

Country Focus

Bangladesh

Geography

Bangladesh, officially known as The People's Republic of Bangladesh, is the ninth largest nation in the world, and with a population of over 129 million people living in an area of 1,47,570 square kilometres, is the most densely populated.

Historically a land of peace and turmoil, prosperity and deprivation, Bangladesh is a riverine country bounded by India to the West, North and East; Myanmar (Burma) to the Southeast; and by the Bay of Bengal to the South.

Our country is shaped by two great rivers, the Ganges (the Bangladesh portion of which is called the Padma) and the Brahmaputra (known as the Jamuna in Bangladesh portion), which join in central Bangladesh to become the Padma. Below its confluence the combined stream is then called the Meghna with a much smaller tributary of the same name. These and other inland waterways are important, providing low-cost transport and access to areas where land transport would be costly. They also carry most of our domestic and foreign freight to and from our chief seaports of Chittagong and Chalna. However, during the annual monsoon season - between June and October - they overflow their banks flooding about a third of the country. Flooding is both a blessing and a curse, for without it the fertile silt deposits would not be replenished, but severe flooding also regularly damages crops and destroy villages, sometimes taking a heavy toll on both human life and our animal



population. In contrast, some parts of our country suffer intermittent water shortages caused by falling water tables, while deforestation has caused soil degradation and erosion.

History

The earliest existence of Bangladesh was found in the Hindu epics of the 9th century B.C. During the 5th and 6th centuries BC, the Aryans from Central Asia and Dravidians from Western India ruled the country. From about 320 to 550 AD, the region was part of the Gupta Empire¹, who established a strong central government and ordered society in accordance with Hindu beliefs. Buddhists and Hindu kings ruled until about 1200 AD when they were supplanted by Muslim invaders under Sufi influence who converted most of the population to Islam, and since then Islam has played a crucial role in our history and politics.

During the 16th century Portuguese, Dutch, French and British traders began to visit and tried to influence the local Muslim rulers. The British gained control in 1757 and ruled the region for around 200 years. During the British administration of India our country formed the eastern portion of Bengal, the remainder being what is now the Indian State of West Bengal. Following independence from Britain in 1947, Bangladesh became "East Pakistan", one of Pakistan's five provinces but isolated from the

¹ Gupta mathematicians developed the decimal system and the concept of zero. They also created a number writing system that was later adopted by the Islamic Empire, which although known as Arabic Numerals, is really a Gupta achievement. This number writing system is used throughout the world today.

other four by some 1,800 kilometres of Indian territory. In 1971 East Pakistan seceded from its union with West Pakistan, and following a glorious and historic nine-month liberation war, we became Bangladesh. We have a parliamentary form of government, our Head of State being The President while the Prime Minister heads the Government. Our state language and mother tongue is Bangla, although English is widely spoken and understood.

Bangladesh Government initiatives in developing ICT

- 1983 - Bangladesh Computer Committee established.
- 1988 - National Computer Board created (restructured as Bangladesh Computer Council (<http://www.bccbd.org>) in 1990).
- 1998 - all taxes and duties waived on imported computer hardware and software.
- Tax holiday for software and IT services Companies.
- Intellectual Property Rights law enacted.
- 2002 - National Information and Communication Technology (ICT) policy formulated.
- Electronic Transactions Act introduced, which includes Cyber Crimes (draft).
- ICT Incubator established.
- e-Governance initiative.

Our Government web site is at..... <http://www.bangladesh-gov.org/>

Information and communications technology (ICT) in Bangladesh

There is a very positive attitude towards the use of ICT in Bangladesh², which is now increasing rapidly in both the public and private sectors.

Computers were first introduced to Bangladesh by the Atomic Energy Commission in 1964, to be followed later in the 60s and in the 70s by their use in the financial sector. At that time computers were used mainly as a research and data processing tool, and it was not until the 80s that wider use was made of them in the printing and publishing industries. However their high price at that time restricted more general commercial use.

Personal Computers gained popularity in the early 1990s when they became more user-friendly and affordable, but the real boost came in 1998 when the Government exempted computers and IT accessories from taxes, a move that coincided with substantial price reductions in the global market. The result was that growth in the use of PCs in Bangladesh during 2000 was estimated to be about 32% over the previous year.

