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# TREND AND STRATEGY OF INDUSTRIALISATION IN SARAWAK IN RELATION TO HUMAN RESOURCE DEVELOPMENT

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## INTRODUCTION

Industrialisation is planned and promoted as an integral part of overall development of Sarawak. The major objectives of the industrialisation programme are: (1) to broaden and strengthen the State economy, (2) to increase the value added of its major resources, and (3) to generate employment. So far the efforts to diversify the economy have produced positive results as evidenced by the increased sectoral contribution of manufacturing to the Gross Domestic Product of Sarawak. However despite the vast natural resources available, policy makers and planners view the small population and a rather late start in human resource development as possible constraints in the overall development effort. Thus, appropriate strategy must be drawn to ensure that the growth and role of industrialisation would not be adversely affected; however in doing so the small population base and late development of human resource in Sarawak must be taken into account.

## BACKGROUND

### Performance of Manufacturing Sector

At the moment the manufacturing sector accounts for 14.5% of the State Gross Domestic Product. It has slightly overtaken Forestry (14%) in this respect but it is still a distant second compared to Mining (31.7%) in terms of sectoral contribution to the Gross Domestic Product of Sarawak.

The magnitude of change in sectoral contribution is however more apparent if the trend is stretched over a 30 year period between 1960 and 1990. In the 1960's, agriculture was the leading sector followed by forestry in terms of contribution to the GDP. At that time however, manufacturing was still very insignificant. By the mid 1970s, although agriculture and forestry have declined and were overtaken by mining, the manufacturing sector still accounted for a minor role in the economy. Even as late as 1980, manufacturing (6.6%) still only occupied 6th position in terms of GDP contribution, trailing behind services (8.5%), Agriculture and Livestock (9.9%), Forestry (13.2%) and Mining (30.5%)

From the data given it is clear that manufacturing is the fastest growing sector of the economy. It is also obvious that manufacturing is a relatively "recent" phenomenon - a fact that must be taken into account when industrialisation programme and strategy are promulgated. If this fast growth trend is maintained, it is indeed conceivable that manufacturing will become the leading sector of the economy by 2020.

**TABLE 1**  
**SECTORAL CONTRIBUTION TO THE GDP (%)**

SECTOR	1980	1985	1988	1989	1990e
Agriculture & Livestock & Fishing	14.8	9.5	10.5	9.8	10.0
Forestry	13.2	12.4	13.2	15.5	14.0
Mining & Quarrying	30.5	34.1	31.7	30.9	31.7
Manufacturing	6.6	11.8	14.0	13.4	14.5
Construction	4.7	4.9	3.4	3.1	3.7
Transport, storage & communication	3.4	4.0	4.7	4.8	4.7
Wholesale & Retail	8.3	7.7	7.2	7.5	7.2
Finance, Insurance, Real Estate & Business Services	2.0	2.4	2.6	2.9	2.6
Government Services	8.5	8.6	9.0	8.7	8.4
Other Services	5.1	4.6	3.7	3.4	3.2

### Human Resource Supply in Sarawak

Of great concern to planners is the human resource situation in Sarawak. With a small population (estimated at 1.67 million in 1990 and projected to be 2.15 million in 2000), the labour force is consequently also small. The population growth rate is estimated at 2.5%. To compound matters, much of this population is rural based and the largest employment is in the primary sector where 52% of the workforce is employed - 46% in agriculture, 4.4% in forestry and 1.9% in fishing. Only 8.9% of the workforce is in manufacturing. Thus, it can be seen that the pool from which workers for the manufacturing sector can be drawn is rather small. With regard to the education system the number of school leavers is also relatively small. Over a five year period (1990-95) the Education Department has estimated that 156,000 will enter the labour market with LCE, 93,000 with MCE and a disproportionately low number of 14,000 will attain HSC. At a glance it can be quickly discerned that the number of school leavers is not very large, and could easily be absorbed by the labour market if the economy continues to expand.

