

## CHAPTER 21

# INFORMATION TECHNOLOGY

Information and Communication Technology (ICT) sector in the State made significant advances in the year ending March 2003. All round progress in ICT sector was recorded in terms of investments, infrastructure development and employment generated in ICT sector through focused initiatives of the IT Department.

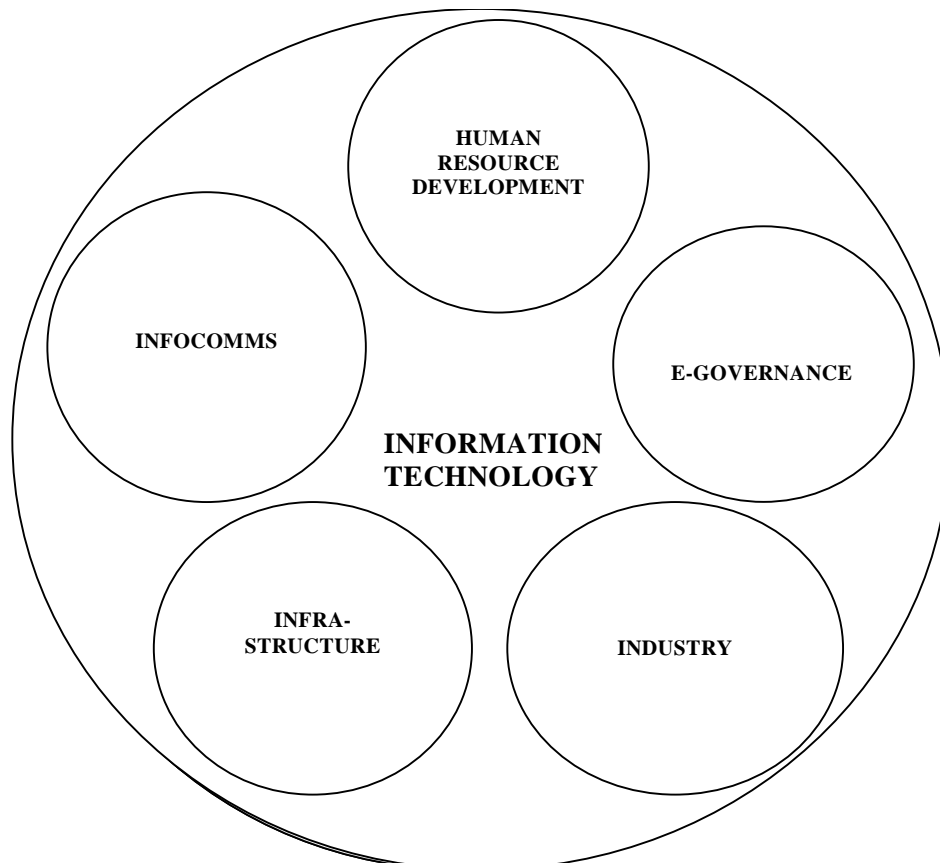
21.2 The State improved its positioning as a destination of choice for ICT investments backed by increased investor confidence, better IT physical infrastructure, manpower availability particularly in BPO and IT Enabled Services (ITES). The year also witnessed a major ICT initiative under bridging the digital divide program, viz. 'Akshaya Project' setting a direction for

SME (Small & Medium Enterprises) activities in ICT in rural areas in the state.

21.3 Kerala has core strengths to emerge an IT leader especially in the area of ITES. Kerala's traditional strengths like total literacy and high density of telecom usage make it a fertile ground for IT to thrive.

21.4 Overall, the investments in ICT sector in the State cover five major categories viz. (1) Infocomms (Telecoms), (2) Infrastructure, (3) Industry (Hardware & Software) (4) Human Resource Development and (5) E-Governance.

**Fig 21.1**  
**Investment Areas in IT**



21.5 It is estimated that about 80,000 people are directly or indirectly employed in ICT related activities in the State. The total investments in the ICT sector over the last four years is estimated to be roughly Rs. 5,000 crores.

