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Stop trifling with biotechnology

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BANGLADESH can ill afford to spend money on promotion of something on a conceptual basis unless the scientific community has proved beyond any reasonable doubt the efficacy and viability of the idea and the benefits to accrue from it. The government's top decision makers who set priorities for the country and allocate funds accordingly, need to be convinced with facts and figures as to why bio-technology should get preference over so many other pressing concerns competing for their attention. The topnotch administrators think, and partly they are correct, that Bangladeshi scientists, excepting those engaged in agricultural research, undertake research which have no direct bearing on the economy of the country. It is time their notion changed.

A see-through example of utilisation of biotechnology in BD is baker's yeast: The notion that scientists alone are to blame for the failure of biotechnology is not correct. Rather it is the lack of liaison between the research organisations and industry as well as between university and industry that is responsible for non-utilization of the technology developed in the academia. A concrete example will underpin my contention. In the first half of the 'nineties the Dhaka Laboratory, BCSIR developed a process of baker's yeast production on a semi-pilot scale. A number of bakeries such as Orient

Food Industries, Nabisco were keen to take the lease for commercial production. In fact, the former used the BCSIR product to prepare their bread and expressed satisfaction at its quality. The only impediment about the finalisation of the lease was about the quantity. Whereas the pilot plant at BCSIR could produce daily a maximum amount of 20 Kg, Orient Food Industries' requirement was double that quantity. The problem could have been solved if the premier bread company established a semi-commercial plant and utilised the know-how of BCSIR engineers to set it up. There are sources such as Grameen Udyog and Islamic Development Bank and some industrial banks that could have provided capital for the establishment of a commercial plant, if they were properly approached.

Failure of BCSIR to lease the product: Under the circumstances, BCSIR could not lease this well-proven process to any of the interested parties. As a result the country still imports annually 1000-1200 tons of baker's yeast from Holland, Belgium and France at a cost of Tk. 280 million (US\$ 40 million) and the pilot plant in BCSIR is languishing.

BCSIR has a division called Research and Development. They lease out processes to different interested parties and do the paperwork for finalising the leasing process. But this organisation does not have a section to act as a bridge between industry and itself like what is found in the USA and Europe. Neither Industrial scientists

and engineers nor their counterparts in academia are encouraged to bring the perspective to their opposite number. The model of National Science Foundation (NSF) in the USA may be followed. NSF serves as a catalyst to establish industry-university partnerships. It brings together intellectual capital and emerging technologies in ways that promote economic growth and an improved quality of life.

Bangladesh Academy of Sciences (BAS): In our country, BAS can play the role of NSF. BAS has the potential to play a catalytic role to forge such partnerships to the mutual benefit of both laboratory research and industry. Benefits will be mutual in that a part of funding will be available to universities that may be utilised to a) expand in-house research capabilities; b) design infrastructure to adopt viable technology options; and last but not the least c) such a partnership will create for their students more training opportunities for industrial positions and future employments. This partnership will also encourage industry to carry out more research-intensive activities with a view to shortening the research and development cycles.

Electricity from city wastes: The country is still undecided whether to adopt a well-proven technology of utilising city garbage wastes for the generation of methane gas and its conversion into electricity. The plan has been going on since mid-nineties and in 1996 several technical hands received training at the Asian Urban Information Centre at Kobe in Japan.

Beximco synthetics at Savar successfully tested it. There was a similar survey covering the port city. Now that preliminary studies at three different places have been completed successfully, and Japan has been training the concerned staff, it will be worthwhile for the present government to make a master plan on a priority basis for disposal of garbage of all big cities. Implementation of this doable project will serve a number of purposes: it will i) help disposal of garbage now increasing in an alarming proportion; ii) improve sanitary conditions much to the relief of citizenry of the concerned cities; iii) generate electricity that may alleviate load shedding.

Government's support is a great help to push technology: One of the best examples that government support helps promote industry comes from our own experience. The tissue culture laboratory at the Department of Botany, Dhaka University, developed protocols for mass propagation of several varieties of local and exotic orchids and demonstrated the technology to the then Secretary Ministry of S&T. We asked for grants to do it on a semi-commercial scale. Not only we got the grant but the Ministry came forward to allot some space in front of the Science Museum at Agargaon for construction of a greenhouse. There we displayed tissue-culture-derived local and exotic orchid plants with brilliantly colored flowers. Exhibits of such products in a public place created a keen interest among entrepreneurs

and NGO's, giving birth to a number of firms within a few years. Apart from orchids and other ornamental plants, BRAC Plant Biotech Lab at Joydebpur produces annually 5,000 tons of virus free potato seeds. This lab produces Stevia plant on a mass scale through tissue culture and uses its ingredients to produce a pill sweeter than sugar for diabetic patients.