The introduction of the Internet to Bangladesh in 1996 was another milestone. Initially bandwidth was very limited and expensive due to the high cost of VSAT³, but since VSAT's deregulation costs have fallen substantially and bandwidth increased. We now have over 100,000 Internet users and some 100 Internet Service Providers offering services through dial-up, cable modem, DSL and radio links. Both hardware and software industries hold annual sales exhibitions, and these create great enthusiasm throughout the population, especially among the younger generation.

Government Policy towards ICT

Our Government's policy on ICT is very positive. Although there have been government initiatives for some 20 years, real progress began in 1997 when the Government appointed a committee headed by a renowned expert - Professor Jamilur Reza Chowdhury - to submit a task force report on the development of ICT and its prospects in Bangladesh. Popularly known as the JRC Committee, it submitted some 45 recommendations to the Government, who responded by declaring ICT a "thrust sector" and freeing ICT products of tax.

In January 2001 the Government set up the 15-member IT TASK FORCE. Headed by the Prime Minister, the Task Force's stated aim is to harness and utilise the immense potentialities of Information Technology (IT) for the overall welfare of Bangladesh.

ICT for the under-privileged

Without access to useful information, the poor struggle to gain a foothold in a nation's economic and social framework. Two projects designed to help bring information to the doorsteps of the poor are run by The *LEARN Foundation*⁴ and the *Grameen Trust*⁵. Both aim to provide an avenue for isolated rural communities in Bangladesh to participate in the larger economy and reap the benefits of the Information Age by providing education and entrepreneurial opportunities for some of the world's poorest people.

The *LEARN Foundation's* broad objectives are to strengthen the ability of children in rural Bangladesh to acquire modern IT and functional English skills through network learning. The project aims to provide computer hardware, Internet connectivity and basic computer literacy in remote schools and communities. The lack of communication and other infrastructure have acted as a deterrent to investment

2 The Bangladesh Association of Software & Information Services (BASIS) <http://www.basisbd.org/>

3 VSAT (Very Small Aperture Terminal) is an earth station installed on the ground to receive communications from a satellite or to communicate with other ground stations via a satellite.

4 The LEARN Foundation <http://www.domaindx.com/learnbd/scripts/html/home00.html>

5 The Grameen Trust <http://www.gfusa.org/>

6 The GRAMEEN Trust <http://www.grameen-info.org>

in these regions, and the Foundation has worked to reverse this underdevelopment by bringing the Internet to them using wireless technology. To this end they have built radio towers in seven villages, and their target is to establish a broadband network in a 2,500 square kilometre (965 square mile) area.

The *Grameen Trust's Village Computer and Internet Program (VCIP)* was established aiming to introduce computer technology in the grass root level. Their goal is to provide multipurpose information services for isolated regions to promote poverty alleviation, reducing migration from villages to cities, creating IT related job opportunities for the rural poor and creating familiarity with computers among the rural population of Bangladesh⁶. They provide e-mail facilities to the villagers with affordable training in computer skills, such as word processing, graphics and design. Grameen also aims to cut the cost of bringing the Internet to rural areas by using wireless links via their headquarters in Dhaka, rather than over a landline.

ICT in the public sector

Most government bodies now use computers, mostly for word-processing, spreadsheet analysis and presentation purposes although some use them for applications such as communications, billing, banking, ticket reservation, accounting and record keeping. Government officials are still not widely accustomed to using computers themselves and mostly depend on others to operate them.

These developments have been helped by substantial Government and donor-aided investments, Following the approval of our National ICT Policy (Annex 1), Government investment in ICT projects is expected to increase still further.



In common with other nations, we have experienced ICT projects that have failed due to lack of effective guidance, the absence of clear policies and goals, and inadequate human resources. Thus to help ensure the economic and efficient use of resources in implementing the National ICT Policy, we will need to formulate sound guidance and methods. We believe that IT audit has a role to play in helping to ensure the proper development and implementation of IT projects, and their subsequent operation.

The Comptroller and Auditor General's Office

Background

The Office of the Comptroller and Auditor General (C&AG) was established in 1973. The C&AG is appointed by the President of the Republic to audit the public accounts of government agencies, public bodies and public companies, and report to Parliament on the outcome, the aim being to help ensure accountability and transparency in Government's use of public resources. Since 1983 the C&AG has also kept the Civil, Defence and Railway accounts of the republic. From July 2002 the Government has relieved the C&AG from keeping the Civil Accounts.