### 1. Infocomms

21.6 For the Infocomm sector, it was a year of consolidation of its infrastructure, backed with launch of new services and rapid expansion in the cellular/mobile phones segment. Investments of major Infocomm companies viz. Reliance, Bharti and Asianet availing the Rights of Way Policy and ongoing support extended to build a wired state, touched nearly Rs. 3,000 crores. Asianet joining hands with Bharti laid Optical Fibre Cable (OFC) for additional length of 500 Kms in the State. Leading Infocomm investor, VSNL also expanded its facilities in Kochi. With international bandwidth availability of SEA-ME-WE 3 and SAFE, Kochi continues to be the bandwidth surplus city in the region, improving the prospects of setting up bandwidth intensive ITES companies in the State because of its high quality international connectivity with the lowest noise levels the direct OF connectivity planned from VSNL hub. Seventy percent of India's data traffic flows through Kochi. In terms of cost, SAFE brings tremendous advantage to the state.

21.7 The annual turnover of this sector is estimated to be approximately Rs. 1,800 crores which is to grow rapidly once the data lines on the new Optic Fibre infrastructure is fully commissioned.

### 2. Infrastructure

21.8 Creation of IT Infrastructure in terms of built up space matching with the demand from companies in ICT/ITES industry is of prime focus. The State has a total built up space of 1.5 Million sq.ft in Technopark Thiruvananthapuram, 1 Lakh in SDF Building in Kochi, KEPIP Park. Plans to build 200,000 sq. ft of premium space in Kochi are under way. Private sector also has come forward to invest in creating space for IT purpose of about 330,00 sq. ft in Kochi alone. To benefit the startup companies, 20,000 sq. ft space was created in Kochi in ITES Habitat, which is also functioning as an incubator.

#### Electronic Technology Parks – Kerala (Technopark)

21.9 Technopark was established for the development of electronics and Information Technology in the State. Now the Campus at Thiruvananthapuram covers an area of 184.72 acres. The park has a built up space of 12,12,000-sq. ft. of which 7,73,655 sq. ft. has been allotted to 55 companies. Balance area of 4,38,345-sq. ft. is still un-allotted as detailed in Table 21.3.

**Table 21.1**  
**OFC Infrastructure**

<b>CONNECTIVITY</b>	
<b>OFC Cable laying (length – km)</b>	<b>Achievement</b>
Upto previous year	
Reliance	2413
Bharti	917
Asianet	310
Bharti+Asianet	325
Kochi-SEA-ME-WE 3 bandwidth availability By VSNL	Expansion works
BSNL	1111 digital exchanges
During 2002-03	500
Bharti + Asianet	
Investment (Rs cr.)	
Upto March 2002	2500
During 2002-03	500
Upto March 2003	3000

Source: IT Department

**Table 21.2**  
**IT Infrastructure**

<b>Infrastructure created</b>	<b>Cumulative upto March 2002</b>	<b>During 2002-03</b>	<b>Cumulative upto March 2003</b>
<b>TRIVANDRUM</b>			
Technopark Land (acres)	182*		182*
Built up area(Sq. ft. )	1,500,000		1,500,000
Investment (Rs. Cr.)	140.00	5.00	145.00
<b>KOCHI</b>			
KEPIP / InfoPARK Land (acres)	180	80	260
Built up area(Sq. ft. )	100,000	200,000	300,000
Investment (Rs. Cr.)	15.00	20.00	35.00
Park Infrastructure Investment (Rs. Cr.)	15.00	5.00	20.00
ITES Habitat Built up area(Sq. ft. )	...	20,000	20,000
Investment (Rs. Cr.)		2.00	2.00
<b>MALAPPURAM</b>			
KITEL Park Land (acres)	10		10
Investment (Rs. Cr.)	10.00	3.00	13.00
<b>Total</b>			
<b>Land (acres)</b>	<b>372</b>	<b>80</b>	<b>452</b>
<b>Built up area(Sq. ft.)</b>	<b>16,00,000</b>	<b>2,20,000</b>	<b>18,20,000</b>
<b>Investment</b>	<b>180 .00</b>	<b>35.00</b>	<b>215.00</b>
<b>( Rs. Crores)</b>			

\* Includes 26 acres at Aakkulam.

Source: IT Department.

