

# Manufacturing Challenges in the Ninth Malaysia Plan

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## INTRODUCTION

One of the crucial objectives of the Ninth Malaysia Plan is to vitalise the manufacturing sector further. The sector is targeted to grow at an average rate of 6.7 per cent per annum over the plan period 2006 - 2010. The share towards the GDP is expected to increase from 30.8 per cent for the Eighth Plan to 31.8 per cent in the Ninth Plan. There will be continued expansion of industrial activities including petrochemicals manufacture, paper and pulp, rubber and palm downstream products. Small and medium scale enterprises are to be transformed into stronger knowledge-intensive and greater value-adding entities. There is a need to ensure robust, sustainable growth and competitiveness. Strategic integration with foreign affiliates including joint ventures, mergers and acquisitions will be intensified [1]. These steps carry a certain amount of risk. In fact, it is well-accepted that the higher the risk of any venture the higher would be the returns. And risks can generally be classified either as being controllable such as those resulting from acts or omissions by parties like clients or affiliates and joint venture partners, consultants, contractors and suppliers; or as being uncontrollable such as those resulting from socio-cultural factors, macro and micro economics and global dynamics, legislative, statutory and political controls; force majeure and environmental constraints. All these have a bearing on operational factors like security of raw materials and supply of components; obsolescence of process technology, methods and machinery; wage increases of skilled manpower; pricing margin and market share; financial charges and foreign exchange burden; and pressure from alternative products.

## BUSINESS CHALLENGES

Apart from enhancing the domestic market, the manufacturing company during the Ninth Malaysia Plan has to

reach to the global market. The business challenges that the manufacturing company will face are related not only to the type of industry that it will enter and the special challenges associated with that particular industry but will have to be sensitive to influences of any policies of governments towards that particular industry where the business operates.

### Industry Challenges

Important risk factors or challenges related to the industry would be the size of the industry, the position in terms of its life cycle i.e. whether it is in its growth phase, has reached a plateau or it is declining, the supply and demand situation of the products, the industry's contribution to the general economy, tariff protection status, government policies on controls and incentives, and general margin of profitability.

### Government Policies

The impact of changes in government policies on various industries could become an important business challenge. Relevant factors to be considered may include tariff barriers on specific products, price controls, position of the industry to the national economy, excise duties, service and other taxes, investment and export incentives, and legislations concerning pollution control.

### Market Position

A manufacturing company operating in the global marketplace has to be able to maintain its competitive advantage and market share in the face of price volatility and uncertainty. An ability to pass on a certain amount of input cost escalation to the clients is critical in the ability to maintain profit stability. Diversification through an extensive chain of operations covering a worldwide geographical area as well as offering a wide product mix also assists in minimising this impact. A limited product range or undue

dependence on a few clients would increase the impact and restricts the company's pricing flexibility.

### Pricing

Quite often a manufacturing project is approved during good times. By the time the installation phase is completed and ready for production the economic cycle has turned to hit a low level. The timing for the market entry becomes unattractive. The unfavourable pricing may force the investor to have a substantially high level of product inventory. It would make perfect sense for manufacturing projects which take some years to construct and be ready for production to start when the market for the product is down so that by the time the construction is complete the product prices is just at its optimum. Problem is that investors are never confident enough to believe of the ever recurring economic cycle and even financial institutions are not adventurous enough and willing to readily lend if they see that there is seemingly little current prospects for the products. In such a scenario there is always that threat of having to lower the price from the level originally used in the economic projection.

The choice of whether the industry or the product is a consumer or a specialty type is also important because it can influence the kind of product pricing that could be expected. A consumer type of product normally commands only a small margin but commands a high volume of sales, while on the other hand a specialty kind of product could command an appreciable margin but the volume is not large. Other factors that could affect or change product pricing policy are of course an introduction of alternative products into the market, and also the emergence of new players with the same or similar alternative products. There would then be a pressure to lower the price in order to remain competitive

or to maintain the market share. A longer time would be required for return on investment, loan servicing could become more expensive and loan restructuring might be required. Fresh new market overseas need to be found for the product and domestic market needs to be expanded through various efforts including the forging of smart partnerships. An understanding, appreciation and embracing of the inevitable economic cycle also puts the investor in an advantageous position.

