DEVELOPMENT OF COLD STORAGE FACILITY IN NER

2000

SUBMITTED BY:

AGRI FINANCE CORPORATION, GUWAHATI

TITLE OF THE STUDY

PRE- INVESTMENT FEASIBILITY STUDY ON DEVELOPMENT OF COLD STORAGE FACILITY IN NORTH EASTERN REGION

EXECUTIVE SUMMARY

1. Augmentation of rural economy is largely dependent upon development of agriculture and agricultural marketing plays and important role in development of the same. Efficiency of agricultural marketing primarily depends upon availability of infrastructure and systems. North East India has been recording poor economic growth rate since independence while there exists vast scope for development in horticulture with integrated approach accommodating cultivation processing and marketing together. Development of horticulture calls for establishment of appropriate post harvest infrastructure specially cold storage, which is virtually not available in N. E. India.

2.In view of the above fact North Eastern Development Finance Corporation Ltd (NEDFi) which is a Developmental Financial Institution (DFI) has commissioned a study to examine feasibility of establishing commercially viable cold storage units in the region through Agricultural Finance Corporation Ltd. (AFC), the premier consultancy organization of the country in the field of agriculture and rural development. It was intended to produce a reliable document based upon the critical analysis of secondary information as well as primary survey data, which can serve as a background document for preparation of bankable projects for cold store venture. The pre-investment feasibility report thus prepared is expected to be useful for entrepreneurs and corporate houses interested to invest in cold store venture, banks and financial institutions, state and central governments and several development agencies in decision making and pursuation of projects with broad objective to develop cold storage facility in the entire N. E. Region of the country.

3.As per the agreed Terms of Reference (ToR) there are two aspects in the study namely (a) Feasibility analysis, (b) Project formulation.

The feasibility analysis consisted of collection and analysis of secondary information in respect of the project area from state governments and other agencies regarding;

i. Agro-climatic situation and micro-climatic variation;

i) Agri-horticultural production scenario including assessment of potentiality and constraint analysis;

ii) Assessment of marketing of agri-horticultural, fishery, animal husbandry produces, processed dairy products etc;

iii) Assessment of availability of alike infrastructure and assessment of present state of affairs;

iv) Studies on consumer markets and consumer distribution systems in respect of perishable consumables;

Secondary information available with state governments and other government agencies were collected. Appropriate survey tools were developed and administered on samples of target populations, selected following stratified random sampling procedure. Suitable statistical methods were adopted to analyse survey data as well as secondary information as it was required for interpretation and drawing infernance.

2. Project formulation consisted of following aspects, namely,

i) Analysis and explanation of scope of cold store venture in the project area based upon the findings of the feasibility study;

ii) Thorough review of technologies for empowering decision making;

iii) Prescription of technical designs both in respect of civil works and mechanical systems;

iv) Identification of potential locations;

v) Prescription of operational and commercial strategy;

vi) Cost analysis both in respect of capital cost, annual operational cost and overhead cost;

vii) Analysis of existing policies of various agencies;

viii) Identification of emerging issues.

3. The project area consists of seven states occupying a total geographical area of 2.55 lakh sq. km located between $22^{0}1^{/}$ and $29^{0}3^{/}$ North Latitude and $89^{0}47^{/}$ and $98^{0}55^{/}$ East Longitude. Largely surrounded by international border. The project area is connected with the respect of the country through a 45 km wide strip sandwitched between Bhutan and Bangladesh. As per 1991 census total population in the area was 31.54 million persons which has projectedly grown to 39.48 million in 2000. Around 80.31% of the total population are rural dweller. Agriculture is the mainstay of the population accommodating 63.50% of the total work force. Unemployment and pseudo-employment rate is quite high. Percentage of unemployed work force ranged between 25.56% to 49.47% depending upon states. Participation of female in the economic activities is very poor. Percentage of female workers to total work force ranged between 37.34% to 21.45% depending upon states. Literacy percentage is in the average order, with highest percentage in Mizoram and lowest in Arunachal Pradesh. Female literacy percentage is marginally lower than the male literacy percentage. Per capita income ranged between Rs. 27,248/- year to Rs. 3416/year. Highest per capita income is in Nagaland and lowest is in Assam.