**Table 21.3**  
**Built up space in Technopark**

<b>Year</b>	<b>Total Space available (cum.) (sq. Ft.)</b>	<b>No. Of Companies</b>	<b>Area allotted (cum.) (sq. Ft.)</b>	<b>Balance unallotted (cum.) (sq. Ft.)</b>
1994-95	70963	5	12696	58267
1995-96	70963	4	33912	37051
1996-97	70963	3	55860	15103
1997-98	363563	4	75924	287639
1998-99	363563	1	88924	274639
1999-00	363563	10	162156	201407
2000-01	407563	9	310126	97437
2001-02	536563	4	368531	168032
2002-03	1212000	15	773655	438345
<b>Total</b>	<b>1212000</b>	<b>55</b>	<b>773655</b>	<b>438345</b>

Source: Technopark

21.10 Currently 55 companies operating at the campus provide direct employment to around 4500 professionals. Tata Consultancy Service provides training to 1500 software engineers. Government of Kerala so far released an amount of Rs.88.80 crores to Technopark, which has been fully expended. A total investment of Rs.194.06 crores was made by the companies in the park. (Foreign investment Rs.96.55 crores NRI Rs.59.63 crores and domestic Rs.30.88 crores) and this would be further classified as hardware Rs.20.00 crores and software/IT Rs.174.06 crores. The total turn over of these companies comes to Rs.208.20 crores. Details are given in Table 21.4.

### Software Technology Parks of India – Thiruvananthapuram

21.12 Software Technology Park (STP) Scheme is a 100% export oriented scheme for the development and export of software. The major attraction of this scheme is single point contract service to the STP units. Because of the low investment requirement (Rs.5 lakhs) and incubation facility in the STPI-T complex it has been one of the most favourable locations for the small and medium level export oriented companies. STPI-T has its own Satellite Earth Station at Technopark

**Table 21.4**  
**Turnover of Companies in Technopark**

Particulars	Foreign turnover	Nri turnover	Domestic turnover	Total turnover
Software/IT Turnover	83.25	77.00	27.95	188.20
Hardware	20.00	-	-	20.00
Total	103.25	77.00	27.95	208.20

Source: Technopark

21.11 Technopark has State-of-the Art facility.

#### Box -21. 1

#### Major Facilities Available in Technopark

- Built up space of 11,62000 sq.ft.
- Uninterrupted Power Supply
- Water supply with treatment plant
- Telecom services with 1000 lines exchange
- Data cum facilities from STPI-T, VSNL, BPL,Net.com, Asianet Data com, DDC Net, BSNL , Kelnet, I-Serve India Solutions Pvt. Ltd., Escotel, Relevance.
- Convention Centre with auditorium Conference hall, library, Technopark Business Incubator Centre etc.
- Direct OFC connectivity from Technopark to Kochi International gateway with 3 submarine cable landy's.

#### Initiatives of Technopark during 2002-03

- Technopark participated in Gitex 2002 held in Dubai.
- Technopark was host for IT Kerala 2002, an international level exhibition. An ICT Exposition and International Convention was conducted.
- Participated in the IT cum contribution held in Bangalore.
- Technopark Software Engineering Competency Centre (TSECC) was set up.
- Talenttrac is a joint initiative of Technopark and Kerala University.
- A workshop on HR Planning for IT enabled services was conducted jointly by Technopark and Kerala University.

campus for providing High-Speed Point-to-Point data circuits and internet facilities to the Software Exporting company under STPI. STPI-T has also started a networking station at Kinfra Park, Kochi for providing data com services to the software exporting units operating at Kochi.

21.13 During the year 2002-03 twenty seven units have been registered under STPI-T and the export was for Rs.165 crores sharing steady growth in software exports from Kerala.

### 3. IT Industry (Hardware & Software)

21.14 IT hardware sector (assembling and components) also recorded healthy growth in the year 2002-03. Domestic IT hardware turn over for the year closed at approximately Rs. 400 crores in 2002 –2003. In the period, 2002 – 2003, total export turn over in hardware and software was about Rs.315.00 crores.

21.15 For 2002-2003, the export turn over in hardware is estimated to be Rs. 180.00 crores. This turnover is mostly coming from the 100% EOU units in the Cochin Export Processing Zone (CEPZ).

