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1. Agriculture Sector in Budget 2017 2018:

Agriculture is a unique business that aims to create a food production, processing and distribution system that is, in all stages, economically viable, socially just, and ecologically sound. This confines farmers to subsistence livelihoods. India's small farmers face proportionally the steepest transaction costs if they wish to participate in modern food supply chains. Poor transportation, storage and communication infrastructure, no access to land, information and expertise, political risk and limited access to financing, which is rooted in the lack of collateral, all add to costs.

a) CREDIT

- 1.1 Target for agricultural credit is Rs. 10 lakh crore
- 1.2 Rs. 9000 crore for Fasal Bima Yojana for target of 40% for 2017-18, and 50% for 2018-19.
- 1.3 100% coverage of all 648 Krishi Vigyan Kendra as mini labs for soil testing.
- 1.4 Interest waiver for 60 days announced on 31.12.2016

b) IRRIGATION AND DAIRY

- 1.5 Micro Irrigation Fund of Rs. 5,000 crore in NABARD for 'per drop more crop'.
- 1.6 NABARD's Infrastructure Development Fund for Dairy Processing started with Rs. 2,000 crore. To be Rs. 8000 crore over three years.

c) MARKETING

- 1.7 National Agricultural Market (e NAM) : Maximum Rs. 75 lakh for every NAM. Number of APMCs to be increased from existing 250 to 585 APMCs.
- 1.8 A model law on contract farming being prepared for circulation.

2. RURAL POPULATION

- 2.1 1 crore households to be brought out of poverty in 50,000 gram panchayats by 2019
- 2.2 MGNREGA target for 10 lakh farm ponds by March 2018 is to be achieved through 5 lakh farm ponds in 2017-2018, in addition to 5 lakh already created by March 2017. Women participation has increased from 48% to 55%, and allocation is Rs 48,000 crore for 2017-18

3. OTHER PROBLEMS

- a) **Liberalise input markets:** Of the 140 million hectares of cultivated land nearly 120 million hectares are degraded. Soil health cards will

not lead to precision agriculture unless fertiliser, machinery and seed markets are willing to deliver the right input at the right time and the right price to the farmer. Mechanisation gets 3% of farm credit. A regulated electronic repository can digitally maintain records of stored physical crops. Asking financial institutions to lend against these electronic records should be the next logical step.

- b) **Don't mix producer and consumer policies:** No sector can survive the kind of political risk that farmers face. Farmers themselves contribute 80% of the capital invested in agriculture. Midway government coercively 'corrects' prices to protect consumers. Consumers should certainly be protected from food inflation. But not through measures that ultimately ruin rural livelihoods.
 - c) **Provide access to efficient and assured markets:** The market is efficient when farmers earn more and consumers pay less. Exchange platforms and other electronic markets are designed to enhance competition by connecting the largest number of buyers and sellers in the most cost effective, transparent and regulated way. Farmer groups must be assisted to use them. Farmers also need a reliable safety net. Unlike other sectors, agricultural markets don't self correct. Farmers face long periods of low prices interspersed with flashes of high prices.
 - d) Government **procurement is dysfunctional** as pulse farmers discovered last summer. Food ministry data shows that for wheat and rice, the maximum procurement centres are in Bihar, where purchase is negligible. Instead, market based tools should be deployed to include more crops and farmers.
4. **The model Agricultural Produce Market Committee (APMC) Act** has proposed **direct purchase from farmers** by private players, direct sale by farmers to consumers, single trader licence, single point levy of taxes and getting fruits and vegetables out of mandi laws.

4.1 Notification of the APMC Act by States will facilitate entry of private companies that is expected to provide higher returns for

farmers. They will also benefit from the ongoing interest subvention scheme for farmers. About 21 crops are still NOT included in the minimum support price (MSP). MSP is a form of market intervention by the government to insure agricultural producers against any sharp fall in farm prices, after a bumper crop or glut in the market.

4.2 The government is planning to incentivise states that implement agricultural reforms mooted by the Centre as part of its efforts to help agriculture register over 6% growth. The incentives, which would include price insurance for some crops and higher interest subventions among others, will also pave the way for private players to enter the sector.

