

INFORMATION AND COMMUNICATION TECHNOLOGY @ SCHOOLS

INTRODUCTION

Information & Communication Technology (ICT) is universally acknowledged as an important catalyst for social transformation and national progress. However, disparities in the levels of ICT readiness and use could translate into disparities in level of productivities and hence could influence a country's rate of economic growth. Understanding and leveraging ICT is therefore critical for countries striving for continued social and economic progress.

India shows enormous geographic and demographic disparity in ICT use. India has one of the largest ICT workforces in the world. One can find intense ICT use in technology clusters such as Bangalore and Gurgaon or amongst the upper middle brackets of incomes. The other side of the story is that large parts of the country lack even telephone connectivity.

BACKGROUND

India recognized the importance of ICT in education as early as 1984-85 when the Computer Literacy And Studies in Schools (CLASS) Project was initially introduced as a pilot with the introduction of BBC micro-computers. A total of 12,000 such computers were received and distributed to secondary and senior secondary schools through State Governments. The project was subsequently adopted as a Centrally Sponsored Scheme during the 8th Plan (1993-98). During the 8th Five Year Plan the Scheme was widened to provide financial grants to institutions which were given BBC Micros and also to cover new Government Aided Sec./Sr. Sec. Schools. Assistance included annual maintenance grant for BBC micros and purchase as well as maintenance of equipment for new Schools.

2598 schools having BBC Micros were covered under the CLASS scheme during the 8th Plan for providing Instructors, maintenance of hardware, consumables and text books for students and training of teachers in schools. In addition, 2371 schools were covered with new hardware and services which included Rs.1.00 lakh for hardware configuration and Rs.1.30 lakhs per annum for recurring costs. Rs.0.80 lakh per annum was kept as the recurring costs for schools which had already been covered under the BBC-Micros scheme.

NIC was identified as the nodal agency for finalising the contract for the supply of hardware. The use and supply of software was limited, coverage was confined to Sr. Secondary Schools and the students of class XI & XII had to undergo a Computer Course Module.

National Task Force on Information Technology and Software Development (IT Task Force) – constituted by the Prime Minister – in July, 1998 has made specific recommendations on introduction of I.T. in the education sector including schools. The relevant paragraphs are reproduced below:

Vidyarthi Computer Scheme, Shikshak Computer Scheme and School Computer Scheme to enable students, teachers or schools respectively, desirous of buying computers to do so under attractive financial packages. These schemes will be supported by a suite of initiatives such as lowering the cost of PCs, easy installment bank loans, computer donations by IT companies and other business houses, bulk donations of computers by NRI organizations, large-volume bargain price imports, multi-lateral funding, etc.

Computers and Internet shall be made accessible to schools, polytechnics, colleges, and public hospitals in the country by the year 2003.

The concept of SMART Schools where the emphasis is not only on Information Technology in Schools, but also on the use of skills and values that will be

important in the next millennium, shall be started on a pilot demonstrative basis in each State.

The Report recommended provision of computer systems to all educational Institutions upto Higher Secondary/Secondary Schools by suitable investments (about 1-3%) of the total budget during the next five years.

The recommendations of the Task Force have been approved by the Council of Ministers.

The 'ICT in Schools' scheme is a window of opportunity to the learners in the schools of India to bridge this digital divide. The scheme is not a simple merger of the earlier CLASS and ET Schemes but is a comprehensive and well thought-out initiative to open new vistas of learning and to provide a level playing field to school students, whether in rural areas or in the metropolitan cities. The 'ICT in Schools' Scheme is not a stand-alone scheme but actively solicits the partnership of States, Union Territories & other organizations in a mutual endeavour to bridge the heterogeneous proliferation of ICT across different socio-economic and geographic segments in the country. This partnership is manifest in the structure of financing the initiative, in encouraging the development of long-term Computer Education Plans, the setting-up of Smart Schools by KVS/NVS in States as technology demonstrators and in providing for supplementing the States efforts in these areas with no attempt being made to supplant the State Schemes.

The centrally sponsored scheme of 'Educational Technology' and 'Computer Literacy and Studies in Schools' have been suitably modified keeping in view the past experience, the feedback which has been received and changing needs to form the new scheme of 'Information and Communication Technology in Schools'. The component regarding financial assistance to States/UT's for purchase of RCCPs and CTVs under the erstwhile Educational Technology Scheme has been weeded out.