At the higher levels - diploma or degree, Sarawak lags behind the rest of the country. The 1980 census shows that of the population aged 20 years and above, Sarawakians with a degree or diploma are respectively two thirds and one-half of the rates for their counterparts in Peninsular Malaysia. In this respect, Sarawak has a fair amount of catching up to do. Maybe this calls for extra efforts and resources to be devoted to Sarawak to ensure that the development of its human resources could be improved and considered comparable with the rest of the country. The exercise will no doubt be costly and requires special attention. Hopefully, no one is deterred from tackling the issue on account of cost<sup>1</sup> and the difficulty involved in correcting this situation. But it must be fully realised that any shortcoming in human resource development in Sarawak will have an adverse effect on its industrial programme.

With the projected industrialisation programme the manpower requirement will be changing. In

<sup>1</sup>Derek Bok, President of Harvard University has a persuasive argument on this issue with his oft-quoted remark "If you think education is expensive, try ignorance".

the past, the unskilled labour serve the primary sector (farming, fishing and forestry) and the "white collar" serve the service industry. The accent for the future will be for workers to acquire skill to work in factories even at the lowest level; technical education becomes more important. Thus, a technically trained person will be able to command greater economic reward than those without technical skill. In broad terms the industries will require the following categories of manpower:

- (i) Managers - With technical background
- (ii) Senior Executives - Finance, Accounting, Marketing, Personnel
- (iii) Engineers
  - Chemical
  - Mechanical/Industrial
  - Electrical/Electronics
- (iv) Supervisors - With technical background (Diploma level)
- (v) Technicians
  - Mechanical
  - Electrical
  - Instrument
- (vi) Operators - All categories
- (vii) Tradesman - Machinists, mechanics, welders, plumbers, boilermen, etc.

At the moment the education system, remuneration structure and parental preference (prejudice) may slow the growth in the technical fields particularly at technician, operator and tradesman levels. But as the industrial base expands it will become apparent to parents and pupils alike that technical skill will be in demand and rewarding. However, under normal circumstances the production of technical workforce is a rather slow process. Hopefully, the education system can respond promptly and quickly to meet the needs of the fast growing industrial sector.

During the initial years of the industrialisation process it is conceivable that skilled workers will have to come from outside Sarawak. For the timber industry there will be a need to supplement the local workforce with foreign labour at both skilled and unskilled levels. As such, there must be a conscious effort to introduce certain flexibility and pragmatism in dealing with the issue of non-Sarawak or foreign labour.

## POTENTIAL AS A MANUFACTURING REGION IN MALAYSIA

In many respects Sarawak has the potential to become a major manufacturing region in Malaysia. While in the immediate term this view may sound unrealistic or be viewed as overly optimistic, however with the right planning and its effective implementation the objective of turning Sarawak into a modern and industrialised economy is achievable. Looking at the resources available the prospects look bright indeed. In terms of natural resources Sarawak has large reserves of the following:

- (1) Timber
- (2) Gas (and Oil)
- (3) Land for Agricultural purpose
- (4) Non Metallic Minerals - (Silica Sand, Kaolin and Ball Clay, Coal)

In addition to the resource-based industry, efforts are made to attract electronics industry to Sarawak. So far one company has made a firm decision to put the first electronics factory in the State - initially employing between 500 - 600 workers. Depending on the success of the initial operation the investor is keen to enlarge and upgrade their manufacturing facilities in Sarawak. Other electronics companies have also indicated their interest to invest in the State. Thus, at this stage the prospect for further diversification and growth of the manufacturing sector appears to be bright indeed.

It is not unrealistic to envisage that the industrialisation trend in Sarawak will be greatly related to the resources above. It is expected that the downstream processing of timber will become more prominent (and the export of logs will be reduced correspondingly). With respect to gas (and oil) reserves, Sarawak is favourably situated in the fast growing Pacific Rim to develop its petrochemical and gas based industry. In addition to the Liquefied Natural Gas Plant, the Asean joint-venture Ammonia and Urea project and the first of its kind Middle Distillate Synthesis project - now 90% complete, further investment in petrochemical and petroleum industry is distinctly possible. The expected investment may use the gas and crude petroleum supplies or derive its feedstock from the existing plants. Similarly manufacturing activity of agro products will be possible when new areas are cultivated for palm oil<sup>2</sup>, pineapple, banana and other commercial tropical crops. With respect to non-metallic minerals the potential in manufacturing appears to be good for clay or silica sand based products such as glass, tiles, tableware, decorative items and porcelain.