5. [Agritech start ups](#) to help farmers through technology:

Growth Seeds

Agritech start-ups building image recognition tech to help farmers fight pest problems and diseases affecting crops

Some players like Agrostar carrying out pilot programmes in Gujarat

Others like RML AgTech have farmers already using their tech feature to deal with crop problems

Co plans to target cotton and groundnut crops

10 lakh farmers using services offered by Agrostar's platform

12 lakh farmers using RML Agtech's app to tackle problems with tomato crops

The infographic features a central illustration of a hand holding a small green seedling. To the left, there is a small image of a plant with roots and leaves. To the right, there is a small image of a hand holding a smartphone. The background is a light green color with a dark green border at the bottom.

6. **The two root causes of Farmers' problems are that they have no direct access to market failure, and that crops are failing repeatedly due to climate change.** These problems need to be addressed for sustainable agricultural growth. Unlike manufacturing and services, agricultural markets do not correct the balance between demand and supply automatically. As no farmer can stop production, overall production capacity remains the same. While high prices result in higher acreage, low prices don't correct supply in the short term. What are the safety instruments that will allow the most efficient farmers to cover their costs of production ?
- 6.1 In periods of distress, there is need to generate demand and ensure that farmers have sufficient capital to keep themselves going till the next crop. As in 2017, there is neither any policy that could generate demand, nor is there any safety net to ensure sufficient capital with small and medium farmers.
 - 6.2 Year-on-year wholesale food inflation measured by the wholesale price index plummeted to 1.54% in November 2016, the lowest since September 2015, due to cheaper rice, pulses, fruit and vegetables (particularly onion), oilseeds and vegetable oils. Retail food prices rose 1.93% in March, slower than a 2.01% annual increase in February. Vegetable prices have fallen for the seventh straight month.
 - 6.3 The bumper crops of pulses, potatoes and onions bring down prices due to shortage of warehousing. In storable crops, such as potato, oilseeds, spices and grains, the overhang of excess supply gets further prolonged
7. **The Long Term Irrigation Fund (LTIF) :** Small and fragmented farms means that the ability of farmers to come together and create large scale irrigation infrastructure is low. Under these circumstances, it is necessary for the government to step in to augment financial and organising ability. LTIF has been instituted in the NABARD as part of the Pradhan Mantri Krishi Sinchayee Yojana.

8. **Coping with irregular rain patterns:** Overall, rainfall patterns have become more irregular over the last decade. Extreme rainfall events in central India, the core of the monsoon system, are increasing. Although most winter crops, particularly wheat, are largely irrigated, northeast monsoon and winter rains are crucial for rice, maize and pulses in the south. Small and marginal farmers need to invest in climate smart growing practices for sustainable agriculture, and buy insurance. Few have capital or the incentive to invest. Rural income from infrastructure projects, factories and construction is stagnant. Keeping food inflation low is good for consumers but it keeps the nine million farmers in debt. India's farm price and income problem is not unique. Other nations use direct payments, revenue insurance, buffer stocking and loan deficiency payments to tide over.
9. **Small Farmers' Indebtedness:** According to the National Sample Survey Office Situational Assessment Survey, 2013 the average farm household in Uttar Pradesh earns Rs. 4,923 a month and spends Rs. 6,230. Money lenders, not banks, finance it. Bihar and West Bengal families are equally in dire straits.

Farmers have been forced to subsidise consumers for too long. Agrarian distress is the direct outcome. Agriculture needs a new intellectual paradigm that empowers farmers to cope with the inevitable long periods of demand supply mismatch by freeing them to maximise profits in the good years. Farmers don't need subsidies, they need capital. For that, price and freedom to produce is needed. Reducing the overall cultivation and marketing costs through better market access will cut losses

(Source: Recast from article 'Farmers Need Freedom' Nidhi Nath Srinivas Apr 14 2017 : The Economic Times (Delhi)

