

## Science and Technology Research in Bangladesh

**R**ESearch institutes may be defined as centres where a very useful training is presented to young researchers. Actually human knowledge is deeply rooted in basic research. Many academic researchers believe that basic research is vital for the lasting strength of a nation's economy. Basic research is a common good for two reasons: a) it helps to satisfy human need to understand the universe and b) it makes new technologies possible.

But basic research must be supported by the public sector because it does not yield profits. Basic research in science flourishes only when it is fully open to the normal processes of scientific debate and challenge and the results are available to all.

In 1991 the Dutch government announced its intention to help in the formation of research schools with the aim of concentrating scientific research and graduate education in a limited number of recognised institutes, since then many prestigious groups from various universities in the Netherlands have been working together to form research schools around common themes. So far 37 research schools have been granted official recognition by the Dutch Royal Academy of Sciences. Dutch research groups are interested to join research schools because there they get lot of scopes to broaden and deepen their knowledge. Moreover they can carry out research towards their PhD. The researchers feel that if they are not in the research schools, they are rather out of the swim of things. I believe such a research institute can very well earn both prestige and money for the researchers and the country as well, if it

is established even in a country like Bangladesh. But the institute shall have to meet a series of stringent requirements concerning level of scientific education, competence and organization.

The University Grants Commission (UGC) can provide financial support on an annual basis to the research institute for which the UGC will be the principal coordinator. The research institute may consist of Bangladeshi partner institutes as well as participants from the SAARC countries, the Middle East and may be the Asian Tigers.

In June 1994 an international research school on fundamental and applied nuclear and atomic physics (FANTOM) was officially recognized with the University of Groningen as its principal coordinator. They have partners in Belgium, France and Germany besides other Dutch participants. The research institute in Bangladesh may be given the name Institute of Science and Technology Research (ISTR) or Scientific and Technological Research Institute (STR). The ISTR or STRI must be given the international character so that the research and training of the young scientists is organized by the international collaboration which may bring immense opportunities for the scientists.

The governments of several European countries have launched plans to stimulate international cooperation in the training of research assistants. Some of the countries have stated integrated research and educational programmes, and others expect to follow. These programmes are mainly organized within national borders. The establishment of a research school like FANTOM is the next step in this continuing process of

by Md Lutfor Rahman

internationalization. It is expected that other European institutes which have close contacts and collaboration with FANTOM will join in the future. There are also a number of associated institutes and research schools with which FANTOM cooperates by organizing joint study weeks and exchanging students for work placements.

The proposed ISTR or STRI in Bangladesh can start basic technological research on solar energy and software programming. It can choose other fields according to the needs of the country and the researchers as well. Initially it can start its activities in the Institute of Science and Technology (IST) at Dharmaditya. The IST is an affiliated institute of the National University of Bangladesh. It is a non-commercial, non-political, non-smoking and less disturbed institute. It offers BSc (Hons) course on computer science



The existing Institute of Science and Technology (IST) may be given the shape of Institute of Science and Technology Research (ISTR).

and the integrated courses on electronics, physics, mathematics, statistics, economics and English are taught in Hons classes. It started functioning in mid June, 1993 with the admission of 50 students in 1st year BSc (Hons) class in computer science. The duration of study in BSc (Hons) in computer science was basically three years. Recently the syllabus has been modified aiming at international standard and the duration has been extended to four years.

Admission into MSc level in computer science at the IST is open to the holders of BSc (Hons) in computer science, physics, applied physics and electronics and also the BSc engineers in computer engineering, electrical and electronic engineering or its equivalent. Students with excellent results are encouraged to apply

for admission tests. Only sixty students from the top of the list are considered for admission. Research opportunities are there for the final year students. The IST's educational programme is currently being developed and is being centered around the present and future needs of the country. At the moment, there are about 40 teachers and associates (full time, part time and honorary). The teachers and associates are well qualified, trained and experienced abroad in their respective fields. The IST has a board of governors with members chosen from the scientific staff of the universities and industries as well as from among the eminent educationists.