## Timber

Traditionally, Sarawak has been a producer and exporter of tropical hardwood. However, around the last decade or so, there has been some noticeable increase in the production and export of downstream products. Initially it was sawn timber, followed by veneer and plywood. However in recent years higher value added timber products have been manufactured and exported in the form of laminated timber, dowels, mouldings, furniture parts, knockdown furniture, window frames and doors. [The type of doors ranges from decorative, solid or all weather doors and they find outlets in all the world major markets such as Japan, Europe and North America]. Although still small compared to total value of timber exports the processed products are gaining in significance.

At a glance, timber processing is essentially a labour intensive activity. In the case of sawn timber, veneer and plywood production, it is normally labour intensive in nature. However, where labour cost is high such as in Japan and Taiwan, the operation can be mechanised - and the higher degree of "automation" definitely contributes to the reduction of labour. Perhaps this is an option that is open to industrialists in Sarawak - in view of the limited supply of labour. The other option is to continue to import workers from outside Sarawak - and at the moment the foreign workers mostly come from Indonesia.

The idea of importing workers for the timber industry faces mixed reaction from both officialdom and members of the public. In the mind of the industrialist the case is more clear cut - the shortage of local workers has to be supplemented from outside sources. At this stage this appears to be the most practical and pragmatic approach as the development of the timber industry must continue to be promoted. Otherwise, without outside labour, the development and growth of downstream processing will be hampered - and Sarawak will remain a primary producer and exporter of logs<sup>3</sup>. A liberal attitude and approach toward the issue of outside labour to supplement the domestic workforce is a realistic way to deal with any possible labour shortage in

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<sup>2</sup>"69,500 ha. in 1991 (estimated) and projected to increase to 10,000 ha. annually until 2000".

<sup>3</sup>"A second blow awaits countries that base their development plans on export of bulk raw materials." Alvin Toffler: Power Shift (p.396).

the industry. This would prevent the situation from deteriorating and reaching critical level which could adversely affect the growth and development of the industry.

Apart from supplementing the local labour with foreign workers, it is essential that the Sarawak workforce in timber industry be given greater training. With greater training - the level of skill will inevitably improve. This improvement in skill will consequently contribute to greater productivity. To upgrade the skill of workers - the public sector and its training institutions have to work closely with the industry (private sector) in devising and providing the right and appropriate training. The present courses provided by the Forestry Department, Sarawak Timber Industry Development Corporation, Vocational Schools, Youth Development Training Centre, and Institut Kemahiran Mara must be reviewed. A greater involvement or input from the industry in planning and monitoring the syllabus and training programme is essential. If need be the existing courses have to be modified, revamped or even replaced if found unsuitable. Any exercise to "tinker" with the existing training programme must be done bilaterally - involving the industry and relevant government agencies. The emphasis is on making the workforce more productive. Hence, the training programme should incorporate these elements: upgrading of skills and inculcating of right values, attitudes and work ethics.

### **Petroleum and Gas Based Industry**

Sarawak is situated in the Pacific Rim<sup>4</sup>, a fast growing region for the consumption of petrochemical, chemical, gas and petroleum products. Allied with this strategic position is the availability of large reserves of gas (566 billion s.c.f) and to an extent petroleum (58m barrels). Based on the natural resources available the following projects have been identified:

- Urea Formaldehyde Resins
- Melamine
- LPG Dehydrogenisation/MTBE/Polypropylene
- Fertilizer
- Methanol
- Acetic Acid
- Ammonium Nitrate

In addition to the resource-based gas and petrochemical projects, the possibility of setting up of an oil refinery is very bright. In fact one project has been submitted for the approval of the Manufacturing Licence and another has been discussed with relevant authorities for more than a year now. A number of the projects such as the LNG or refinery, Ammonia/Urea plants can be categorised as primary or intermediate stage in the petroleum or petrochemical industry. A number of downstream petrochemical projects are possible - provided the market situation is right and appropriate incentives are provided.

