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| 31 | Development of Agro-Processing Park | Mahindra Acres Consulting Engineers Ltd., Chennai | 2002 |
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Executive Summary

North Eastern Development Finance Corporation Ltd. (NEDFi) is a public financial institution set up for the development of industry and infrastructure in the North East India.

NEDFi proposes to capitalize on the rich and varied agricultural and horticultural produce of the region. It desires to facilitate creation of infrastructure to provide opportunities for professionally qualified persons to take a career of remunerative self-employment through the organization of environment friendly agricultural and horticultural processing units in the NE region. To give shape to this vision, NEDFi has invited proposal from reputed consultants to carry out a detailed feasibility study to establish Agro Processing Park(s) in the NE Region. NEDFi has commissioned Mahindra Acres Consulting Engineers Ltd. (MACE) for carrying out pre-Investment Feasibility study for setting up Agro-Processing Park(s) in the Northeastern region. The Wider objective of the study would include Economic development of the North Eastern region through generation of direct and indirect employment opportunities, facilitating prospective entrepreneurs to invest in the region. Other immediate objectives include, to examine the techno-economic viability of establishing one or more agro-processing parks in the North Eastern region and to provide basic information to prospective entrepreneurs, investors, financial institutions, Government agencies etc. regarding business opportunities in the Agro-Processing Parks, if found feasible.

AGRO HORTI BASE OF NORTHEASTERN REGION

The Northeastern region is bountifully endowed with bio-diversity, hydro-potential, oil and gas, coal, limestone and forest wealth. It is ideally suited to produce a whole range of plantation crops, spices, fruit and vegetables, flowers and herbs, much of which could be processed and exported to the rest of the country and worldwide. This resource rich region is truly a national asset.

Because of the diversified agro climatic conditions, the topographical and altitudinal variations and the fertile, deep and well-drained soil of the region, it is possible to cultivate a large variety of fruits, vegetables and spices here. Moreover, change in crop patterns in the hill slopes present an enormous scope for the growth of the agro and fruit processing industry in the region.

Each state has vast possibilities for growing a range of fruit and vegetables, tuber crops, tapioca and spices. Assam accounts for 50 to 60% of the total land under non-food crop in the North Eastern states and for about 70% of such crop produced in the region. Mizoram is well placed to produce passion fruit. This region is home to certain citrus and rice strains and is yet to be completely mapped for the full range of its bio-diversity. Productivity could also be greatly improved in the case of citrus, pineapple, banana and other varieties through tissue culture and the development of breeder seed farms. The same logic holds good for Vegetables also. Ratoon crops like banana can be replaced by more productive and disease free annuals. The yield of vegetable and tuber crop is highest in Assam, closely followed by Tripura. Assam and Meghalaya also have a good potential for fruit crops. However, since the percentage of area under non-food crops is very low in all the North Eastern states, the production and yield figures may improve substantially if more area is brought under production of non-food crops.

Other plantation and spice crops like ginger, turmeric, coffee, cashew, large cardamom, pepper, areca nut, jackfruit, lemon grass, citronella and a host of highly valuable herbs and medicinal plants, orchids and a whole range of flowers can also be developed in this region.

The Northeastern region has a rich potential for floriculture and the region accounts for about 50 percent of the total flora found in the country. The Northeastern region should also focus on floriculture development, a large export potential opportunity sector.

Agriculture, Horticulture and forestry are the bedrock on which the socio-economic development of the region needs to be built up. Despite its good factor endowments, the Northeastern region is sadly deficient in its food supply, importing grain, oilseeds, sugar, meat, fish and eggs apart from other civil supplies from distant parts of the country. The region is heavily dependent on imports and the import bill on this count would probably be in the range of Rs.2500 crores per annum. The North East region's economy can generate a surplus and it must be the object of policy to ensure that it is enabled to reach its true farm potential within a decade.