India's astounding success in the field of biotechnology: Unlike our country, India successfully has been harnessing biotechnology to her economic benefit mainly due to the tremendous support given by the Department of Biotechnology an autonomous body in the Ministry of S&T. The Bangladesh biotech community desperately needs such a positive support from the present government to implement the recommendations submitted by the expert committee formed by the participants of an incredibly successful International Conference held in ICDDR,B, Dhaka in April 2007.

We are lately talking a lot about adopting biotechnology and we are debating where to start and yet we are not utilising what we have already got at our hand. Could the community wake up to have a dialogue with the concerned authorities to move the wheel of biotechnology thereby pushing our country towards progress and prosperity?

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In quest of knowledge economy

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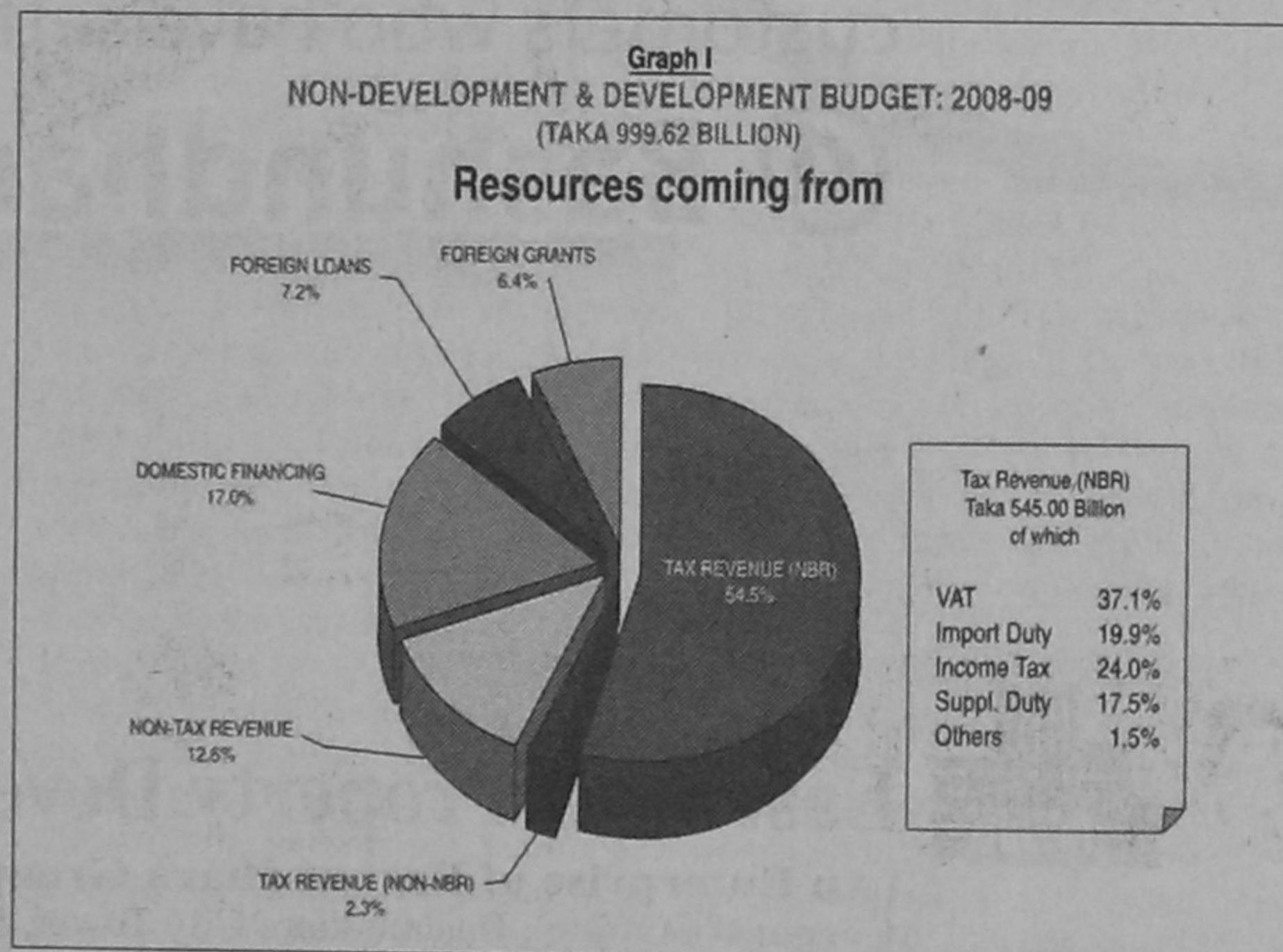
manufacturing of goods is a greater source of income. Is it not painfully true that our country which could have been transformed into a manufacturing country has now been reduced to an indenting country. Have the governments really concentrated on building up a manufacturing base in the country?