OBJECTIVES

- 1) To establish an enabling environment to promote the usage of ICT especially in Higher Secondary and Secondary Government Schools in rural areas. Critical factors of such an enabling environment include widespread availability of access devices, connectivity to the Internet and promotion of ICT literacy.
- 2) To ensure the availability of quality content on-line and through access devices both in the private sector and by SIETs.
- 3) Enrichment of existing curriculum and pedagogy by employing ICT tools for teaching and learning.
- 4) To enable students to acquire skills needed for the Digital world for higher studies and gainful employment.
- 5) To provide an effective learning environment for children with special needs through ICT tools.
- 6) Promote critical thinking and analytical skills by developing self-learning. This shall transform the classroom environment from teacher-centric to student-centric learning.
- 7) To promote the use of ICT tools in distance education including the employment of audio-visual medium and satellite-based devices.

DETAILS OF THE SCHEME

COMPONENTS

The present scheme has essentially four components. The first one is the partnership with State Governments and Union Territories Administrations' for providing

computer-aided education to Secondary & Higher Secondary Government Schools. The second is the establishment of SMART schools which shall be technology demonstrators. Universalisation of Computer Literacy through the network of KVS and NVS to neighbouring schools is the third component. The fourth components relates to the activities of SIETs.

IMPLEMENTATION PARTNERS

States/UT Governments, State Institutes of Education Technology, Kendriya Vidyalaya Sangathan, Navodaya Vidyalaya Samiti, Government and Government aided schools systems. Moreover, financial assistance would also be provided to short-listed NGOs/Trusts/Societies and Companies for software development, teaching tools, designing training models, evaluation, monitoring and other contingent expenditure. The State/UT Governments shall be free to partner with private organizations or integrate it with other similar schemes for implementation of the 'ICT in schools' scheme including providing for maintenance. The implementation of the scheme will be multi-modal. The Ministry of Human Resource Development shall consider the entry of the private sector in a Build-own-operate or annuity modal wherever possible. The direct procurement of hardware by the state would be the last resort. The National Council for Teachers Education shall be associated with the scheme in the context of training of teachers in computer-aided learning. The Rehabilitation Council of India would play an important role in projects involving introduction of use of technology for the education of children with special needs.

FINANCIAL PARAMETERS

(a) Under the CLASS component of the ICT scheme, the Union Government would provide 75% of financial assistance to State/UTs. The balance 25% of funds would be contributed by the State Governments/UTs. The scheme also provides for contribution of 25% of funds from the MPLAD scheme in addition or as an alternative to State Government contribution. Assistance shall be provided to special category states in the

ratio 90:10. The assistance of the Government of India would be for the following items and upto the limits indicated against each item.

1.	10 PCs/Printer/CRT per school inclusive of facilities like scanner, web camera, modem etc. or one server with 10 workstation with accessories.	-	4,05,000
2.	Operating System & Application Software	-	20,000
3.	Educational Software	-	45,000
4.	Furniture	-	16,000
5.	Computer Stationery	-	50,000
6.	Teachers' Training	-	60,000
7.	Internet	-	30,000
8.	Maintenance - 50% of the cost of annual maintenance contract	-	20,000
9.	Monitoring Cost	-	24,000
	Total	-	6,70,000
10.	Recurring Costs, which includes consumables, hardware and network maintenance, monitoring costs, telephone for Internet usage	-	1,34,000

It may be noted that even in the revised norms, it is proposed to have greater in-built flexibility. The States would have the option to incur expenditure on the above items or any other item like generators, preparation of labs for computers including civil repairs and cabling and provision of electricity depending upon their needs and resources, subject to a overall maximum limit of Rs.6.70 lakhs per school. The Central Government's share would be restricted to Rs.5.00 lakhs per school.

The provision for software shall include Learning Management Systems & curriculum based courseware apart from operating systems & other application software.

An amount of Rs.1 crore would be kept aside annually for the Department of Secondary and Higher Education for development of software, teaching tools, designing training models, evaluation, monitoring and other contingent expenditure.

