scheme include creation of scientific storage capacity with allied facilities in rural areas to meet out various requirements of farmers for storing farm produce, processed farm produce, agricultural inputs, etc., and prevention of distress sale by creating the facility of pledge loan and marketing credit.


THANK YOU…!