The hills can exploit niche markets and provide off season fruit and vegetables to the plains. With the steady improvement in the country's external relations with Bangladesh, Myanmar and China, possibilities of trade and transit have now opened up. The North Eastern region could find in Bangladesh a market for a range of agricultural produce, besides other products.

Agro processing industries could act as an anchor industry for the growth of the entire region. Agro Processing park with meticulously planned general and specialized infrastructure like cold storage, storage halls, auction centers, packing and grading hall, common effluent treatment system should act as a catalyst for the growth of agro processing industries of this region.

FOOD PROCESSING SECTOR

The Food processing sector has emerged both globally and within India as a major sunrise sector. Indian and foreign companies are evincing a growing interest in this sector and this is evidenced by the considerable investment which has already flowed in to food processing industries in the recent past.

Since liberalization in Aug'91 and till Feb 2000, the domestic food and agro processing sector has attracted the project proposals involving an investment of over Rs.53,800 Crores (US\$ 13.4 billions) in various segments of food and agro processing sectors.

Besides this, Govt. of India has also approved proposals for joint ventures, foreign collaboration, and industrial licenses and 100% Export Oriented Units envisaging an investment of Rs.19,100 Crores (US\$ 4.80 billion) during the same period and out of this, foreign investment is over Rs.9,100 Crores.

Though food processing industry cornered only 5.5% of the industrial investments, the food processing industry ranked fifth in size, employed 19% of the total industrial work force, accounted for 14% of industrial outputs and contributed 18% to the gross domestic production.

The food processing industry sector in India is one of the largest in terms of production, consumption, export and growth prospects. The government has accorded it a high priority, with a number of fiscal relief and incentives, to encourage commercialization and value addition to agricultural produce; for minimizing pre/post harvest wastage, generating employment and export growth. Food processing has been included as a priority sector for loan by financial institutions.

AGRO AND FOOD PARK

The vision is to develop first-of-its-kind Agro and Food Park(s) in the North Eastern Region with excellent and state-of-the art infrastructure facilities and professional management with the objective to attract and support investment. The infrastructure facilities shall address specific needs of agro and food processing industries like cold storage, pre cool facilities, controlled atmospheric storage, modified atmospheric storage, auction house etc. besides other infrastructure facilities.

The Agro and Food Park has inter-related objectives in an integrated form in terms of:

- Provide the basic strategies and procedures for developing the agro and food-processing sector by maximum utilization of the local raw material and work force.
- Provide the basic facilities and common infrastructure to stimulate the investments.
- Identify the various profitable business opportunities in agro and food processing sector by providing the basic facilities.
- Strengthen the appropriate infrastructure for post-harvest management, processing and the value addition activities.

- Establishment of cold chain and post-harvest centre in the agro and food-processing-park to create a demonstration impact.
- Provide basis for contract farming / extension activities (being near to the production areas) to strengthen availability of desired quality and quantity of the raw material.

The “Agro and Food Park” approach offers several distinct advantages to industry. The cluster approach allows for grouping of similar industries in order that any peculiar requirements like *auction centre, cold storage facilities, controlled atmosphere storage, modified atmosphere storage, quarantine treatment etc.* may be addressed through large common facilities. Being located away from large cities, the principal attraction of such facilities is that unlimited space becomes available for the establishment of large industrial units on virgin land at reasonable costs. Economics of scale allow for investments in common infrastructure facilities like *power, water supply, sewage treatment, communications, cold storage, raw material storage, controlled and modified atmosphere storage, road links and security* which may not be available to individual industries. Further, it becomes easier for the authorities to provide policing and enable a more effective enforcement of various statutory requirements regarding pollution control, phyto sanitation regulations, customs, and excise and industrial safety.

Agro and Food Park shall have the following adequate infrastructure and facilities to compete with the similar parks.