Ministry of Human Resource Development shall endeavour to institutionalise content development through National education portal. The British Educational Communications & Technology, Agency (BECTA), UK could be considered as a modal incorporating elements of public private partnership.

KVS and NVS would convert one school per State/UT into a SMART school subject to availability of funds. A grant of not more than Rs.25 lakhs would be given per SMART school. This limit may be reviewed in the future if needed. A sum of Rs.2.5 lakhs shall be provided as recurring costs which includes maintenance, consumable, Internet usage & monitoring costs.

In SMART Schools the emphasis would not only be on the use of Information Technology but also on the use of skills and values that will be important in the next millennium. It is hoped that at least one section (of 40 students) in each of the class IX – XII will be fully computerized. Thus a school having 160 computers @ 40 computer for each IX to XII classes may be called a SMART school under the scheme. However, keeping in view the fact that this target cannot be achieved in one go, it is proposed to provide 40 computers to such identified schools. A grant of not more than 25 lakhs per school would be given to KVS/NVS for the purpose.

Both KVS and NVS have identified the schools which will be converted into a SMART School.

Kendriya Vidyalayas and Navodaya Vidyalayas would be given funds at the rate of Rs.20,000/- per neighbourhood school to impart computer literacy to not more than ten neighbourhood schools within a radius of 3 to 4 kilometers to cover 8,000 such schools over 3 years. The course shall be imparted in the local language if such a demand is

received from the beneficiary school. An Advisory committee consisting of the Principal of the Mother School and all Principals of participating schools will manage and oversee the programme.

The financial assistance to SIETs shall be in the project mode. The financial assistance would be provided to SIETs on the basis of the project proposals submitted by SIETs. These project proposals shall be submitted to the Project Monitoring and Evaluation Group which shall assess the proposals submitted as to their utility and quality. Progressively, the administrative expenses of SIETs shall be reduced to zero within five years.

The financial assistance to SIETs would be provided in project mode. The establishment cost of SIETs i.e. pay and allowances including employees' contribution towards CPF and leave salary and pension contribution in respect of deputationists shall form part of project cost. The details of financial assistance for the various other components in respect of SIETs is given below :

Sl. No.	Item	Expenditure limit
1.	Programme production	a) Video Programme – Rs. 30,000/- per programme of ten minutes duration. This will include expenditure on support material, research, evaluation & training, miscellaneous equipment, tools and technical consumables, purchase of electronic/electrical hardware, vehicle maintenance and all programme production related expenditure including charges for hired input.

		b) Audio Programme @ Rs. 10,000/- per programme. All related items of expenditure per programme shall be met out of this.
2.	Office expenses (stationery, postage, telephone/internet/Fax charges, furniture, hospitality, liveries, TA/DA and contingencies etc.)	Rs. 3 lakhs per annum.
3.	Library Books & periodicals CD Rom and purchase of software	Rs. 50,000/-
4.	Building/Studio Maintenance (Electrical & Civil)	100 % basis through PWD or Open Tender, whichever is less.
5.	Maintenance of AC Plant	100 % basis per PWD/CPWD estimates submitted by SIET.
6.	Advertisement and Printing of Brochure and pamphlets	Actual Expenditure but with approval of MHRD.
7.	Holding of seminars, conferences and symposium etc.	Actual expenditure but with approval of MHRD.

ILLUSTRATIVE LIST OF ACTIVITIES

- Production of Audio, Video and Multi Media programmes in the project mode by the State Institutes of Educational Technology established at Pune, Bhubaneswar, Patna, Lucknow, Hyderabad, Ahmedabad and Thiruvananthapuram.
- Assessment of need for multi-media programmes, preparation of profiles of target groups, design and development of audio-video programmes and other teaching aids, training of State level personnel in the process of educational technology viz. scripting, production of programmes and technical operations of

equipment and studios for their production by Central Institute of Education Technology (CIET)/State Institutes of Education Technology (SIET).