(f) Universities all over the world have been recognised as generators of new thoughts and ideas. In fact, most of the recent S&T innovations have come from the Universities of the world. For this to happen, scientific research will have to be undertaken as a regular activity of the University system. Our universities and technical institutions have been largely reduced to teaching institutions. The amount of money spent on the S&T sector is much below 1 percent of GNP. The S&T expenditure in countries which have shown significant rates of growth of economy varies between 2 and 3 percent of GNP. The question is: Why are we lagging behind in providing this vital input?

I am not indulging in any blame game but merely highlighting the pitfalls so as to learn to avoid them in future.

If we look at the economic scenario of some of the countries of South and Southeast Asia, we find that S&T really acted as "Aladin's" modern lamp and served as an instrument of change.

In many of these countries there is a lack of natural resources. But that did not impede their economic development. These countries bring resources from outside, make value addition to them and sell them in the world markets at competitive prices. These nations worked hard to acquire the scientific knowledge that made value addition possible. Thus, knowledge itself is being treated as the best raw material of the day. No wonder, the present age has been dubbed as one of Knowledge Economy. If we have to appear as a nation of middle income economy within a short period of time, and if some of the Millennium Development Goals set for developing countries have to be achieved, there is no doubt but we have to invest more on education and S&T towards



increasing our capability for value addition.

Knowledge Economy and generation of resources

In Bangladesh we can also use the same principle of Knowledge Economy provided we believe that we can do what others can. Our budgets (including the present one) have not reflected use of the concept of Knowledge Economy in our development projects so far. Some of the practical areas in which knowledge economy can bring economic dividends are as follows:

(a) **Development of skilled manpower**
Bangladesh earns a major part of its foreign currency through the labour force exported to different countries. 'At present almost the entire labour force is unskilled. Our foreign exchange earning would be increased by orders of magnitude only if we could provide highly skilled manpower, especially to countries which are having zero population growth. This skilled manpower could be created in the areas of high grade plumbing, precision lathe work, glass-to-metal sealing, nursing, hotel management and tourism, learning of different languages (Arabic, English, French, Chinese etc.).

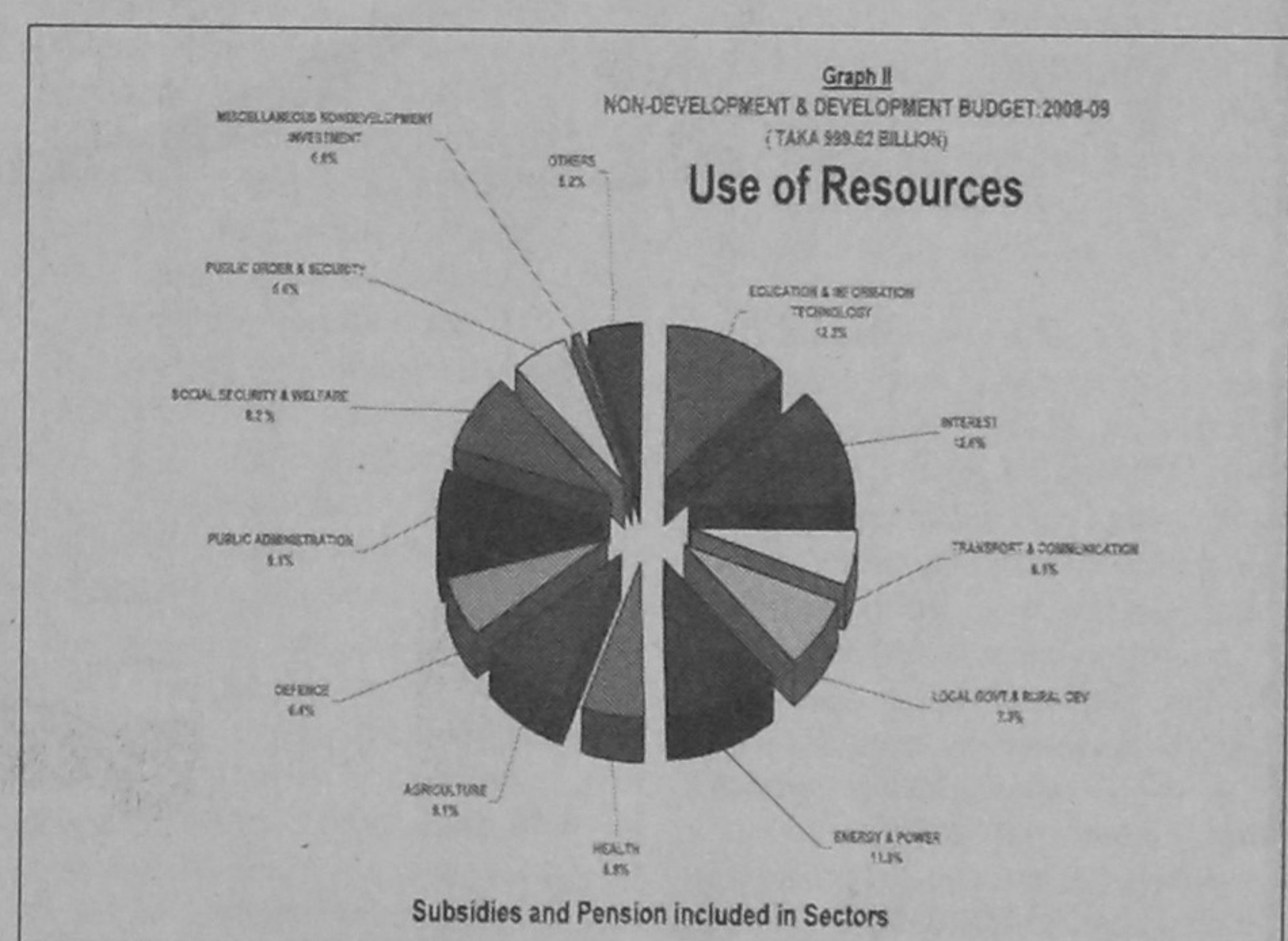
(b) **Use of natural resources**
For purposes of use of natural resources, the A to Z of the overall operations of survey, exploration, lifting