### **Product Performance**

Products are produced after years of research and development and market trials with quality on a best endeavour basis and to be used in accordance to recommended instructions. Consumers come from various cultures, educational background and are using the products against different conditions. Because of this varied possibilities in the use of the product, it can become unsafe or dangerous to the general health of the users or the workers dealing with the products if they are not handled and used as intended. While the manufacturers cannot be expected to be responsible for all misuses of their products, it is reasonable to expect a certain measure of idiot-proofness of their products. In any case, the risk of litigious action against the manufacturers must be foreseen and provided for in terms of some kind of protection. We have seen so many examples of seemingly safe products becoming unsafe only after years of being in the market. Knowledge and understanding of local consumer protection laws would be an advantage.

### **Alternative Products**

As mentioned earlier alternative products which could meet the customer needs and requirements more satisfactorily or at a lower cost is a threat to the marketing of products. This could be the result of being too slow getting into the market thus giving competitors ample time to design, develop and produce alternative products more efficiently. This challenge becomes more acute in the global arena. Again a poor strategy in the choice of product type or product range could be the reason for

this to happen, or that the product chosen is already reaching towards the end of its life cycle. The projected market share could be reduced and/or the pricing levels need to be adjusted giving rise to possible reduction in profit margins and a much longer period for return on investment than originally anticipated. While there a definite need to look for a wider export market there is also a need for a continuous product and market research and development.

### **Operating Challenge**

The challenges associated with manufacturing projects differ from one industry to another. However, some of the more important factors common across most industries that need to be examined in determining the potential of risks in operations can be classified under human resources, material resources, technology, utilities, capacity utilisation, research and development, integration, technical support and logistics. These factors are elaborated below.

### **Human Resources**

The location of the manufacturing facility has an important bearing on to the possible human resource factors becoming real issues. The following factors are some examples to be considered. The location of the facility could attract people to come and work there. On the other hand location could also deter people, and a failure to attract the vital-skilled staff could also mean the potential failure of the project. The general economic development creates more job opportunities for people and makes them more mobile. There is a pressure on training and re-training needs and generally to enhance the quality of human capital. The objective is to lessen the possible indirect threat of lowering in the quality of production. The potential threat of a decrease in productivity can also be avoided. The increase in salary structure due to the need to offer competitive rates and give special incentives in order to prevent people from job-hopping could also be reduced. An expected overall increase in cost across the board due to adverse factors due to location could be contained by proper human resource planning.

### **Material Resources**

Long term supply contracts are the normal way to ensure the security of materials supply. It is, however, not uncommon for suppliers to renege on their contractual commitments. It has also been known that best estimates of raw material deposits dedicated for certain projects have been grossly over-estimated. The impact is the inability to supply the agreed quantities thus rendering the manufacturers unable to produce the required product output. The obvious solution to overcome this challenge would be to have an alternative supply source of raw materials. This could be an expensive alternative and could very well be the only alternative; and in extreme cases even this alternative could be impractical.

### **Technology**

The emphasis of the Ninth Malaysia Plan is towards foreign affiliations. The consideration for the appropriateness of technology to be imported is not purely technical in nature. Socio-economic factors have also to be considered. The degree of automation, for instance, will determine the nature and the number of skilled workers required to operate the facility. While full automation would require few highly-skilled workers, a semi-automatic facility would require more less-skilled workers. For a developing economy like Malaysia, the level of investment has to commensurate with the employment opportunities it creates. This must be one of the strategic socio-economic factors to be borne in mind in considering the implementation of any sizeable project. Leap-frogging technology or the process of getting to the end-use of the technology without too much consideration about the intermediate steps enroute to get there, is also quite a popular approach in embracing new technology. The end-product is procured at great expense, all the necessary support requirements are provided including the operators and other technical support staff who will eventually take over the entire operation after an initial few years when operating service consultants are engaged to operate the facility and train the