The C&AG derives authority and independence in carrying out these auditing and accounting functions from articles 127-132 of the Constitution and from the Comptroller and Auditor General (Additional Functions) Act 1974.

ICT in the C&AG's Office

We have used computers in the C&AG's Office for about 12 years, mainly for word processing. However, in 1996 under various reform initiatives we began to develop information systems to help us improve the quality of our auditing and accounting functions.

Computerisation of the C&AG's audit functions began in 2001 with the financial assistance of the United Nations Development Programme (UNDP). We installed a fibre optic network, which now connects the C&AG's Office and its subordinate audit directorates, and around 100 workstations have been installed and linked to the Internet over a dedicated broadband connection. The network provides e-mail facilities, which enables us to communicate with other organisations nationally and internationally. A logical network diagram is drawn in Annex 3.

Our Department is also part of the World Wide Web, a development that we see as milestone in our history. We believe that the information we publish on our website (<http://www.cagbd.org>) will help us to ensure accountability and transparency in government. We have also built an internal Intranet web site that, in effect, forms our central information repository. Users connected to the network can quickly and readily retrieve a wide range of corporate information at their workstations, such as our mandate, vision, mission, principles and policies; parliamentary committee and other organisa-

Auditing is carried out by ten audit directorates, each headed by a Director General

- Works Audit
- Civil Audit
- Local Audit
- PT&T Audit
- Foreign Aided Project Audit
- Commercial Audit
- Defence Audit
- Mission Audit
- Railway Audit
- Performance Audit

tions' reports; and information relating to our auditing standards, methods and activities.

The Intranet also provides access to our management databases, such as our Personnel Management System (PMS) and our Audit Monitoring System (AMS). PMS is designed to maintain individuals' personal, academic and training records, and records of previous service, etc., information that assists us in managing our human resources.

Computerisation of auditing functions

AMS is designed to automate our audit activities thereby helping us to improve the quality of our audit. The system was developed by a local vendor selected through competitive tendering. Based on Microsoft technology - Visual Basic to provide a front-end to a Microsoft SQL database server - the software is developed in our national language, Bangla, and operates on Microsoft 2000 Advance Server. We chose Microsoft products because they are widely used in Bangladesh and local vendors are generally familiar with them, but we also use other software tools such as Crystal Report.

AMS is designed to maintain basic information on about 23,000 audits and related inspection reports. We also use it to prepare audit programmes, maintain records of audit activities, track correspondences with ministries and departments, and record decisions made by the Bangladesh Public Accounts Committee. Although the C&AG's Office use AMS, its main users are our audit directorates who enter the basic information and use it to monitor day-to-day audit activities and to generate management reports (Annex 2 contains a more detailed description of our use of AMS).

The AMS database has been running for over a year, but it is still not widely used in the directorates where management is unaccustomed to the new system and there is a shortage of operators. Measures are being taken to ensure AMS's successful operation.

Computerisation of accounting functions

Computerisation of the C&AG's accounting function was initiated with the financial assistance from the UK Department for International Development. Introduction of a new classification system for budgeting and accounting is one of the major reforms in our financial management sector. The systems used by the Finance Division have been networked with the Budget and Accounts System, so that the financial information generated by this system can be used for macro-economic analysis.

Although computerisation has improved the timeliness and accuracy of our calculations, and the reliability of accounting and budgeting data, there still remains room for improvement.

The future of IT audit in Bangladesh

With this rapid worldwide growth in the use of ICT SAIs need to help their respective governments by monitoring developments, and providing recommendations is essential.

Now is the appropriate time in Bangladesh for our SAI to initiate an IT audit programme designed to cover our public sector's IT initiatives. But this will require auditors with an in-depth knowledge of ICT - knowledge of telecommunications, system development, quality assurance techniques, information security, web technology, etc. - as well as sound methods for undertaking IT audit.

Although our SAI has the necessary infrastructure and technology to support our own use of ICT, we lack experienced IT auditors. We are currently discussing what our strategy is to be and would appreciate the assistance and support of experienced SAIs to help initiate IT audit in Bangladesh.

About the author

Mohammad Iqbal Hossain is Director (MIS), in the Comptroller & Auditor General's Office. He took his Masters in Economics from Dhaka University, and more recently he has taken a BSc (Hons) degree in Computing & Information Systems under London Metropolitan University's external program.