and utilisation of the resources should be mastered by the Bangladeshis themselves. Bangladeshis are not really poor. Our poverty is the poverty of thoughts. Our poverty is the poverty of vision. In my opinion, we have politicians alright but we do not have statesmen. Anyone having vision would have insisted on acquiring capability to lift natural resources existing under our soil.

(c) **Development of jute products**
Jute is a wonderful biodegrade fiber and has a great demand in the international market. All we have to do is to make knitted light jute bags as a substitute for polythene bags. If we could provide these bags to the supermarkets of the world on a continuous basis, the economic scenario of Bangladesh would be completely different.

(d) **Planting of trees**
If we can plant coconut trees along the entire coastal belt of Bangladesh, not only would the intensity of storms be reduced and the intrusion of salinity be lessened but the economic benefits would also be tremendous. We could also claim money from the international community in the name of 'Carbon Debt'.

(e) **Software development**
In this age of ICT revolution our boys and girls could be given adequate training in all aspects of E-trade and E-



Commerce and could also be encouraged to develop a software industry by providing them logistic support and by projecting their ICT strength to the international community through our diplomatic channels. The software developments would, of course, have to know the English Language well.

(f) **Use of bio-technology**
The various forms of bio-technology including tissue culture are now being used as money earners in many countries including Thailand. The orchid culture in Thailand has been a glaring example in this connection. The food processing industry in Thailand has also been an economic booster. There is no reason why Bangladesh should not use similar techniques for economic prosperity.

(g) **Agricultural production**
The agricultural production in Bangladesh can be greatly boosted if we can arrest the degradation of soil, use bio fertiliser and proceed towards "vertical agriculture" through the use of new genetic varieties with fulfillments of the requirements of water, fertiliser and insecticides.

Zakat as a financial institution
Our planners are yet to treat Zakat as a financial institution for purposes of poverty reduction. It is estimated that billions of takas can be raised as Zakat in Bangladesh every year. If a proper

system of collection is in place, this money can be used for reducing poverty of the huge section of the population, without taking help from international financial institutions thus reducing our debt burden also.

Conclusion

It must be pointed out that the improvement of the economy of a country is not a simple matter. It depends on a number of factors including the vision to foresee things ahead of time, political stability, foreign investment, proper tax and vat collection, financial reforms in the banking and administrative sectors facilitating the operation of trade and commerce (yet at the same time preserving the transparency of operation), increasing capacity building in science and technology for making value additions to products and processes, arresting environmental degradation through adoption of environment-friendly measures in all social and economic activities; and lastly, through the creation of a knowledge-based society with equal opportunities for men and women and having regard for morality and ethical values.

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