

Bilateral Cooperation between USA and India: Cold-chain & Agriculture.

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The US Secretary of State, Mr. John Kerry is expected in Delhi in June 2013, to co-chair the fourth round of India-US strategic dialogue. His counterpart from India is our minister of external affairs Mr. Salman Khurshid. This interaction focuses on bilateral cooperation and partnerships between the two countries.

Bilateral Cooperation between India and USA is stated to target five principal pillars:

- strategic cooperation;
- energy and climate change;
- education and development;
- economics, trade and agriculture;
- science and technology, health and innovation.

Any “**Bilateral Cooperation in Cold-chain and PHM (Post Harvest Management)**” would automatically meld quite a few of these topics. This is inherently obvious as unlike most other logistics activities, cold-chain requires an extended & more involved chain of custody, has a higher energy usage, can impact the environment through poor use of refrigerants while countering vagaries in temperature, requires more involved domain & product knowledge and uses a much higher level of technology. Cold-chain has a direct impact on food security as we project demand into the coming decades. It is evident as one the major success factors with India eradicating polio and cold-chain is necessitated in continuance of the growth in the pharmaceutical and life sciences sectors.

In the processed food and health sector, we have branded products which imply ownership on the product and impresses upon the trade to develop protocols and the tools to service them. Given the size of the country and the scope of the market, these established users of the cold-chain are still middling in their growth path due to lack of reach to all parts of the country. Here in these two aspects, furthering growth and developing fresh trade; lays the business opportunity for all stake holders; here is opportunity for furthering bilateral cooperation that will be beneficial all parties.

Bilateral cooperation between countries eventually must naturally translate into mutually beneficial partnerships between commercial enterprises. Cold-chain is one such industry sector that evidences long term and sustained demand, which requires technically robust infrastructure, equipment suppliers and not the least, well networked logistics and producer sellers.

To advance the bilateral cooperation between India and USA, some specific application based scenarios are proposed below. The main theme of this essay is for promoting collaboration with American industries and for modernising of the Indian cold-chain sector. Where and how could this cooperation in cold-chain be established?

A. Scale up investment in cold-chain industry: The projected investment in India cold-chain is estimated at USD 15 billion in coming 5 years. This is expected to increase with growing demand and the Indian government in promoting cold-chain developments, provides a series of fiscal and financial benefits to this sector. This need translates into opportunity in refrigeration, insulation, monitoring tools, refrigerated transport, allied capital goods and services. Most of these necessary technical components are imported, but they can be manufactured in India which will give a further boost to this sector’s development.

There is clear scope to cooperate to promote the setting up of manufacturing plants for cold-chain industrial goods in India by US manufacturers. The advantage to US companies by setting up manufacturing base in India would be the ability to tap into current demand with a shorter lead time and lowered freight & manufacturing costs. Furthermore, these units will also serve as a regional base for export of such goods as similar demand increases with the planned cold-chain developments in neighbouring SAARC, Africa and other regional markets. Special schemes to facilitate such units can be considered between India and US.

- B. Solar Power application and innovation in cold-chain:** India and USA are global leaders in application and the development of alternate/green energy technologies. Application of solar thermal and solar photo-voltaic energy in cold-chain, specifically in off-grid or low-grid rural areas (hybrid systems) is proposed. These can be initiated as pilot projects in selected regions – selection parameters would include high value horticulture in the catchment and associated market linkage with urban zones.

The proposed model would initially manifest as small clusters of solar powered cold rooms, appended with on-grid pre-coolers and manually operated pack-houses. A cluster of such solar powered modules would serve as aggregation hubs and would initiate cold-chain transit to city based marketing & cold distribution hubs as well as to processors.

Such cooperation will lead to the greening of the cold-chain, in line with future trends and will promote a long standing agenda to bring market diversity and improve Farm-to-Market links.

- C. Research on Produce storage and handling protocols:** Most of the research on optimal storage and handling conditions for horticulture produce has ignored India specific cultivars. A joint research cell can be set up for promoting research on produce specific to India.