Iqbal joined the Bangladesh Civil Service (Audit & Accounts) in 1988, and has served in the C&AG's Office in various capacities. He is a co-designer of the Audit databases and network systems currently in use, and during the past three years has managed the Office's new IT projects. He has been nominated to work with the ASOSAI (Asian Organization of Supreme Audit Institutions) Working Group on IT Auditing.

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Annex 1

Key objectives of Bangladesh's National ICT Policy

- Building an ICT-driven nation comprising of knowledge-based society by the year 2006.
- Set up a national database accessible to all peoples of the country.
- Telecommunication facilities will be made available to all segments of the society at affordable cost.
- Establish direct connectivity with the international communication backbone through joining the Submarine Cable Network.
- Establish the Software Technology Park, with dedicated and advanced data communication facilities.
- The Government will extend start-up financial support to the local hardware and software industry.
- An annual target of 2 (two) billion US dollars from earnings of export of software, data entry and IT-enabled services shall be planned up to year 2006.
- The Government will introduce and promote Government-to-Government (G2G) transactions under the purview of e-commerce. Gradually this initiative will be extended from G2G to Government to Business (G2B) transaction in the same line.
- The Government shall use ICT system within the public administration to improve efficiency, reduce the wastage of resources, enhance planning and raise the quality of services.
- All Government ministries, divisions, departments, autonomous bodies and all district headquarters, Upzila (sub-district) headquarters and Union headquarters must be networked to the National Data Resource Centre in the shortest possible time.
- Each Ministry, Division, department Autonomous body shall create a ICT Cell, to be managed and run by well-trained ICT professionals to plan, co-ordinate and implement ICT projects and services.
- Government will introduce and promote ICT based services like G2G (Government to Government), G2E (Government to Employee), G2C (Government to Customer) etc.
- Government spending in ICT shall be increased to at least 2% of ADP by 2006.
- Government should explore external assistance for necessary infrastructure and human resources development conforming to the ICT Policy.
- A National ICT Task Force headed by the Prime Minister will guide in updating, standardising, implementing, and monitoring the ICT policy.

Annex 2

The Audit Monitoring System in operation

The following are the basic steps in AMS operation:

Audit planning: Audit Units (Audited body) are audited at regular intervals, such as annually, biennially, triennially etc. Most audit directorates plan their audits quarterly, and for each quarter audit teams are formed to conduct field audits. AMS provides them with a graphical interface that helps to reduce duplication, inaccuracy and the time they spend on audit planning.

Entering inspection details: audit teams submit their inspection reports following completion of an audit together with a summary sheet listing the number of individual "Audit Paragraphs"(audit observations), the amounts involved and the types of irregularities uncovered by the audit (e.g. fraud, theft, misappropriation and non-compliance). Operators enter inspection report details, and also the dates on which they are submitted to help ensure that audit teams submit their inspection reports in a timely manner.

Monitoring Advance Paragraphs: following careful scrutiny, significant irregularities ("Advanced Paragraphs") are selected from inspection reports and sent to the ministries concerned for their comments. We normally allow five weeks for a reply; where we have not received this within the specified time, we issue up to two reminders. AMS tracks this correspondence thereby helping management to take quick decisions. Less significant audit observations ("General Paragraphs") are dealt with by direct discussions with the Audit Units, and AMS helps here in tracking their resolution.

Monitoring Draft Paragraphs: where ministries fail to reply within the specified time, or their reply is unsatisfactory, the Advanced Paragraphs are reclassified as "Draft Paragraphs", and we invite the Secretary of the ministry concerned to reply to the observation, normally within four weeks. If we do not receive a satisfactory reply, the Draft Paragraphs are then included in our Final Audit Reports. Again AMS tracks this process thereby helping management to take timely decisions.

Preparing audit reports: AMS helps in preparing final audit reports by compiling existing information held in the database. It reduces further typing of text material.

Parliamentary decisions: the Public Accounts Committee reviews our Final Audit Reports for each ministry, and makes recommendations and decision on the audit observations raised. The C&AG is responsible for monitoring the action taken by ministries to address these decisions, and AMS helps in monitoring this process.

Annex 3

Bangladesh C&AG Office: logical network diagram