21.16 The year 2002-2003 witnessed entry of major companies like RM Plc, Mckinsey & Company, Sherston Educational Software, BNS software and E&Y in Technopark. The Indian Software major Infosys announced its investment plans to set up a development center in Trivandrum, Kerala. 55 Companies operate out of Technopark employing over 6,000 IT professionals with a turnover of about Rs. 270 crores. In quality Certifications, Technopark companies made significant advances. There are five Capability Maturity Model (CMM) Level 5 and two CMM Level 3 companies. Several companies have secured ISO 9001 certification. Technopark instituted Software Engineering Competency Centre to facilitate exposure to quality development methodologies in Software Development. Technopark companies recorded robust growth of about 18% in the year.

21.17 There are 267 companies in the State registered with the STPI (including 42 Technopark

companies) and it is estimated that these companies posted an export turnover of Rs.165 crores in the last year. 30 Companies registered with Cochin Special Economic Zone contributed an export of over Rs.150 crores employing about 3,000 people.

21.18 The Investment Promotion and Management Cell (IPMC) has been facilitating investments in the State supporting companies in terms of extending promotional incentives and providing investment guidelines. IPMC coordinates with the Government for grant of necessary clearances to the investors and completion of technical formalities at different levels. The IT department facilitated the IT industry disbursing incentives to the tune of Rs.180 lakhs in accordance with the IT policy. In the year 2002-2003, 90 companies registered with IPMC.

21.19 Addressing the pressing need of the ITES employers in sourcing the people with the right skill sets for employment, Department of IT initiated ITES training program in the current year. The object of this activity is to make available highly skilled, promptly employable set of human resources to the ITES industry. Pilot programs were rolled out with the support of British Council for English language training, Karrox Technologies etc. for delivery of industry specific training, based out of ITES habitat at Jawaharlal Nehru International Stadium complex, Kochi. A broad-based roll out of the program is currently in discussion with NASSCOM that will involve IT/ITES majors and Educational Institutions.

21.20 Hardware assemblers and vendors in the state occupy a major space in Kerala's IT Industry scenario and employ close to 20,000 people. There are about 2,750 small-scale enterprises in the state under this category. About 350 Small and Micro Software Enterprises in IT sector account for a turnover of over Rs.40 crores. This sector employs about 4,000 IT professionals statewide.

**Table 21.5**  
**IT Industry Status 2003**

IT Companies – Software Technology Parks of India (STPI) – Trivandrum	No of Industrial units	Employment (No. of persons)	Domestic Turnover (Rs. Cr.)	Exports Turnover (Rs. Cr.)
Technopark STPI companies	42			
Non Technopark STPI companies	225	2,350		
<b>Total STPI Companies</b>	<b>267</b>		<b>1.40</b>	<b>165.00</b>
<b>IT Companies – Technopark</b>				
STPI registered	42			
Non-STPI registered	13			
<b>Technopark Total</b>	<b>55</b>	<b>6000</b>		
<b>CSEZ –Kochi Companies</b>				
EOU Software	4			
SEZ Unit Hardware	14			130.00
SEZ Unit Software	12			20.00
<b>SEZ Total</b>	<b>30</b>	<b>3000</b>		<b>150.00</b>
<b>Hardware Assembly/Vendors</b>	<b>2,750</b>	<b>20,000</b>	<b>550.00</b>	
<b>Software Developers (Small &amp; Micro)</b>	<b>350</b>	<b>4000</b>	<b>40.00</b>	
<b>Grand Total - IT Industries</b>	<b>3425</b>	<b>35350</b>	<b>591.40</b>	

Source: IT Department

**Exports from Kerala**

21.21 Details of IT exports for the period from 99-2000 to 2002-03 are furnished in Table 21.6 & 21.7.

21.22 South India contributes to 56% of exports of software in the country. Kerala's share is very meager as can be seen in the graph.