By nature these industries are capital intensive - labour requirement is comparatively low in relation to capital inputs. However, the skill requirement is normally high and technical in nature. While the number may be relatively small, it is still a challenge to produce an adequate number of qualified people for the industry.

Perhaps, in terms of human resource development no other industry can match the record of oil, gas or petrochemical industry in providing training for local workers. Since its early days Sarawak Shell has for instance trained thousands of its own workers. Many of these workers upon leaving the company bring their skill to benefit the rest of the State economy. The other oil giant in Sarawak (Malaysia), PETRONAS, has played its role as well. However, as a new comer to the

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<sup>4</sup>"The export-driven economies of the (Asian) Pacific Rim are growing three times faster than much of the rest of the world". J. Naishitt & Patricia Aburdene: Mega Trends 2000 (p. 160)

scene its presence in human resource development will only become more prominent in future years. The other two companies MLNG Sdn. Bhd. and Asean Bintulu Fertilizer Sdn. Bhd. also have well equipped training centres capable of providing training and upgrading of the skill of their staff. For these large projects with their own particular needs, they are "forced" to provide their own training facilities. It is not a burden - although it costs millions to purchase the equipment and recruit trainers, the amount constitutes a small percentage of the total investment in such projects.

Ideally, the existing public sector training programme ought to cater for the basic skill for the growing needs of the oil and petrochemical industry. With good basic skill the "conversion" time needed to turn trainees into full fledged operators and technicians could be considerably shortened. As of now however, those with SPVM for instance still require two years further training before they are actually considered competent enough to work as full fledged technicians or operators. Where the number involved is large the in-plant training may add millions to the operating costs. [This additional cost comes from the cost of having to employ temporary but expensive (expatriate) staff, as well as paying for the salary of the trainee permanent staff]. Thus it is clear, if the technical training provided by the public training institution is more adequate, the extra cost need not be incurred or borne by the employers.

Based on enquiries received so far, the time is ripe to review the contents of our technical training since further investments in the petroleum and petrochemical industries are anticipated. Obviously the current syllabus is not adequate for the high standard required by the industry. There is an urgent need to review, revamp, modify or replace some of the existing syllabus in respect of the technical courses. New features that meet the current needs of the employment market must be incorporated.

### Non-Metallic Minerals

Sarawak has large reserves of high grade Silica Sand (4.7m tonnes), Kaolin (21.1m tonnes), Ball Clay (300,000 tonnes), Coal (500m tonnes) and, Limestone (unlimited). These resources have been proven to be good raw material for glass, ceramic and porcelain products. At the moment a large percentage of these products is exported in raw and semi processed form. It is imperative that Sarawak has to turn these raw materials into manufactured products in order to derive greater value out of her resources.

So far Sarawak has managed to produce traditional vases (which are marketed more for their souvenir value), wall and floor tiles. Compared with the resources available the range of manufactured clay or silica products at the moment is rather limited indeed. Definitely there is room for further development in the downstream activities of clay and silica sand based manufacturing in Sarawak. Apart from the available natural resources the quality of human resources will be another important determinant in the development of this industry. With one major exception the ceramic industry in Sarawak is essentially family-based business, and the skill is handed down from "father to son". While the skill gained in this manner is adequate to carry on a family business perhaps it may not be sophisticated enough to produce products that can successfully penetrate the very competitive international market.

At the moment the State Government in collaboration with SIRIM has initiated a training programme to train young Sarawakians to become "skilled" workers in the ceramic industry. The trainees will be able to produce better ceramic products based on the skill acquired from the training. This may be a start for further diversification of the industry. The improvement in terms of skill will be an added impetus in attracting investment in downstream activity in the industry. With a better trained workforce it is most probable that future investment in this industry will be for higher value added products. Recent enquiries indicate that investors are going for new high value added products utilising silica sand, and clay.