10. Use of technology for agriculture : Agri and Food processing:

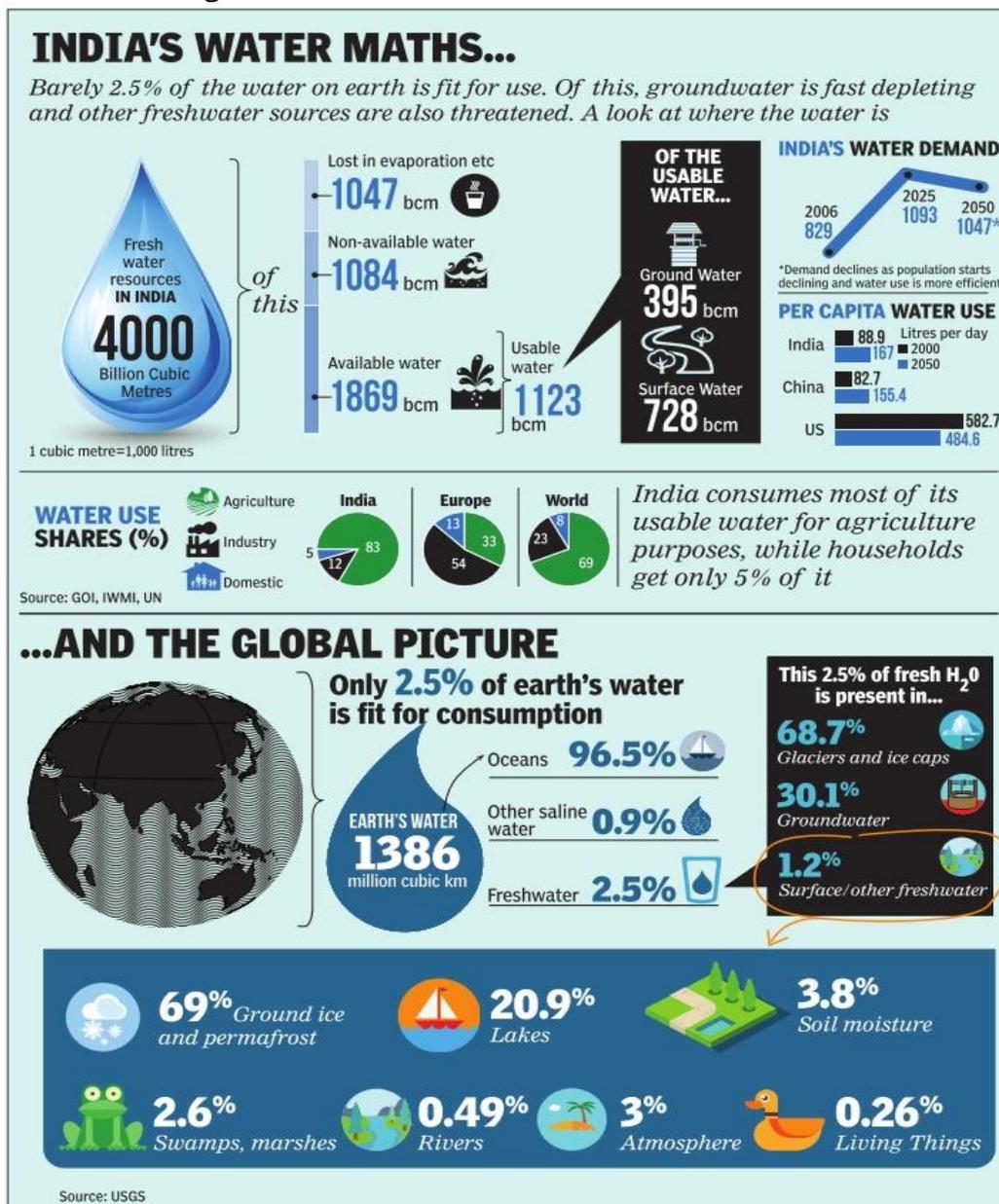
10.1 Government plans to double farmers' income. Use of technology to impart information (soil cards) being replaced with imparting knowledge.

10.2 Agriculture viewed as food security in the past was allowed to operate in isolation. Now the need to find market for agriculture through food processing has been given priority.

10.3 Movement of farmer from grains to horticulture.

10.4 Market of agricultural produce no longer dependent on government.

11. Water usage in India in 2017



12. Farmers' agitation in June 2017 and loan waivers :

- a) 86% of land holdings are less than 2 hectares or 4.94 acres.
- b) Informal sources of credit are more than 40% of loans.
- c) Employs 53% of workforce and contributes 17.5 % to GDP as per 2015 2016 data.
- d) In 2015 16 India produced 252 million tonnes of food grains.

Growth:

- e) Agriculture growth has been 8.6% in 2010 to minus 0.2% in 2014
- f) Annual growth needs to be 2% to meet the estimated demand of 300 million by 2025.
- g) India is the 2nd highest producer of paddy in the world, though its yield per acre is much less.

Imports and Exports:

- h) Agriculture's share in imports increased from 28% in 1990 91 to 42% in 2014-15. Imports pulses, edible oils, fresh fruits, cashew nuts.
- i) Exports reduce from 18.5% to 12.5% in the same period. Exports rice, cotton, spices, sugar.