The research should study and document best practises in terms of safe storage temperatures, ventilation parameters, packaging & modified air packaging norms, and associated shelf life enhancement. This can be undertaken as a joint public service exercise to serve as a knowledge bank for cold-chain industry. While I personally do not see the immediate (largely because our domestic cold-chain has yet to refine to such details), it will serve well for the future and for opening new produce specific opportunities.

- D. Jointly Develop a Centre of Excellence in post-harvest/market linked supply chain:** To enhance bilateral cooperation, both countries can jointly fund and develop a centre for perishables supply chain - that shall conduct market linked research, demonstrate live equipment and/or models promoting the concept of a modern farm to fork cold-chain, build a post-harvest management library for knowledge dissemination, investigate & promote new technologies and best practises in food supply chain (IT, traceability, packaging) and promote energy efficiency for lowered environmental impacts. This can be done through inter-agency participation from both countries.

The work under this centre of excellence should be linked with the new FDA Food Safety Modernisation Act (FSMA) as part of bilateral cooperation and in preparation of the US modernisation agenda for food safety and contamination prevention norms. This centre could also promote investments for implementing targeted produce specific trade with US by deploying special schemes.

E. Refrigerant control in cold-chain: India's cold-chain infrastructure is approximated at 7000 cold stores and an almost equal number in refrigerated transport. Insulated and non-refrigerated trucks are estimated at about 25000 vehicles (largely catering to milk and iced fish transport). These numbers do not account for captive cold rooms and other small cold warehousing utilities. While large industrial cold stores mostly deploy environmentally friendly ammonia as their refrigerant, a significant lot use (HCFCs) hydrochlorofluorocarbons – most commonly HCFC-22 or R-22. This has ozone depleting potential (ODP) and high global warming potential (GWP) effects and India is required to phase out the production and consumption of HCFC (as signatory to the Montreal Protocol) starting with a freeze in 2013, 10% reduction by 2015, to 35% by 2020 and 100% in 2030.

The US has advanced timelines and already commenced the phasing out of HCFC. Intentional venting, non-reporting of leakages or repairs, etc. are not legal in USA. For final phase out, all banned refrigerants need to be collected for safe disposal. US and India can arrive at a bilateral arrangement to assist in the controlled phase out of these gases in the cold-chain.

F. Developing the First Mile: Another important estimation is that these numbers which account for almost 34 million metric tons of capacity are in shortfall of the required 80 million metric tons needed. The final figure may be open to some debate, but a visit to your local cold store will show that the demand-supply gap is phenomenal. The gap is large enough to affect handling norms which impact upon food safety and health guidelines.

India's agri-based cold-chain deployment suffers from not having any significant back end or farm gate infrastructure. While we may have a large storage capacity, these particularly comprise the middle link of the chain. The primary initiator of cold-chain, specifically for perishable produce is non-existent in comparison.

Barring the single commodity cold warehouses, our modern cold stores merely serve as nodal points for processed goods and imports – goods that originate and arrive from within the cold-chain. Our own fresh produce sector has no initiating points (pre-coolers and pack-houses as first mile aggregators) – ergo, with nothing originated, nothing within the cold-chain. This infrastructure that is primary initiator of cold-chain, specifically for perishable produce, needs to be developed if our agriculture sector has to take advantage of this pipeline to market. FDI in retail requires investing 50% of capital spend on such back-end infrastructure.

Plans for bilateral cooperation in developing these first mile centres can be instituted so as to facilitate and align with US companies that wish to take advantage of FDI norms in retail or the 100% FDI norm in cold-chain.

All of above collaboration items are targeted towards developing long term bilateral cooperation with the agenda to promote scientific application and innovation in the agriculture & cold-chain sector; and to develop upon the roadmap of an environmentally conscious and sustainable food chain network.



- All opinions are merely personal takes of the author