4. The entire project area falls in Agro-climatic Zone II which has been sub-divided into several sub-zones. The topography of the area varies from mountain to plateaus, foothills to reverine plains with altitude ranging between 100 mt to 8400 mt from MSL. All types of climatic conditions namely, tropical, sub-tropical, temperate and sub-alpine are predominant. In general the project area receives heavy and well distributed rainfall with relatively prolong rainy season. As revealed from the official meteorological data micro-climatic variations in respect of rainfall and temperature are negligible over last 10 years. Huge land resource is lying unutilized, major portion of the cultivable land belong to relatively lower capability class, limiting the scope of grain crop cultivation. Availability of irrigation and drainage facility is very poor which may be the reason of lower extent of land utilization for farming and relatively lower cropping intensity.

5. Logistic and infrastructural facilities namely, road network, railway network and air service are inadequate. Although major parts of the project area are connected with major roads, inadequacy is very evident in respect of rural road. However, few projects are under implementation to improve road network in the project area. Although the service is inadequate, air link is available with most of the major towns in the project area. Railway network needs massive development both in respect of track development and traffic frequency.

Except Meghalaya, power generation in the project area is far below the consumption level resulting into power shortage. Consumption of power in agriculture is negligible, while the same in industrial sector have been showing a declining trend. There is a definite need to improve the power scenario for any sustainable development. However few power projects are under implementation and few are proposed. The scenario is expected to improve with completion of these projects.

6. Despite being single largest economic activity, agriculture in the project area is very unorganized and at subsistence level. Although variations between states are there, common characteristics of agricultural practice are as follows:

i) Low cropping intensity, except in Tripura;

ii) Despite low productivity of grown crops agriculture is largely rice dominated;

iii) Very marginal cultivation of horticultural crops;

iv) Revenue generation per unit land area is very poor indicating poor level of commercialization;

v) Per capita availability of land for agricultural workers is very low indicating high degree of pseudo-employment;

vi) Per capita income of agricultural workers from farming is very low indicating subsistence level of farming.

Relative position of horticulture in agricultural activities is very poor. Although in hill states it is relatively better, the same is far below the expected level. Specialised production of horticultural crops is totally lacking. Wide range of produce with small inventories make it difficult for planning appropriate post harvest infrastructure. A definite reorientation in the primary agri-horticultural production is strongly recommended for sustainable economic development.

7. Agricultural marketing system is very unorganized and under-developed. Market infrastructures are very poor. The marketing system is fully dominated by private tenders and large chain of middlemen. Institutional market functionaries are totally absent despite existence of a number of institutions. Buyers' dominance at the primary stage of marketing is frequently much evidenced, which has been possible due to existence of area and commodity specific monopoly. Pre-harvest sale, and credit linked marketing is very much evidenced. Farmers receive almost a throw away price ranging between 16-28% of a consumer rupee, which psychologically hinders them to go for extensive cultivation and deployment of technical inputs for higher productivity.

8. The project area is a vast consumer market, which instantly absorbs the entire range of perishable consumables produced within the project area except ginger, 80% of which is out flown from the project area. A multitire marketing and distribution system prevails in the area. There are 187 major consumer markets located in urban areas and 255 wholesale markets including 26 regulated markets. Apart from that there are innumerable rural markets, which mainly serve as distribution markets for rural consumers rather than acting as primary agricultural markets. The entire consumer distribution system is managed by private functionaries, which is unparallel and unintervened. Marketing and distribution system of perishable commodities vary from commodity to commodity and to some extent from place to place. Availability of marketing and holding back infrastructure is very poor. There are altogether 26 cold storage units established, under construction or proposed of which only 10 are functional with a total capacity of 22850 MT. Four units with a total capacity of 11500 MT are under construction and five units with total capacity of 11500 proposed shortly additional 9500 MT capacity would be added into the functional category as the same is under commissioning.

9. Survey has revealed that per capita consumption of different perishable commodities does not vary significantly between markets belonging to same category, while significant variations were sometimes observed between markets belonging to different categories. Correlating the per capita consumption of various commodities and projected population of 2000, value of consumer trade has been worked out. The gap between the nutritional demand and the estimated volume of trade is in the range of 192 to 697% in case of fruits, 488 to 1471% in case of vegetables and 80 to 725% in case non-vegetarian protein foods, depending upon states. Per capita availability of fruits, vegetables and non-vegetarian protein food in the project area is lower than the national average by 63%, 75% and 55% respectively. This is despite the fact established by

National Sample Survey that per capita expenditure on food in the project area is 23.5% higher than that of the national average.

10. Studies on the wholesale market revealed that arrival and disposal of commodities at the wholesale market are very strongly correlated, indicating arrival dependent disposal, a characteristic feature of deficit market. Extent of spoilage at the market level is very high ranging between 25.41% to 39.25% in case of fruits, 10.56% to 46.04% in case of vegetables and 28.33% to 45.83% in case of ginger. The spoilage is strongly correlated to the volume of trade and consistent over last 3 years. Apart from the spoilage at market level, case studies have revealed that 30 to 40% of the potential harvest of fruits and vegetables are perished at the field level itself due to non-availability of market linkage in time.