16. The current problems of farmers largely relate to:

- a) the monsoon,
- b) market,
- c) procurement,
- d) pricing and
- e) Import export policies.
- f) The way forward lies in orienting technology, farmers' participation and public policy.

The Amul way Process or Perish

- g) **Reducing the perishable component and exponentially increasing the processing part can prevent a price crash due to a bumper crop** The daily milk collection of Amul is 180 lakh litres and around 36 lakh farmers benefit from it. In 2009-10 the daily milk collection was barely 90 lakh litres. In a short period, the milk collection has recorded a 100% jump. India has become the largest milk producer in the world. Almost 50% of the milk is processed as ghee, butter, curd, cheese etc. These processed products have international markets.

Due to lack of proper storage, almost 18% of fruits and vegetables perish every year in India; only 2% of fruits and vegetables are processed

A Way Forward

A Bengaluru-based company called Pace Wisdom, along with UK company Sat Sure, is carrying out a pilot project in Andhra Pradesh's Srikakulam district at the behest of Chief Minister N Chandrababu Naidu to apply technology to help farmers and the government predict actual crop production, soil fertility and soil nutrient requirements. The company is also in touch with the Gujarat government to try out a similar experiment there.

Pace Wisdom director Bharath Jatangi told *ET Magazine*:
"Imagine if the government can predict the exact tonnes of production of all crops, tell farmers about fertile and non-fertile lands and insure accordingly so that there would be zero crop loss? We are able to do that by using algorithms that combine satellite imagery with weather and location data and correlate the outputs with economic datasets"

The algorithm helps farmers with details on what to sow, the soil condition, approximate yield in quintals or tonnes. It also helps them understand futures market better and monitor soil nutrients throughout the day and get correct insurance, Jatangi added.

There are many people in the government and bureaucracy who know what they are doing, when they announce loan waiver schemes for farmers .

1. **The smaller issue** is that they are making bad banks, worse. Its immediate impact may be a slight fall in NPAs but it does spoil credit culture and makes all lenders reluctant to lend. The last loan waiver was done in 2008. The farm sector NPAs had fallen from 8% to 3% during 2003-2008. With loan waiver, NPAs of farm sector fell from about 3% to 2% in FY09 and then steadily increased to current 6% as farmers were waiting for some such opportunity. This was despite the fact that in this period, we had by and large good monsoon.

2. **The larger issue** is if the Indian farmer is destined to live in destitution and die in debt?
3. It is a paradox that the Indian farmer, who works hardest, gets subsidy on all key inputs and price support on output, still makes losses. He gets concessional interest rates, free water, power, subsidised diesel, fertiliser, minimum price support and still cannot generate enough income to make his both ends meet. If the crop fails, he obviously has no money. If the crop is good, prices tumble and he is bankrupt again. Many farmers' suicides have been in the wake of abundant crop, making prices crash in commodity pattern of onion, tomato, potato etc to abysmal levels.
4. Loan waiver is a wrong solution. The right solution is to increase our farmer's income in a sustainable way and make it diversified and less vulnerable to monsoons or commodity prices. Some major reforms in agriculture, like land use pattern, river linking projects to provide water to each and every farm, can change farmers' fortunes in an enduring way. Reckless use of tube wells to be curtailed and scientific water management extended. Managing supply chain better with good infrastructure of roads, warehouses, cold storages needs to be given priority.

(Source: Points summarised from an article in The Economic Times Delhi edition 16.06.2017)

Food wastage

Global agriculture is facing new challenges, in terms of climate change, unstable food prices and labour shortage, amid conflicting demand for arable land for producing more food, animal feed and bio fuel, which limit the effectiveness of a purely production-focused strategy. The critical policy imperatives of the day are how to feed a rising global population with shrinking resources such as land, water and labour, and how to increase farmers' income, a goal that sometimes may conflict with producing more.

The Food and Agriculture Organisation (FAO) estimates show that globally, **one third of all food produced is wasted** from farm to fork. Food loss and waste is responsible for 8% of global greenhouse gas emissions -six times more than the global aviation sector. While one in nine people remain malnourished worldwide, we use land equal to the size of China to grow food that is lost or thrown away. At \$940 billion annually, food loss and waste is more than the entire GDP of Indonesia. In reality, we already produce enough food to feed 10 billion people, the projected population by 2050.

15. **A slowdown in agriculture sector credit.** August 2017.