The institute is patronized by an international patron, the Nobel laureates Prof. Abdus Salam and the local patron Begum Khaleida Zia, the honorable Prime Minister of Bangladesh. Both the research and educational programmes of other institutes of Bangladesh can be started at the IST premises in collaboration with other Asian countries.

Bangladesh Atomic Energy Organisation (AEO) and the Bangladesh Council on Scientific and Industrial Research (BCSIR) are the main research organisations on physical science and engineering. The scientists of the AEO are receiving huge funds from the government in the name of research and development on different projects every year. Public is not aware of their activities.

Regrettably the AEO has failed to offer any result to the nation on one of the most prospective projects, the beach sand pilot project of Cox's Bazar for which they received funds of millions of taka during the last 25 years.

The main reason for this, I believe, is the flaws of funding policies of the government.

Before sanction of funds on these types of projects the funding agency should listen to the distinguished scientists of the country. To encourage more discoveries in science it makes more economical, social and scientific sense to fund more researchers with smaller grants, rather than a few "top notch" scientists with large amount of money. In fact, great research almost never benefits from "super funding". If Albert Einstein had received five times more money, he could not have discovered five more theories on relativity. Previous experience shows that over-funding has been a disservice to the scientists and their actual creativity has shown a decay, not a growth. So funding policies should never suppress innovation. Funding bodies should concentrate on the track record -- the actual achievements of the applicants -- rather than continuing a useless game of competition between promises.

Bangladeshi scientists should stop blaming government for under-funding and should start cleaning up their own houses. The first thing to do is to move from competition to genuine cooperation among the scientists. We have to restore the morale of our scientists, engineers and technologists to involve them and their skills in shaping the future of Bangladesh and all its people. I believe government and extra funds are not needed for us to do this. We can do it ourselves, and now.

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## What to Do with Live Internet

by Gemini Wahhaj

**L**IVE Internet hasn't arrived in Dhaka yet, but it's on the way. Agni Systems Ltd, one of the e-mail service providers in Bangladesh, will start providing several Internet services in March. But the big question is, once we have live Internet, who are we to put it to best use?

Some of the most widely used services are World Wide Web (WWW), Telnet, IRC, ftp, Archie, News, e-mail and Newz. Let's describe the other a little. The World Wide Web, the most popular and trendy Internet service at the moment, can be thought of as a personal and space on the Net.

Anyone can put any information, ranging from a page to a whole brochure with colour graphics and live animation, on the Net to sell services, advertise, or network. WWW will play a big role for local traders who can check the Web pages of suppliers for price listings. Bangladeshi exporters can also promote their products by maintaining catalogues and lists of services. Once the Web is available in Dhaka, Agni will prepare Web pages for different businesses.

Telnet allows a user with an account on a remote server to access their remote log-in. This service may not be so widely used in Bangladesh, because it is unlikely that many local users will have foreign accounts as well. But who knows? The IRC (Internet Relay Chat) allows multiple users to have an online conference. The



FTP (Fast Transfer Protocol) copies files to and from a remote machine. And Gopher is a utility which lets you search for a certain information from all servers on the Internet.

For example, say you want to do a search on Bangladesh. Then, using the appropriate key words, you'll be able to access all files on a remote server by file name. i.e. it can't search for information within a file as Gopher can. Academic institutions will probably be the heaviest users of FTP, Gopher, and Archie.

There are many debates about how the Internet should be put to best use in Bangladesh, largely as a result of Andrew Robinson's project with Ford Foundation on the subject. Nawab Kabir of Agni has a simple answer: "I'll put Bangladesh on the cyberspace map. Live Internet is a clear sign of development of a country. It makes a difference in international opinion. Hopefully, it'll also increase foreign investment, create traded opportunities, and who knows what else. Just hold your breaths."