## OPTIMAL RESPONSE

At this juncture it is essential that planners should seriously take stock of Sarawak's assets and plan optimal ways and means to maximize the utilization and benefits that could be derived from those assets. The response to the situation i.e. the strategy (stratagem) so prescribed would eventually be a major determinant in producing the trend of industrial development in Sarawak. Within the limited context of this topic at least two sets of response could be recommended:

- (1) Emphasis must be placed on capital intensive industrial development.
- (2) The quality and quantity of human resources must be improved.

### Capital Intensive Versus Labour Intensive Approach

With a rather small population it is quite pointless to promote Sarawak as a source of cheap and abundant labour<sup>5</sup>. Hence in promoting investment in the State, potential investors must be informed that it would be advisable for them to include labour saving devices in their production process. Definitely a strong case must be stated to prevent investors especially those from "second wave" country from "dumping" antiquated labour intensive machinery in Sarawak. [The tendency to export old machinery has been detected in the downstream timber processing industry]. Perhaps investors should be advised to install modern and efficient machinery instead of supplying old and inefficient equipment. Conscious efforts must be made to "leap-frog" from a labour intensive/low technology industrial base to capital intensive production process or advanced technology<sup>6</sup>. This approach is not entirely new. Part of the success of the "Tigers" or "NIE" is attributable to the fact that their machinery and equipment are of more recent vintage compared to their competitors in Europe or America. Similar explanation has been given for the success of war-ravaged European countries, such as Germany for the edge they have over their traditional rivals whose industrial installation escaped major destruction. Thus, it is not unrealistic to advocate this approach for Sarawak. It need not follow the traditional pattern of primitive, intermediate and advance technology in its industrialisation strategy. The first two stages which tend to be labour intensive could be phased out quickly<sup>7</sup>. This is one alternative approach to promote industrial development in view of the small population in the State. To do otherwise may result in slower industrialisation.

### Human Resource Management

Human resource has been accorded a central role in development planning in recent years. In fact most development plans specifically incorporate human resource development as part of the overall development strategy. This clearly indicates proper recognition of the crucial role played by human resource in the development process. In drawing up an industrialisation programme both the quantity and quality of human resources must be looked at. Ignoring the human resources would definitely render any industrialisation programme into a futile exercise.

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<sup>5</sup>"Many developing countries bet their entire economic future on the theory that selling cheap labour would lead to modernisation". Alvin Toffler, *ibid.*, (p. 397)

<sup>6</sup>"Taiwan's objective (of) a massive shift from easy-to-make labour intensive products such as clothing, footwear and toys to high value electronics items may be quoted as an example of success of this approach". J. Naisbitt & P. Aburdene, *ibid.* (p.169).

<sup>7</sup>"South Korea, Taiwan, Singapore and HongKong have revolutionised the theory of economic development by showing the world how to skip over much of the industrialisation phase and plunge right into the information technology". J.Naisbitt & P. Aburdene, *ibid.* (p. 163).



## Quantity

If Sarawak is serious about industrialising it is essential that the human resource supply be looked at objectively. In terms of quantum, very little could be done in the short term to increase the supply naturally to meet the industrialisation needs (the Prime Minister's 70 million policy notwithstanding). Thus, it is recommended that Sarawak should consider supplementing any shortage with supply from outside the State.

To import workers may sound too radical to the conservatives and regarded unpatriotic by patriotic souls. But it is really a practical approach and in many ways the only viable solution open to Sarawak in dealing with its manpower situation. Importing workers is not a new phenomenon, definitely not in Malaysia. The plantation sector benefitted greatly with the recruitment of workers from South India and the tin industry was developed considerably by the influx of Chinese labour. Close to home, in 1880 Charles Brooke, the Second Rajah signed an agreement with one Wong Nai Siong to import farmers from Foochow, China to plant padi in Sibu. It was part of his plan to make Sarawak self-sufficient in rice as locals did not cultivate enough of the staple crop in those by gone days. The precedent of outside labour to supplement the local workforce has been set a long time ago - and by now it has more or less become a traditional solution when labour shortage is encountered.

In recommending the recruitment of foreign labour, there is no intention that they be granted citizenship or permanent residence en masse, as was the practice of old. Perhaps these foreigners ought to be regarded as "guest workers". As guest workers it must be recognised they are contributing to the economic growth of the State. Thus, it is imperative that they be treated properly and fairly while they contribute their labour towards the development of the State.

