

Towards *Real* Food Security for India

India at a crucial juncture

Dr MS Swaminathan, the learned agricultural scientist, reiterated the need for Food Security before his departure from Copenhagen after the Meet on climate change. He pointed out China's production of 500 million tons a year, the quantity India would need by the year 2030, when it will cross Chinese population at 1.4 billion, but currently producing less than half, 215 million tons per year, averaging last three years. China achieved this with less cultivable or arable land area than India ! With the population density of India reaching three times that of China by 2040, India's problems are more complex to solve; and we are at an unenviable situation of not having addressed most critical situations threatening our survival near-future. This statement is more realistic than pessimistic, as looking the other way, the problems do not vanish! In 1964, paddy yield of China and India were 1.86 and 1.03 Tons/acre and in 2004 Chinese production ramped up to 4.39 and India scrawled-up to 1.9 Tons/acre. The reasons are not too far to seek. The Indian farmer's cultivation business is uneconomical as their small holdings are over- manned disguising unemployment on one hand and under-nourished grain fields **which have not received adequate water, at the right time, in its critical growth stage .**

Our task to achieve the same 500 million tons will be mammoth under the present conditions as our average yield is less than 2 Tons per acre. The average land-holding in India, China and even Japan are not too different. It is not the fertilizer either. Indian grain production per ton of fertilizer use has come down from 66 in 1970 to 11 Tons using 18 MT of fertilizer in 2004; are we eating grains generously doped with fertilizer? Surprisingly the US used only 20MT to produce 386MT of food grains in 2004. China now already creating Non-fertilizer Counties with reuse of (animal and house) organic waste; biogas to substitute 37% of energy demand and reduce fertilizer demand by 50%. The total water used for irrigation is being reduced from 85% to 65% with water saving methods in China whose spending on Agriculture has increased by 20% to 121 billion Yuan(15B\$). After 5 years of bumper harvest, it keeps steady at 500MT. The excreta of India's worlds largest population of 250 million cattle represents a Hugh methane energy resource, totally untapped.

Grain storage, distribution, consumption and yield

China has a Dual Grain Reserve by the Government and its farmers. 200 million house holds have an average of 1.6 acres each. The Food corporation of India's management of 70 million tons of food grain has dismal records, even among developing countries. To an RTI inquiry in mid-2008, FCI gave a wastage figure of 0.710 Million Tons in a decade, up to 2007; this is excellent if true; even for this figure, there was a big hue and cry in the press.

While China with far advanced storage facilities and proper auditing admits losses up to 15% , the FCI admitted only the above. Whom are we cheating except ourselves? Most revealing are many reports from other sources on the FCI losses anywhere from 25 to 35%. Gail Omvedt (2007) points to nearly 20 million tons, which equals the yearly produce of Australia, go waste during transportation and storage. One-third of our total production is stored and again one-third of this goes waste in FCI storage. This loss of grain represents 1.8 Million Tons of fertilizer and 20 Billion Cubic Meters(BCM) of Water. By FCI's own admission, the losses due to transportation is more than in storage; significant pilferage during transportation is obvious. Sale of rotten grains after 5 to 8 years of storage by FCI is not uncommon. The Distribution scenario is even worse. The PDS justifies its existence in terms of providing "food security," but a survey by the NCAER reveals disturbing facts: About 40 per cent of the PDS off take is in the cities. Less than a third of the rural households (1994) used the PDS and these got less than a 25% of their requirement of food grains from it. Landless wage earners got only 26 percent of their grain requirements from the PDS. More shocking are the results on "poverty groups" using PDS; 30% poorer households below the poverty line and 37% above it use the PDS. These figures, for the immediate past, are not too far from the above. Why would not there be hunger and malnutrition with such skewed distribution? In Dec 2009, the FCI Chief declared a stock of 43 MT and a procurement target of 26 MT and 'assured' food security for the Nation, announcing while laying the foundation stone for a 14.37 Crore Chennai multi-storied regional office. **Community storage complexes suggested by Ojha (1984) should be implemented vigorously. Dr Swaminathan, pointing to our having a dubious distinction of being a nation with the largest number of hungry persons in the world, has been strongly advocating that the universal PDS system should be backed by a national grid of ultra-modern grain storage facilities. Political will in China, and even in Chile and Brazil have nearly eliminated or minimized hungry people in their countries. The lack of political will is in India evident as repeated suggestions and appeals of such an eminent scientist have fallen into deaf ears. Where are the politicians who are genuinely interested and involved in agriculture like Dr C Subramaniam, who played a pivotal role in Green revolution at a time the infrastructure was practically missing?**