- Agricultural Development Centre.
- R & D Centre
- Procurement Centre
- Auction Centre
- Cold Storage
- Quarantine
- Transportation
- Apart from this, facilities for sorting, grading and quality assurance shall be made available to the occupants.
- Other **social amenities** like commercial centre, Hotel / restaurant, Medical facilities, ambulance, pharmacy, Banking facilities, post office etc. shall be provided as a value added services.
- Supporting and institutional facilities shall also be provided.

It is suggested a Special Purpose Vehicle (SPV) may be formed by the Project Sponsors and the Project Sponsors shall act as Park Developer and shall be responsible for the turnkey development of the Agro and Food Park. The scope of activities of SPV would

comprise all the activities from the conceptualization stage to monitoring and implementation of the project and would also include the financial closure for the project. The SPV shall also be responsible for the subsequent maintenance in the post implementation period.

The SPV need to infuse professional management in the overall maintenance and upkeep process. A Park authority comprising representatives from SPV, the various governmental agencies and users may be formed for handling this activity.

The guiding principle for the design of Agro and Food Park is to create a conducive place to meet the requirements of USFDA Standards and Other European Standards and manufacturing practice. The park design shall meet ISO 9001 food standards. The design shall be based upon modern estate planning concepts of providing good and efficient internal circulation, meeting the specific needs of agro & food processing industries, large extent of land for future expansion, supporting social amenities, infrastructure and utilities and an attractive physical environment for manufacturing. The layout shall also respect the existing constraints within the site and enhances the potentials within the site.

The break-up of the project cost for various alternatives viz. 250 acres, 100 acres & 50 acres are given below:

PROJECT COST (Rs. in Lakhs)

| DESCRIPTION | COST | | |
|--|------------------|------------------|-----------------|
| | 250 Acres | 100 Acres | 50 Acres |
| Land cost | 250.00 | 100.00 | 50.00 |
| Land Development, Conversion and approval | 101.16 | 40.47 | 20.23 |
| Roads, Culverts and Drainage | 345.00 | 138.00 | 69.00 |
| Buildings - Administrative and Amenities Block | 70.00 | 28.00 | 14.00 |
| Water Supply, Treatment & Distribution | 240.00 | 96.00 | 48.00 |
| Street Lighting and Fire fighting | 32.50 | 13.00 | 6.50 |
| Telecom & Communication Systems | 50.00 | 20.00 | 10.00 |
| Rain Water Harvesting & Greenery | 30.00 | 12.00 | 6.00 |
| Sewerage Network and STP | 100.00 | 40.00 | 20.00 |
| Specialized Infrastructure facilities | 720.00 | 625.00 | 475.00 |
| JV Assets – others (equipment + | 62.89 | 52.80 | 31.19 |

| DESCRIPTION | COST | | |
|---|----------------|----------------|---------------|
| | 250 Acres | 100 Acres | 50 Acres |
| vehicle) | | | |
| Project Period Administration & Marketing Cost | 105.00 | 75.52 | 72.40 |
| Contingency | 92.83 | 57.04 | 38.62 |
| Interest During Construction and financial expenses | 50.63 | 27.19 | 14.06 |
| TOTAL | 2250.00 | 1325.00 | 875.00 |

In the detailed project cost mentioned above, the various project components and the fundamentals behind their incorporations are shown below:

PROJECT COST – COMPONENTS

| COMPONENTS | REMARKS |
|--|---|
| <p>1. Land Development, Land conversion and Layout approval</p> <p>a) Land Conversion fees b) Layout approval fees c) Boundary pillars d) Name & Layout boards e) Demarcation / plot stones</p> | <p>Minimum site grading shall be done in order to avoid water logging problem. It is advisable to develop the land and sell it on “as is where is” basis leaving open the option of development to the individuals to suit their requirement.</p> |
| <p><u>2. Roads and Drainage</u></p> <p>a) Site Grading for Roads b) Excavation and Sand Gravel Mix c) WBM – 2 Layers, Bituminous mecadam, Premix Carpet and seal coat. d) Foot path and Kerbs Trapezoidal Drains and RCC box Culverts</p> | <p>Roads inside the boundary of the occupants shall be laid by the user industries.</p> |
| <p><u>3. Buildings</u></p> <p>Buildings Including Park Developer Office, Telephone Exchange, Fire Station, Police Station, Small Cafeterias, Shops, Recreation Clubs, Security Blocks & Watch Towers and Transport Terminal are considered.</p> | <p>Ready built factories are not ideal choice for the potential occupants as they prefer the buildings tailor made to suit the process.</p> |
| <p><u>4. Green Belt</u></p> <p>a) Avenue plantation b) Trees all along the site boundary</p> | <p>Green development within the occupants premises shall be undertaken by the occupants.</p> |