**Table 21.6**  
**Software Exports (Rs Crores)**

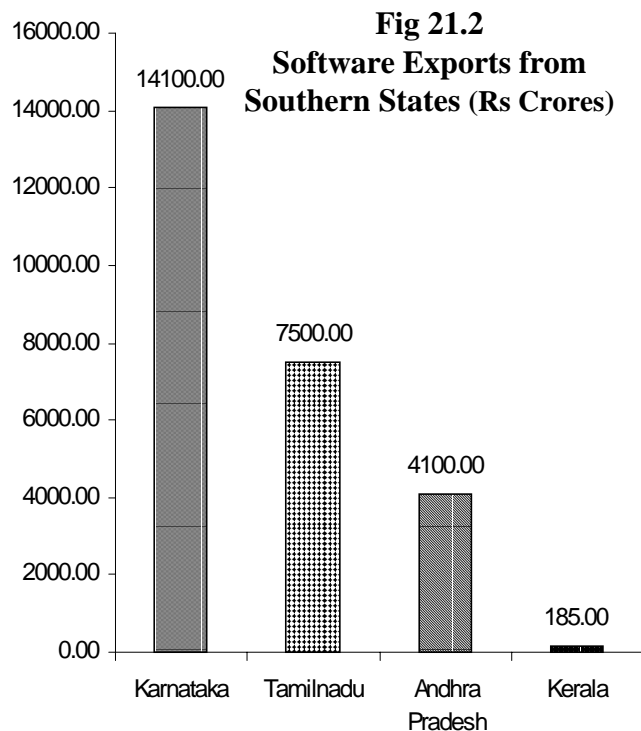
Financial year	Stpi units	Units in cepz	Total
1999-2000	66.64	1.63	68.27
2000-2001	112.37	5.38	117.75
2001-2002	150.00	12.84	162.84
2002-2003	165.00	20.00	185.00

Source: IT Department

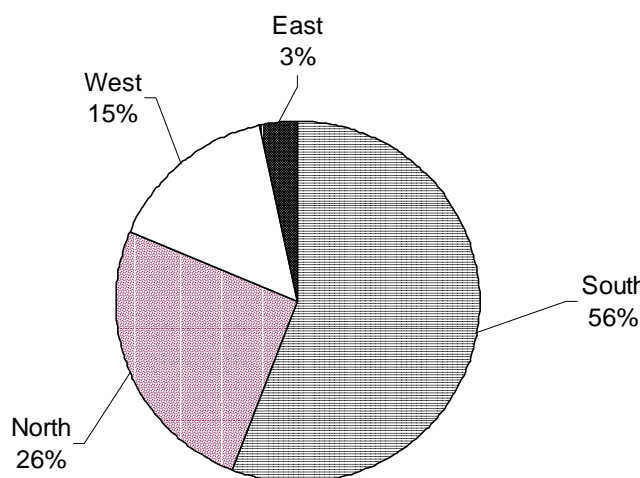
**Table 21.7**  
**Hardware Exports (CEPZ Units) (Rs Crores)**

Financial Year	Total
1999 – 2000	120.81
2000 – 2001	157.84
2001 – 2002	113.43
2002-2003	130.00

Source: IT Department



**Figure 21.3**  
**Software Exports from India 2002-03**



**4. Human Resource Development**

21.23 The State has about 2,300 IT training institutes and close to 3,400 Internet cafes/DTP centres. About 9,200 IT professionals are employed in the Training Industry which accounts for a turnover of Rs. 48 crores. About 4,500 people find employment in Internet cafes.

tional institutions including schools setting up IT laboratories.

**5. E-Governance**

21.25 FRIENDS (Fast Reliable Instant Efficient Network for Disbursement of Services), the flagship people-oriented project initiated by the IT Department has expanded to cater the requirements at all 14 district headquarters. FRIENDS seeks to extend the benefits of full fledged computerisation of individual departments to the citizens, even before the whole backend computerization is completed. Operating from an aggregate office space of over 25,000 sq. ft at prime locations, collections in FRIENDS centres has been growing steadily almost at 100% every year since its start. It is also proposed to provide FRIENDS facilities at Block/Panchayat levels, establishing connectivity among the FRIENDS Centres and introducing web-enabled payments. Overall investment in FRIENDS centres amounts to Rs.4.5 crores. The counters are equipped to handle around 1000 types of bills (in various combinations) originating out of various departments.