### Number

**"W**HAT is your number?" The young man looks nervously at the members of the selection panel and replies in a hardly audible voice: "Two hundred and twenty-five Sir." "What did you study?", continues one of the panel members. The applicant: "Civil Engineering Sir, at the Bangladesh University of Engineering and Technology." The panel member makes some notes and without looking at the candidate fires the next question: "Why did it take you so long to complete your studies? Eight years is rather long." Trying to control himself he replies with a suppressed voice, "I could have completed my studies much earlier. The problem was, that I had to wait three years for my study results. My professors never had time to take exams. And then with so much disturbance going on over the last years, the university was often closed for months." A second panel member wants to know if the applicant knows something about the construction of houses in rural areas and about his knowledge on the use of bamboo. The young man clearly has trouble in answering the two questions. He pauses some time and seeing that the panel members are becoming impatient he finally answers: "Why do the people in rural areas use bamboo? I do not know. Maybe because it has always been there. I know very little about rural houses. I have no idea about the costs."

ties nowadays. Ninety per cent of our people live in bamboo houses. The graduates in our technical universities are not made aware of this." Then looking at the candidate he comments: "Do you actually know what kind of job we offer in this organization? It concerns the construction of houses for landless families in rural areas." Looking desperate the young man responds: "I am sorry, I did not realize that the job concerned rural housing. Still please give me a job. It does not matter what I have to do, as long as I can earn some income. I feel so ashamed for my family. My parents have sacrificed so much for the financing of my studies."

The young engineer is one of the more than four hundred graduates who have applied for the position of field worker in a project run by a local ministry. The project concerns the establishment of settlements for landless families. For the next twelve months the project requires twenty-six young graduates for the supervision of village construction activities undertaken by the Thana administration and human and community resources development implemented by Non-Government Organisations (NGOs).

### Delayed completion of studies

Most of the candidates who have applied for the post of field worker have completed their studies in six years. For some it took even longer. Political unrest, regular closure of the university campus, professors who often have no time to attend to the study needs of the students and an inefficient university administration make the average time for completion of the studies much longer than actually required. For most of the candidates it is not the

### Please give me a job

The civil servant at the other side of the table is clearly not satisfied with the answer of the young man. Annoyed he looks at the other panel members and says: "I do not understand what is taught at our universities nowadays. Ninety per cent of our people live in bamboo houses. The graduates in our technical universities are not made aware of this. Then looking at the candidate he comments: 'Do you actually know what kind of job we offer in this organization? It concerns the construction of houses for landless families in rural areas.' Looking desperate the young man responds: 'I am sorry, I did not realize that the job concerned rural housing. Still please give me a job. It does not matter what I have to do, as long as I can earn some income. I feel so ashamed for my family. My parents have sacrificed so much for the financing of my studies.'"

## In Quest of a Job

by Hans Rolloos

first time they apply for a job. When I talk to some of them, they say that they have lost track about the number of their applications. "In the beginning you keep some kind of register," one of them comments. "After fifty applications you stop doing that. By that time you have received so many negative replies, you lose interest. At first you really make an effort to get a job, later it becomes a daily routine. In the morning you go through the newspapers, you make photocopies of your curriculum vitae, you check the number of passphotos and deposit all this in an envelope at the post office, where your face has become familiar. On average I spend 500-750 Taka per month on photocopies, stamps, passphotos and travel money. That is almost a third of the money I receive from my parents as my monthly allowance."

### Young woman

The next candidate enters. She is a young woman and has studied sociology. Full of confidence she takes her seat. Following the latest regulations at least ten per cent of the government vacancies should be filled by women. A number of panel members raise objections. According to their traditional belief women are weaker than men. They also claim that this has been scientifically proven. To challenge the woman candidate they ask her the following question: "Do not you think it very heavy and even dangerous for a woman like you to work in a rural environment?" The young woman answers promptly. "I have no problem living in a village. Otherwise I would not have

applied for the job. I do not see any problem. After all half of the villagers are women. I want to do something for these people. A lot of women in our country, especially in rural areas, are still treated like second class citizens. That has to change."