The per capita yearly grain consumption of 144kgs for an Indian Compared to 300Kgs for a Chinese reveals loudly the reason for Chinese on top and India at the bottom of the Olympic Medal Talley! While the millions of tons food is rotting, 63% of Indian children go to bed on empty stomach. The growing young Indian working population will be 63% in 2022 equaling China. Is it a boon or a bane, if they do not find employment? Where as, the working hands in China's ageing population will decline to 53%. Further, India's population will exceed China by 7 billion in 2040, at 1.52 Billion. With only one-third of the land size, Indian population density is a formidable 2.5 times that of China. With over 60% of cultivated land depending on the rain and the remaining on poor irrigation systems(not delivering sufficient quantity at the right time), it is indeed no surprise that India continues to produce less than 2 Tons acre. We have the land, farmers and the fertilizers but not the vital input -Water! Rain-fed fields achieve only 0.6 Tons/acre with attainable yield of 1.8 or Three times! *The above figures and facts go to show that we need WATER at the right place at he right time in sufficient quantities to achieve FOOD SECURITY.*

The truth table - Population, Land, irrigation and yield

Parameter	CHINA	INDIA	Ratio India/China
Population –Billion	1.325	1.14	86 %
Land Area – Million Sq.Km	9.6	3.2	33 %
Population Density- Persons/Sq.Km	138	356	2.6 Times
Arable land – Million Sq.Km	1.385	1.451	105%
Arable land(% of Land area)	15%	45%	3 Times
Average yield-Tons/acre 2004(1964)	4.39(1.86)	1.9(1.03)	43%
Fertilizer Usage-MT 2004(1970)	42(4)	18(1)	43%
Food Storage(million tons) / Loss %	180 / 12%	70 / 25%	39%/ 208%
Area under irrigation (water-saving methods)	80% (20%)	40% (2%)	50% (10%)
Population involved in Agriculture	47%	67%	
Grains consumed/person/year(Kgs)	300	144	48%
Population in 2030 – Billion	1.4	1.4	100%
Population in 2040 – Billion	1.45	1.52	105%

Need for serious look at Schemes to capture Water going into the Sea

Of all the social and national crisis, Water crisis is the one that lies in the heart of our survival and that of the Planet stated the UN report at the Kyoto World Water Forum in 2003. Seshasayee, past Chairman CII, pointed out that Water does not figure as a Resource in the India's 11th Development plan for 2007-12. While the Indian farmers from 86MHa are looking up the sky for the Rain God, it rains copiously elsewhere and 60% of water drains away to the Sea as excess flow from the rivers. Inter Basin Water Transfer proposal linking rivers North to South (often wrongly referred to as 'Inter Linking of Rivers') of NWDA, an Agency under Ministry of Water Resources, has not taken-off after 30 years and 300 Crores expenditure as most States have not agreed to their proposed Scheme. This disaccord has come about due to dozens of short-comings, Technical, Economical and Social; some of these include unwillingness of the States to agree on the quantum of excess water from a river in the State to be diverted one-way to another basin, not sure of getting compensated from a basin up north, from another State. The proposal contains over 100 dams, a potential threat of submergence of land and displacement of a large population.

NWDA's proposal requires funding from GOI for execution as it has a very weak revenue model. The power generation from this Scheme is minimal and even this has been questioned by the Central Water Commission. Even assuming the possible quantum of generation, 90% of it is from Eastern India, to be transmitted through the Goose-neck, highly vulnerable especially now, as the threat from China is just not ominous but real.