| COMPONENTS | REMARKS |
|--|---|
| c) Green Development in the Pylon Reserve area d) Roadside Trees e) Central Rotary Intersection & Entrance Plaza and pocket parks. | |
| 5. Street Lighting and Fire Fighting a) Street Lighting all along the Roads b) Fire Hydrants and Booster Pumps considered which will be connected to the Industrial Water Supply line. | Lighting requirements for the individual plots shall be done by the occupants. |
| 6. Telecommunication a) Value added Telecom services. | Telecom Exchange will be installed by DoT. |
| 7. Rain Water Harvesting a) Rain Water Harvesting structures along the Road drains and Common Areas | Rain water harvesting in the individual plots. |
| 8. Sewerage and STP a) Sewage Treatment Plant b) Domestic Sewerage Network c) Sewage Pumping Stations | |
| 9. Specialized Infrastructure Facilities | The following specialized infrastructure facilities for the Agro and Food park shall be included in the Capital cost estimates → Asceptic Packaging unit with Concentrator line OR → Canning line depending upon the requirements → Quality control lab, R&D centre and testing and certification centre → Weigh bridge → Auction centres → Post Harvest infrastructure facilities like <ul style="list-style-type: none"> ○ Storage halls ○ Packing, grading halls ○ Collection centers ○ Cold storage ○ CA/MA storage ○ Refrigerated trucks and |

| COMPONENTS | REMARKS |
|--|--|
| | <p>reefer containers</p> <p>Ware house facilities need not be considered in the capital cost estimate. However land shall be earmarked and will be sold to potential entrepreneur for constructing ware house facilities</p> <p>The developer shall avail Rs.400 lakhs subsidy from Ministry of food processing industries for developing the above infrastructure facilities. The depending upon the requirement of the occupant industries the developer shall propose a combination of above specialized infrastructure facilities.</p> |
| <p>10. SPC Assets and others</p> <p>a) Personnel Computers and Software</p> <p>b) Office Reprographics</p> <p>c) Telephones</p> <p>d) Vehicles</p> <p>e) Other Office Assets</p> | <p>Included in the Capital cost estimate</p> |
| <p>11. Project Period Administration & Marketing Cost</p> <p>a) Staff Salary during project execution</p> | <p>Included in the Capital cost estimate</p> |
| <p>12. Contingency</p> <p>a) Contingency @ 5 % on the non-firm project costs excluding land</p> | <p>Included in the Capital cost estimate</p> |
| <p>13. Interest During Construction and financial expenses</p> <p>a) Interest during Construction Period for 6 months 15 % per Annum.</p> | <p>Included in the Capital cost estimate</p> |
| <p>14. Electrical systems</p> | <p>a) All Substations, Bus Interchange and distribution systems are to be provided by state electricity board. However provision shall be made for underground feeder line in the master plan.</p> |
| <p>15. Water Supply Scheme</p> | <p>Included under capital cost estimate.</p> |

FINANCIAL VIABILITY:

Operations and Maintenance

The Operations and Maintenance cost would depend on the facilities built. The required level of O&M activities, and also the demands of the users as to the level of services. However, at the feasibility stage, based on the analysis carried out, the O&M cost components shall be estimated as follows.

The requirements of the O&M shall be finalized at DPR stage. The O&M expenses shall be subjected to the budgetary approval of the Park Company and annual approval of independent auditors.