### Gun shot

Suddenly, half way through the interview which takes place on the fourth floor of a building edging the Dhaka University campus, there is the sound of a gun shot. Frightened, the panel members and the applicant take refuge on the floor. After the sound of the gun shot has died down, it becomes dead quite. Then a few seconds later there is the sound of people quickly running away. The members of the panel get up from the floor and look out of the window. Outside it is dark. There is little to see. A few minutes later one of the project office boys appears. "I saw it happening," he starts very excitedly. "A professor has been killed by two students in a shop nearby our office. The students had tried to extort money from the shopkeeper. When the shopkeeper refused to pay they attacked him. A professor who happened to visit the shop, intervened and requested the students to stop the beating of the shopkeeper. One of the students got so angry with the professor that he took his gun and shot him. He is dead."

The panel members are in doubt what to do. Outside the interview room twenty candidates are still waiting to be called. They have been there for the last three hours. The members decide to con-

tinued.

"Number two hundred and seventy," calls the office boy. A well dressed young man with an expensive looking office case gets up from his chair. He does not look very much of a field worker type. He has studied political science. "If you had to find out if there is a any development in the village, what questions would you ask the villagers?", is the first question he receives. The political scientist does not know what to say. Finally he says: "I would ask them what they had voted for during the last election. By the way, why do you ask me these questions? I have very good references. Two of my uncles are very important people. They will be very happy if I get the job, although I do not like to go to the village. I assume there is also a lot of office work to be done."

### Forty per cent jobless

It is estimated that over forty per cent of the graduates in Bangladesh are jobless. In some fields, such as philosophy, English literature and psychology the percentage may even be much higher. In spite of this high unemployment percentage every year hundreds of thousands of high school students try all means to get access to one of the country's leading universities. The most popular are the universities in Dhaka. For the Dhaka University alone, close to fifty thousand high school students take the entrance exam every year. The Dhaka University has only three thousand eight hundred places. The less fortunate are forced to try their luck in other universities. The study choice is often limited. A first year student who had taken

an interest in engineering may end up studying sociology or mathematics.

The excessive time required for the completion of the studies and the high unemployment rate has led to a high degree of frustration and tension among students and graduates. Although past governments, and also the present government, have initiated some activities to generate employment for jobless graduates, their impact has been limited. In some cases, one wonders why. In Nilphamari Sadar, for instance, the local Thana Health Complex has places for twelve doctors. The Ministry of Health has only filled three positions. In Dhaka, hundreds of young doctors are idling around. In this respect Bangladesh could learn from Indonesia.

In that country every medical graduate has to work in rural areas for at least a year. To promote further employment for graduates the Indonesian government has special pro-

grammes where, after more than four years of successful working in a village organization such as a cooperative or credit union, graduates are offered government jobs. Because of unemployment many Bangladeshi graduates are leaving the country. Recently, three hundred doctors found work in Malaysia. Bangladesh has invested at least 120 crore taka in their studies. Malaysia gets the doctors for free.

### Two hours late

It is nine o'clock in the evening. The last candidate has left the interview room. Outside the office the police have finally arrived. The bystanders argue why they have come so late. "Yes we know we are late," comments one of the officers. "We had two more killings in Old Dhaka. Another reason is that we are really overstretched. For the last three days I have come home late at night. By the way, has any of you witnessed the crime?"

## Africa: AIDS Apocalypse Now

**H**ARARE: If there were a checklist of human misery, Africa would have them all. The grim reapers stalking Africa -- disease, famine and war -- have become so banal they fail to make headlines anymore.

But it is AIDS that is now taking the highest toll on the continent. And socio-economic experts say the disease should not be seen in isolation, but as a result of Africa's post-colonial political and economic decay.