Working towards Water availability for food security

Sri Rahul Gandhi followed by Messers Jairam Ramesh and Montek Singh making unsubstantiated statements that Inter-linking of Rivers is detrimental to environment will put the indispensable plans for harvesting and impounding Water in the back-burner or even into cold Storage. Unfortunately they have been misguided by the 'experts' to whom they lent their ears. This situation will certainly threaten our Food security. There are only piece-meal solutions to harness Water in the 11th Plan. The Government has not been transparent in its River linking proposal and was forced to put details on a website after a Supreme Court directive; often, the contents of website have been hardly convincing. Nor was the Govt. open and receptive to examine Alternative proposals, despite NWDA's Scheme not having taken off since two decades. Proposals, made since six years, for Networking Rivers with elevated canals, despite having innumerable advantages were not given recognition even for a preliminary Study. **This concept was endorsed by Dr Abdul Kalam as good and worth pursuing. The elevated canals Scheme crossing nearly all the Indian rivers is nothing but a Rain Water Harvesting System at the National level. It not only provides for true networking of rivers but also inter-linking reservoirs! And most importantly, there are no dams. Significant power generation is possible under this scheme and is a strong revenue model. Therefore Scheme can be implemented under Public-Private-Partnership.**

The Parliamentary Standing Committee for Water Resources, after hearing depositions on Alternatives made their reports which were shelved, even as the NWDA proposal did not find takers for more than two decades! When Plan-A fails to take-off should they not consider Plan-B for such an important issue like Water, the elixir of Life? Mammoth problems have to be tackled at the Macro-level with absolute focus, determination and consistency. Otherwise the Indian truck will not come out of its deep ditch. NWDA, with their proposals having quite many shortcomings blame the States for non-cooperation, a stalemate going on for two decades. The PIL in the Supreme Court, with 25 adjournments seem to be of no consequence.

The current scenario of Water use is dismal. More than 50% of the irrigated land is fed by sucking up ground water. A recent study (of GPRI, Hyderabad and Univ. of Colorado, Sept.2009) revealed shocking scenario from Satellite data: Pumping across north India, the belt from Delhi to Bengal is the highest in the world with 54 trillion litres every year; this mind boggling figure contributes to 5% of total rise in sea level. The average depletion of ground water in this region is an alarming 10cm per year; the ground water not replenished is 25 trillion litres every year. The study predicts significant climate change in terms of extreme weather events like heavy spells of rain which do not recharge ground water. Another disturbing satellite study published in *Nature Geoscience* shows that 24 out of 33 deltas in the world are sinking and many are in India. Deltas sinking relative to the sea level are prone to flooding; even more so with global sea level rise. With no sediment deposition, Krishna delta is flooded. Delivery of vital sediments are reduced or totally eliminated in most of these deltas with the construction of dams and compaction of delta sediments through water extraction, reveals the study. **Hence there is an imperative need to reduce ground water exploitation as well as avoid construction of Dams.**

Putting Public Interest ahead of all other factors for Food security

With the above dismal Situation, the immediate need to find and implement the solution for Water need not be overemphasized. If the government is serious about solving the imminent Water crisis, it should take a sincere look at the proposed alternatives and invoke the provision of Entry 56 which reads 'Water' is basically a State subject and the Union comes in only in the case of inter- state river waters. List II of the Seventh Schedule, dealing with subjects regarding which states have jurisdiction, has the following as Entry 17 : "Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of Entry 56 of List I Entry 56 of List I (Union list), reads as follows: "Regulation and development of inter- state rivers and river valleys to the extent to which such regulation and development under the control of the Union, is declared by Parliament by law to be expedient in the public interest". It is beyond any doubt, that the GOI should invoke Entry 56 in public interest, as Water Crisis will be full blown, before long.

Food Security can come about only with sufficient water available for irrigation. We cannot plan for the Food Output, sans having plans for the vital Input, which is Water. The good news is that India has sufficient rain fall which has to be properly distributed.

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