At times fears are expressed that the influx in foreign labour may be detrimental to the employment of locals. If the recruitment of foreign labour is properly executed, this should not be the case. In fact, the presence of foreign labour may actually contribute to the enhancement of economic activity and increase in the number of jobs. What is normally overlooked by opponents of foreign labour is the fact that if local labour is inadequate, investors might invest elsewhere instead of in Sarawak. By allowing foreign labour to enter, the investors would consider investing in Sarawak and Sarawakians would benefit from the job opportunities created. An enlightened and liberal attitude towards foreign labour ought to be encouraged. Without an enlightened and flexible approach towards this issue, the industrialisation programme might be adversely affected.

While the entry of foreign labour is under serious consideration a number of controls and measures must be instituted. Among these are:

- (1) Clear guideline as to the type of foreign labour that could be recruited.
- (2) Duration of employment must be made clear.
- (3) Screening and selection process must be properly done to avoid potential trouble (criminals, diseases).
- (4) Government to Government Agreement must be reached with respect to recruitment, passage and repatriation.
- (5) Rules must be applied to ensure the welfare of foreign workers.
- (6) The Government procedure and machinery must be oriented to speed the processing of approvals, permits etc.

The list of measures and controls above is by no means exhaustive. They are the minimum needed in ensuring that foreign workers are not exploited and their contribution is duly recognised. If the

measures and controls are in place and administered effectively the question of foreign workers becoming a problem might not arise or will at least be minimised. In years to come foreign workers are expected to continue to play a meaningful role in the fast growing manufacturing sector. Foreign workers will definitely help to supplement any labour shortage even as an interim measure.

### Quality

Another vitally important aspect of human resource is its quality. In the context of this discussion quality broadly embodies skill, value, attitude, behaviour/habits and knowledge. The improvement in the quality of human resource will enhance its value as a contributory factor of development. At this stage it could be said that the improvement in the quality of human resource pertaining to the manufacturing sector will strongly influence the trend of industrialisation in Sarawak.

Quite often when the quality of human resource is being examined, the efforts tend to focus on the public education system<sup>8</sup>. A departure from this approach would be beneficial. By and large the public education system provides the basic training to develop skills. Apart from imparting knowledge - (the 3R's) - the education system must make a conscious effort to instill proper skill, value, attitude and behaviour, which are in line with the requirements of a modern day work etiquette. [In this respect the successful models are Japan and Korea - the former a world economic power and the latter is following closely behind as an industrial heavyweight.] This approach however is a rather major departure from the normal concept of an education system. But if fast industrialisation is aimed at, the human resource must be moulded and developed accordingly to achieve the objective.

With regard to skill development it is essential that the issue pertaining to syllabus, equipment, teaching method and trainers be examined closely. While the education system and planners are generally responsive, industry however normally feels that the product of the education system does not "fully fit" the skill requirement of modern industry. The complaint seems to centre around outdated syllabus or its inappropriate content. In this respect there is a need for constant dialogue between the private sector (industry) and public education planners.

The involvement of the private sector (industry) is essential in modern day skill development programme. Apart from providing input as to its needs, industry can supplement the public sector efforts by advising on the methods of training and equipment required. After all industry is the end user and it must be given a task to perform. Furthermore, in a fast changing environment with its emphasis on skills, training could be privatised in order to increase its effectiveness. Most developed countries have now adopted this approach such as Singapore. Surely this approach is worth examining and should be adopted if found suitable.

In the initial years, there will be some problems in securing enough experienced trainers. Definitely it pays to recruit from outside sources to supplement the local trainers. This must however be regarded as an interim and stop-gap measure. The best solution would still call for home grown supply of trainers. This is not easily achieved if there are no major changes in the salary structure, scheme of service and recruitment procedures. Perhaps one good source of experienced trainers are retirees from industry. At the moment this source is virtually untapped. Is the existing system capable of a radical departure to accommodate retirees, who normally have the full wealth of experience, knowledge, skill, and industry attitude which could only be of benefit to the young and future workers in the State? A radical change in the system which is currently

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<sup>8</sup>"A country's competitiveness starts not on the factory floor or in the engineering lab (sic)... it starts in the classroom, (so) we've got to get cracking on education - at all levels", Lee Iacocca commenting on the declining productivity of American workers and low educational achievement of students, in his bestseller "Talking Straight". (p.236)

designed for a more tranquil and slow-paced era is essential.