operation and maintenance staff. This approach ensures the latest and most efficient technology in the industry is employed which would mean cost-effective production. The only downside would be the relative unpreparedness of the technical staff to handle and solve the more major technical problems which may arise. Appropriateness would also touch on the complexity of the technology to be utilised with due consideration on the general of the technical skill level of the staff. Possible obsolescence of the technology is also tied with its complexity; the more complex the more likely it is to be vulnerable to be out-of-date quickly. This situation could be a result of a poor and weak assessment of the strategic factors concerning the technology and the industry. Design strategy could also be contributory to this, and the result would be a loss on any advantage on competitors and unit cost of production would become relatively higher. One of the remedies would be to go for semi automation. The exposure to the threats of modern technology is minimised. The flexible manufacturing approach would also maintain competitiveness and the use of mini systems and mini plants would also minimise the impact of any technical threats. Development could also be planned and implemented in stages.

An old and tested technology will remain faithful and perform satisfactorily. The manufacture of commodity products is usually associated with this class of technology. It is considered safe and the associated returns are also on the low side but steady and the return on investment would normally take longer than the average investment. The danger of it becoming obsolete and be overtaken by new innovative technology is always there but the impact is anticipated and need not be devastating. Instead of the short period for return on investment usually associated with high-risk investments, this would take just a little longer.

Modern technology has got an air of complexity, ICT, micro-electronics, nano-machines, computers and the like and is often associated with the notoriety of having fairly long development periods and very short life-spans. Any manufacturing projects having in mind

to utilise this kind of technology like the clinical or pharmaceutical industry has to be prepared for very short technology turn-arounds and to factor in the necessary replacement costs [2]. An aspect of utilising modern technology is that the investor may not be fully aware of the situation with the legal standing of the technology being used. It is possible that the direct provider of the technology may not be the actual owner of the patents or the intellectual property rights related to the processes to be employed [3]. There must be a provision in the technology supply contract to protect the investor from any possible litigation in this respect.

#### **Utilities**

Due to some unavoidable factors, some facilities are isolated and secluded and there is general lack of development of the associated infrastructure. Interruptions in the supply of basic utilities like electricity and water could become a major factor in contributing to operating downtime. Reliability of product delivery could become critical. Quality is threatened and all kinds of related losses could be incurred. Internal provision of these utilities could be the only option, and the associated costs of installation and operation could be very high. Locating of future facilities at the site may plan for shared common facilities for group utilities requirements.

#### **Capacity Utilisation**

Other factors that could very well become critical issues are operability and flexibility of plant operations. While operability is closely tied to labour productivity and the challenge of increased plant down-time, flexibility on the other hand is closely tied to the ability to meet changing market demands in terms of product types and specifications which if not handled properly could bring about the risk of delivery failure or being unable to dispose of products already produced. A modularity approach in facilities design could be able to handle breakdowns and downtime effectively. Redundancy or doubling of the physical critical equipment brings about increased

availability and operability of facilities which could ensure an uninterrupted product delivery, but this could be very expensive. Careful examination of equipment configuration and selective sparing of the most crucial equipment which would otherwise require entire plant shutdown whenever they are down, could be the sensible and optimum approach. Capacity options through creative flexible manufacturing design would definitely complement this approach.

#### **Research and Development**

A certain extent of research and capability of technology development is needed in any manufacturing organisation. Process improvements and plant modifications are a continuous process to be carried out by the Technical Support Services Department. The technologists are to work with the technology providers in order to enable them to handle troubleshooting activities for the orderly running of the facility.

#### **Integration**

The ability of the manufacturer to cope with adverse price movements in either its up-stream raw materials and services requirements or down-stream products is important to reduce the impact of price volatility. A high degree of vertical process integration is important. This enables the processing plants to start the process from different stages in the production process whenever there is an adverse price movement in the up-stream products. The manufacturer should also look at the possibility of marketing intermediate products whenever there is an adverse price movement of down-stream products.