That AIDS can be avoided through safe sex makes all the more tragic the fact that 70 per cent of cases reported worldwide from the end of the 1970s to mid-1995 occurred in Africa, despite years of AIDS awareness campaigns.

**As if wars, famine and drought were not enough, Africa is also being ravaged by AIDS. Lewis Machipisa of Inter Press Service looks at the reasons why the continent is so blighted by pestilence.**



Why? Some blame falling commodity prices, bad economic advice and mis-governance for forcing Africa to cut social spending. African countries endured economic reforms prescribed by the World Bank and the International Monetary Fund because they had no choice.

And when the crunch came, they generally axed health and education budgets first.

Medical evidence suggests there is a link between sexually transmitted diseases and AIDS. If health centres treating STDs are closed in spending cuts, or medical charges hiked, then AIDS proliferates.

Neither can cash-starved health ministries afford expensive blood-screening equipment and their awareness campaigns only scratch the surface of the problem.

Furthermore, economic hardship reduces resistance to the opportunistic diseases that come with AIDS. And poverty, which disadvantages women in particular, encourages the growth of a sex industry where money rather than safety is the criterion.

AIDS cases in Sudan, a predominantly Islamic country with a population of more than 25 million, have

reached the two million mark -- the third highest after Uganda and Zaire.

"We are hit because of our poverty situation. People with no means of income trade sex for life, street girls are becoming prostitutes and they help the spread of AIDS," explains Dr El Kidier, director general of the national AIDS programme in Khartoum.

"If we look at AIDS problems in Sudan, we find that

is transmitted predominantly through unsafe heterosexual sex. But in many countries condom awareness is high, and the prophylactics relatively cheap.

In Zimbabwe barely a decade ago condoms were practically unheard of. Now, distributed virtually free by the government, they have become a mundane fact of life for many here.

But AIDS cases are still on the upswing with 42 people reportedly dying daily in a nation of 10.5 million people, where one million are believed to have the AIDS virus, HIV.

According to Zimbabwe's National AIDS Co-ordination Programme (NACP), the prevalence of HIV among women attending ante-natal clinics ranges from eight to 46 per cent. In Francistown, Botswana, HIV rates among pregnant women rose from eight per cent in 1991 to about 35 per cent by 1993.

AIDS can be spread at the birth of the child or through breast feeding. In Namibia, a total of 10 per cent of school pupils in the north of the country are HIV positive, according to the ministry of health.

Congo's National Anti-Aids Programme (PNLS) reports that of 2.5 million Congolese, about 100,000 are HIV positive and of these more than 60,000 are women. Some 60 per cent of the deaths in Congo's security forces are due to AIDS, said a PNL report.

In Burkina Faso, the number of recorded AIDS victims has risen from two cases in 1985 to 3,722 by 1993, of which 80 per cent were aged between 15 and 49 years. Today, there are 944,870 HIV carriers according to the World Bank.

The level of HIV infection, currently at seven per cent, will reach 10 per cent by 1997, notes the World Bank.

In some countries like Cote d'Ivoire, Zaire and Uganda, AIDS has become the leading cause of death among adults.

Inter Press Service

**James Bond**  
BY IAN FLEMING  
DRAWING BY HORAK

WHY, COMMANDER BOND?  
I JUST DROPPED IN TO VISIT MR. MACHESON. IF YOU WERE LEAVING, LET ME GO.

NO FEAR, COMMANDER. I NEVER STAY WHERE I'M NOT APPRECIATED!

MOMENTS LATER... ON THE TERRACE OUTSIDE...  
LISTEN, MACHESON. I NEED YOUR HELP. I'VE BEEN ASSIGNED TO GET SCARAMANGA!

**TOM and JERRY**

WHY DON'T CATS ENJOY SWIMMING, TOM?

FOR A VERY IMPORTANT REASON.

WHAT'S THAT?

WATER MUGGES OUR WHISKERS!