The training of modern workers must also include the inculcation of right values, work ethics and attitude to prepare them for the rigours and discipline of a modern day working environment. Among the rudiments of values and ethics which should be inculcated are:

(i) **Values**

- Respect
- Trust
- Responsibility
- Integrity and Honesty
- Self-discipline

(ii) **Work Ethics**

- Industriousness
- Creativity
- Innovativeness
- Teamwork
- Punctuality
- Excellence
- Pride in Quality Workmanship
- Safety Consciousness

The above are by no means the exhaustive list of the characteristics of modern and highly productive workers. But it is a good start. Perhaps an unabashed "Look-Easter" would say that in Japan (and Korea) the above characteristics are instilled in the education system from tender age - and later on selflessness and sacrifice added to the list. Thus, if Sarawak wants to develop as an industrialised economy it has only one option - its limited human resource must be developed to its full potential. There is an urgent need to improve the quality of human resources to ensure the success of the industrialisation efforts.

## **CONCLUSION**

Industrialisation would continue to be pursued as part of the overall effort to develop the economy of Sarawak. The emphasis of the industrial development programme would focus on resource-based industry. The resource-based industry could eventually become the backbone of the fast growing manufacturing sector. In promoting industrialisation however there is an urgent need to draw a most appropriate plan to ensure that the effort is fruitful. Apart from developing the natural resources, the human resource situation must also be taken into account in promoting industrial development. The quantity and quality of the human resource would have a major influence on industrialisation - and this ought to be recognised and dealt with accordingly. A well synchronised utilisation of natural resource and development of human resource would greatly determine the success or failure of the industrialisation plan in Sarawak.

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## QUESTIONS AND ANSWERS

**Question:** What are the plans of the Ministry of Industrial Development, (short term and long term) strategies and programmes towards preparing human resource development (HRD) especially the supply of semi-skilled and skilled labour as envisaged in Vision 2020? There is no mention of any plan, strategy or programme in this paper.

**Answer:** Actually HRD does not come under my Ministry so what we have done so far is to work closely with the Ministry of Education. For example, when we realize there was a shortage of workers for the petroleum industry, we immediately work with the Ministry of Education to modify the syllabus. Then we went to seek the assistance of Petronas to sponsor the Polytechnic to change part of their courses. At the same time, Shell was asked to help convert our Youth Development Brigade into Technical Training grounds for the petroleum industry. I believe the high level training provided by the two oil companies could be useful in other industries. The high end of skill development is important for all forms of training.

**Question:** You claim that your Ministry is not involved. If the responsibility does not lie with your Ministry, then what are the agencies in Sarawak, in particular, that have a role to play in this manpower planning programme?

**Answer:** Well, I suppose the central role comes from the State Planning Unit which is planning for our human resource needs. The Education Department implements the programmes. In fact, in my paper, I have specifically written that there should be continuous dialogues and discussions between the agencies, government agencies and the private sector.

**Comment:** I come to understand that a lot of polytechnics will appear in Kuching due to political reasons. I understand that polytechnics should be built near the place where on-the-job training would be held like Bintulu and Miri. Could you please comment on that? Thank you.

**Comment:** I don't think there were any political reasons for having the Polytechnic in Kuching. What we have in Kuching is only a starter, and soon we should have many more elsewhere.

**Reply:** I'd like to add to that. Actually, I share your sentiment. I'd strongly recommend that in future, if such things do come up, they should be sited where on-the-job training can be done conveniently and effectively.

**Question:** What are your priorities on human development? We have a lot of resources so which one should be developed first?

**Answer:** Petrochemical. It needs little labour but the quality should be high. In other words, the priority is to promote 'high end' industrial programme - high value added and quality products. This development must act as the trend setter or catalyst.