For the purpose of financial projections, it is estimated that the O&M costs to cover the expenses mentioned above, Administrative and Operating expenses of the SPC including depreciation and a margin of 15% on the above costs and accordingly provided. The final Operations and Maintenance cost would depend on the facilities built, the required level of O&M activities and also the demands of the users as to the level of services.

Financing Plan

The expected financing pattern of the SPC (based on the estimated cost) for the three alternatives are given below:

(Rupees In Lakhs)

| PROJECT FINANCING (250 ACRES) | Phase I | Phase II | TOTAL |
|--|----------------|-----------------|----------------|
| Equity | | | |
| State Govt. / NODAL AGENCY – EQUITY | 60.50 | 3.63 | 64.13 |
| Private Promoter | 489.50 | 29.37 | 518.87 |
| Internal Accrual – Partly Ploughed Back | | 342.00 | 342.00 |
| Equity – Total | 550.00 | 375.00 | 925.00 |
| Debt | | | |
| Term loan from State Govt. In the Form of Land | 150.00 | 100.00 | 250.00 |
| Term Loan/Bonds | 400.00 | 275.00 | 675.00 |
| Debt – Total | 550.00 | 375.00 | 925.00 |
| GRANT FROM MFPI | 200.00 | 200.00 | 400.00 |
| Grand Total | 1300.00 | 950.00 | 2250.00 |

(Rupees In Lakhs)

| PROJECT FINANCING (100 ACRES) | Phase I | Phase II | TOTAL |
|--|----------------|-----------------|---------------|
| Equity | | | |
| State Govt. / NODAL AGENCY – EQUITY | 30.25 | 0.65 | 30.90 |
| Private Promoter | 244.75 | 5.27 | 250.02 |
| Internal Accrual – Partly Ploughed Back | | 181.58 | 181.58 |
| Equity – Total | 275.00 | 187.50 | 462.50 |
| Debt | | | |
| Term loan from State Govt. In the Form of Land | 60.00 | 40.00 | 100.00 |
| Term Loan/Bonds | 215.00 | 147.50 | 362.50 |
| Debt – Total | 275.00 | 187.50 | 462.50 |
| GRANT FROM MFPI | 200.00 | 200.00 | 400.00 |

(Rupees In Lakhs)

| PROJECT FINANCING (50 ACRES) | Phase I | Phase II | TOTAL |
|--|----------------|-----------------|---------------|
| Equity | | | |
| State Govt. / NODAL AGENCY – EQUITY | 15.12 | 0.13 | 15.25 |
| Private Promoter | 122.37 | 1.09 | 123.46 |
| Internal Accrual – Partly Ploughed Back | | 98.77 | 98.77 |
| Equity – Total | 137.49 | 99.99 | 237.48 |
| Debt | | | |
| Term loan from State Govt. In the Form of Land | 30.00 | 20.00 | 50.00 |
| Term Loan/Bonds | 107.50 | 80.00 | 187.50 |
| Debt – Total | 137.50 | 100.00 | 237.50 |
| GRANT FROM MFPI | 200.00 | 200.00 | 400.00 |
| Grand Total | 475.00 | 400.00 | 875.00 |

Note:

1. Equity from the state government / nodal agency shall be in the form of land.
2. Term loan from Financial Institutions will bear an interest rate of 15%.
3. Term loan from external sources is to be arranged by the Strategic Partner.
4. The land will not be made available as a security for term loan to be arranged by strategic partner.

Project Revenue

The revenue stream of the Agro & Food Park is from two sources:

- Revenue from Development and Construction of the Agro & Food Park arising on users contracting for establishment of common assets.
- Revenue from Operation and Maintenance

Profitability

The project is estimated to yield a minimum Internal Rate of Return (IRR) of 25 % over a period of 10 years. The IRR calculation has taken into account the salvage value of the project at the end of 10th year being the written down value of the assets of the SPC at the end of the 10th year.