- Training to teachers and teacher trainers in the production of low-cost audio-visual aids, help in script development, media production, editing, communication research, setting up and operation of audio and video studios and computerization of its various processes by Central Institute of Education Technology (CIET)/State Institutes of Education Technology (SIET).
- Feeding telecast and broadcast service titled Tarang and Umang respectively on DD-I and AIR and dedicated educational channel Gyan Darshan and Gyan Vani by CIET and SIETs
- Coordination of academic production and technical activities of the 6 State Institutes of Educational Technologies by CIET.
- Organising Educational Film Festivals/Multimedia contests.
- Financial support to States/UTs on the basis of their Computer Education Plans (CEPs).
- Support to KVS/NVS for opening of SMART schools and for imparting computer literacy to students in neighbourhood schools.
- Development of multimedia content for use in schools.
- Digitisation of video and audio cassettes produced by SIETs on the basis of fresh assessment and in partnership with non-governmental agencies so as to make them viable and self-sufficient.

- Establishing and Conferring National Awards for development and use of ICT tools.
- Development of teaching tools, designing training modules for teachers.
- Financial support for conversion of content into regional languages.
- Projects for introduction of use of technology for the education of children with special needs.
- Sale of audio and video programmes made by SIETs on a commercial basis.
- Leasing/hiring of studios and equipment by SIETs to other agencies both Government and non-Government on a commercial basis.
- Training of teachers and master trainers/resource persons in the use of ICT tools for enrichment of curriculum and pedagogy.

PROCESS OF EXECUTION

Each State/UT would formulate a Computer Education Plan (CEP). The CEP would indicate the steps already taken by the State Government/UTs and the assistance, which they now require. The project proposals should inter-alia indicate number of schools in the state (government, government aided), the number already having computers, the number of schools now proposed to be covered and within what period, number of students likely to be benefited, whether State Government/UT's have made provision for the States share in their budget, vendors which have been short listed for procurement of equipment, provision of training, availability of infrastructure etc. While preparing the CEP, the State Government/UT will ensure that atleast two schools are selected from each identified Educationally Backward Block for assistance under this scheme.

The proposals for the existing components must indicate the funds received earlier for them, the status of their utilisation and benefits accrued in qualitative and quantitative sense.

Efforts would be made for convergence and dovetailing with schemes of other Departments like Ministry of Information Technology whose representative will be invited to the meeting of the Project Monitoring and Evaluation Group. The States/UTs shall be free to dovetail this scheme with existing or proposed schemes of the State Governments.

Funds will be allotted to KVS/NVS for SMART schools and Universalisation of Computer Literacy on the basis of the proposals submitted by KVS/NVS.

The Department of Information Technology would contribute to the scheme by making available its infrastructure resources and expertise to provide internet connectivity to schools.

The GIAC shall be empowered to affect modifications in the scheme based on the feedback received and depending upon changes in the technological environment. As the shift in technological parameters is rapid, this would ensure that the scheme is able to adapt itself to changing conditions and requirements. Financial norms and budgetary outlays shall, however, be strictly adhered to.

GRANT-IN-AID COMMITTEE

A Project Monitoring and Evaluation Group headed by the Secretary (Secondary and Higher Education) would consider the Computer Education Plans (CEPs) received from the States/UTs. The committee would also include a representative of Ministry of Information Technology, NIC and representatives of organizations engaged in the field of computer education. This Group shall also consider the project proposals submitted by SIETs.

RELEASE OF GRANT

On approval of the project / CEP the grant shall be released to the State/UT/SIET on an annual basis in two or more installments – the first installment of 50% will be released immediately after the issue of sanction. After the State/SIET has utilized 75% of the 1st installment it may make a request for release of the subsequent installment along with progress report and statement of expenditure with full details. The release of grants in the second and subsequent years will be made on a similar basis, provided that before release of the second installment in a particular financial year (beginning with the second year) the utilization certificate and audited statement of accounts in respect of grants released till the end of the proceeding year shall be furnished.

DISBURSEMENT

The grants of SIETs/KVS/NVS would be remitted either by Demand Draft drawn in its favour by the Ministry of Human Resource Development or by telegraphic transfer to the savings bank account opened in its name. The grants to States/UTs would be given through Inter Government adjustment advice.

MONITORING AND EVALUATION

The Project Monitoring and Evaluation Group would also function as the Monitoring Committee. In addition, the SIETs and the State/UT Government submitting the proposal would be required to submit progress reports every quarter. The Department would also explore the possibility of getting the 'ICT in Schools' scheme evaluated through an independent agency.