11. Bi-directional price mechanism exists in the project area. Average market price of the project area varies widely based upon the time, commodity and location. This indicates huge seasonal price erosion. Locally produced commodities are more susceptible to price erosion as compared to those brought from outside, which have been hold back at some point outside the project area. Price variation is also evidenced between markets. Average annual price at markets significantly various indicating existence of commodity specific deficit and surplus zones. Thus fairly spread network of cold storage infrastructure with horizontal linkage between than may be profitable.

12. Huge potentiality for horticulture development, existence of vast consumer market, huge gap between demand and supply indicates strong commercial feasibility for establishing cold store venture in the project area. There are several competitive advantages namely,

i) No government restriction

ii) Virtually no competition

iii) Proximity to a number of SAARC countries indicate strong export promise

iv) Generous government incentives may be available

v) There exists strong scope for large scale agri-business venture centering cold storage units, beyond simple cold store business.

13. There are two alternative concepts in cold store business. These are either production oriented upstream infrastructure or market oriented downstream infrastructure. Also there exists option for leasing out on space rental basis or in-house utilization of infrastructure for trading / manufacturing activities. The business concept need to be driven by either production scenario or market scenario. As revealed from the survey, major feasibility exists for market driven down stream cold storage. However, there is need for upstream cold storage

in two locations one each in Assam and Tripura. Crop specific stock points for trading is also necessary for ginger and orange and provided linkage is established with processing industry, for pineapple also. Also there exists feasibility to establish feeder units at relatively remote places linked with major market oriented cold store units.

14. Technological review has been furnished in reasonably details to empower users of the report in selecting proper technology. However, in general ammonia, reciprocating compressor, evaporative condenser, Fish type packaged cooling unit with propeller fans and standard expansion valves have been recommended. Although the architectural layout and civil design should be done after final selection of site, few prototype layout have been furnished in the report. In the project area RCC structure is unavoidable for the area falls in seismic Zone-V.

15. Capital cost of each unit varies from state to state and obviously on size of the unit. Unit capital cost greatly reduces with increase in size. Sharp decline is observed in unit capital cost when the capacity is raised from 500 MT to 100 MT, afterwords gradual decline is observed in unit cost as the capacity is increased in multiple of 500 MT. However, 2500 MT capacity is an un-economic size. Meghalaya shows minimum unit capital cost followed by Arunachal Pradesh. Highest unit capital cost is in Manipur followed by Tripura. Likewise unit cost of operation is altered by the size. Substantial difference in the same is observed between 500 MT and 1000 MT and 2500 MT is found as an un-economic size once again.

16. There exists three alternative model for financial syndication namely,

i) Normal industrial finance;

ii) NCDC sponsored projects;

iii) SFAC sponsored projects.

The interest burden is minimum in case of SFAC sponsored projects. However, in NCDC fold although the interest burden upon beneficiary society is low the same upon state government is very high. Back ended capital subsidy from NHB would be available for all projects. However, specific eligibility conditions need to be fulfilled to obtain assistance from various organisations. Annual overhead cost would primarily depend upon the interest burden and to some extent upon capital cost.

17. Altogether 23 new units have been recommended which include 5 feeder units. Total cost is estimated at Rs. 4718.69 lakhs. Apart from that five existing non-functional units have been recommended for renovation and recommissioning. A provision of Rs. 131.00 lakhs has been recommended for the purpose. Thus total capital involvement would be Rs. 4848.69 lakhs. Since units would be promoted by private / corporate/ cooperative entrepreneurs, and it is not predictable that which promoter would adopt / prefer which model of

financial syndication, sharing of financial responsibility cannot be worked out instantly. However, state governments financial institutes, banks and developmental agencies need to work in a concerted manner for best utilization of available resource for the purpose of development of cold storage facility in the project area.

18. Several issues that are emerging out are as follows:

i) There is a strong need for coordination between various agencies working for development of cold storage facility in the project area;

ii) Unless proper attention is given to transform and reorient horticulture production, farmers of the project area may be deprived of perceived social benefits of the project;

iii) Vertical and horizontal linkage between units is most important for sustainability and additional profitability;

iv) At present the project is centering around trading activities. However, it is necessary to encourage processing activities for further growth of C.S. industry;

v) Units being oriented to trading activities, adequate working capital would be required. Steady supply of the same would be a pre-determinent of the success of the project.

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