#### **Technical Support**

The availability of outside as well as in-house technical support is a determining factor in choosing the appropriate mix of technology to be utilised in a manufacturing project. While minor maintenance work can be expected to be handled by in-house staff, a major overhaul or turn-around or a major breakdown would require outsourcing. And this outside help cannot wholly

come from the original suppliers of equipment and machinery. Factor of location has a direct consequence on the availability of local technical support. Modularity and hundred percent sparing of critical equipment could be an answer albeit a very expensive one.

### **Logistics**

Raw materials and other input components and supplies need to be transported in, intermediates, products and by-products have to be transported out, workers and contractors have to be transported in and out. These transportation requirements may either be provided by the company itself or through contracting outside contractors. In either case, availability of linkage to transport networks of air, sea, rail and road services is of vital importance for smooth operation. Vicinity to raw material supply, product markets and ports and airports would definitely be an added advantage.

## **FINANCIAL CHALLENGES**

### **Accounting System**

A manufacturer is and its performance will always be compared with its competitors in the industry. In order to get an accurate assessment on the health of the company, the accounting system and policies have to be examined and adjusted wherever necessary in order to minimise the impacts of hidden factors due to certain policies like understatement or overstatement of profitability, qualifications by auditors, inventory valuation policies, depreciation method and treatment of contingent liabilities.

### **Cash Flow**

Adequacy of cash flow is important to determine the capability of the company not only to finance operational requirements but also to service interest and principal payments. Cash flow has to be stable and adequate in order to service debts and working capital needs as well as capital acquisition requirements and the like. While income is an accounting concept, cash flow is the real financial position of any organisation which reflects its financial health or otherwise.

### **Earnings**

Profit potential of the company needs to be viewed against its robustness or sensitivity to price fluctuations of both its required resources as well as its line of products. The operational cost structure has to be comparable with others in the industry. The comparison would include factors like levels of various ratios and projected trends. Other considerations may include capitalisation ratios, market share, earnings on capital or assets employed and the management of working capital.

### **Temporary Difficulties**

The company may be faced with an unexpected temporary financial difficulty and must be able to handle this situation by raising funds internally as well as externally. Maintaining a reasonable gearing ratio and maintaining good relationships with lending institutions may be able to assist the company in ensuring its ability to raise external funding.

### **Foreign Exchange**

For big projects the ability of local consortia to underwrite the entire financial requirements of the projects is limited. There is often a need for foreign or off-shore funding. Adverse rates of exchange could reduce the profitability of the projects due to higher costs of servicing the loan. Margins become lower and a longer time is required for returns on investments. The selection of currency could therefore become an important factor in the implementation of projects. While a wrong selection of currency could affect the overall viability of the projects, a correct selection on the other hand could help to make them more viable. A mixed basket of currency could minimise the impact of adverse rates. Another approach is to synchronise the payment arrangements so that as far as possible the majority of receipts from sales are paid in the currency of the loan.

### **Inflation**

Another risk factor which is outside the control of the investor is inflation. Prices of materials and services could escalate, cost of labour could increase and the cost of energy and amenities could also

escalate. The impact would be a higher overall cost of production which in turn would mean possible shrinking of operating margin, perhaps losing competitiveness and also market share. A long-term supply contract arrangements could help to a certain extent, but even this does not guarantee full protection from inflation. A certain measure of protection from increased salary bills could be achieved through in-house development and training and re-training; some protection from increased services and utilities bills could be achieved from clustering and sharing of common utility facilities.

### **Base Lending Rate**

Increased financial cost could be a result of a general economic climatic change. As a Central Bank policy, the base-lending rate could be increased giving rise to higher cost of money and higher cost of loan servicing. Reducing the gearing ratio could minimise the impact of this factor.

## **CONCLUSIONS**

Just like any other projects, the manufacturing project has the usual challenges. While some challenges are common to all projects the manufacturing project has some characteristics of its own. It is the ability to handle these challenges as a whole that would determine the success or failure of the project. Some challenges need to be and can be avoided, while some cannot be avoided and the impact needs to be reduced. The incidence of some can and need to be shifted to a third party, while some are unforeseeable and just has to be absorbed. ■

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