**Table 21.8**  
**No. of Training Institutions, Employment & Investment**

Training/ Cafés/ DTP Centres	Number of Units	Employment created (No. of persons)	Investment (Rs crores)
Training Institutes	2,300	9,200	48.00
Internet Café/ DTP Centres	3,400	4,500	40.00
Total	5,700	13,700	88.00

Source: IT Department

21.24 Buoyancy in ICT sector in terms of hardware, software, training etc. was clearly evident in the year, due to increasing number of educa-

21.26 Government have adopted an E-Governance action plan and a budgetary outlay of Rs. 61.42 crores has been provided for departmental computerisation during 2003-04. E-Governance activities in the current year include Secretariat WAN project and computerisation of other departments. The following E-Governance initiatives are particularly important from the point of improved services to the public uses and increased collection of revenue to the Government.

**Table 21.9**  
**Growth of Internet Service Providers in Kerala**

Financial Year	Active ISPs
2000 – 2001	4
2001 – 2002	6
2002 – 2003	7
2003 – 004	7

Source: IT Department

**Box -21. 2**

**Important E-Governance initiatives**

- Secretariat WAN
- Documents Registration
- Computerisation of Treasuries
- Computerisation of Civil Supplies
- Computerisation of Employment Exchanges
- Computerisation of Land Records
- Computerisation of Motor Vehicles Department
- Computerisation of Local Self Governments

**Progress of Implementation**

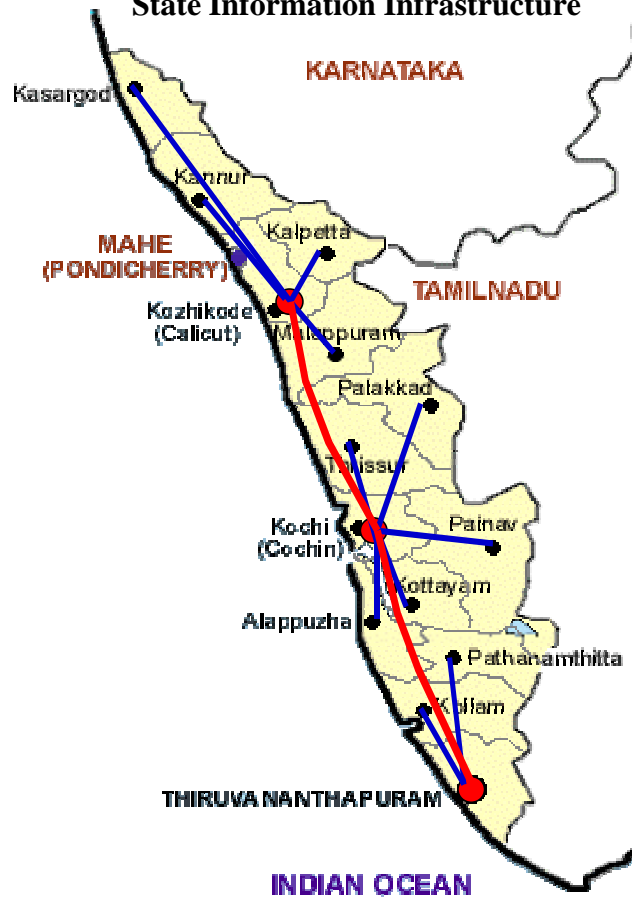
21.27 Computerisation in 50 Sub Registrar offices have been completed. Treasury Computerisation is in good progress. Activities ranging from the study of local government system to field testing the software application developed have been completed. Site preparation for the installation of computer system in 656 Grama Panchayaths, 29 Municipalities and 4 Corporations completed. With regard to Kerala Water Authority, revenue billing, collection and consumer related functions fully computerised benefiting 3.3 lakh consumers. Computerisation in 22 KWA offices completed and 40 more offices in progress. Computerisation in 4 employment exchanges and 2 regional exchanges completed. Training to the employs in the Secretariat already completed. Over 600 nodes have been installed under Secretariat WAN project. E-Governance initiatives made significant progress in the current year.

**IT Initiatives**

**State Information Infrastructure (SII) Project**

21.28 A project initiated by Department of IT with GOI support, State Information Architecture (SII architecture) is in progress providing for distributed growth from the hubs at Thiruvananthapuram and Kozhikode. It can be seen that all the district centers can be linked to the nearest network center (Thiruvananthapuram, Kochi or Kozhikode).

**Fig 21.4**  
**State Information Infrastructure**



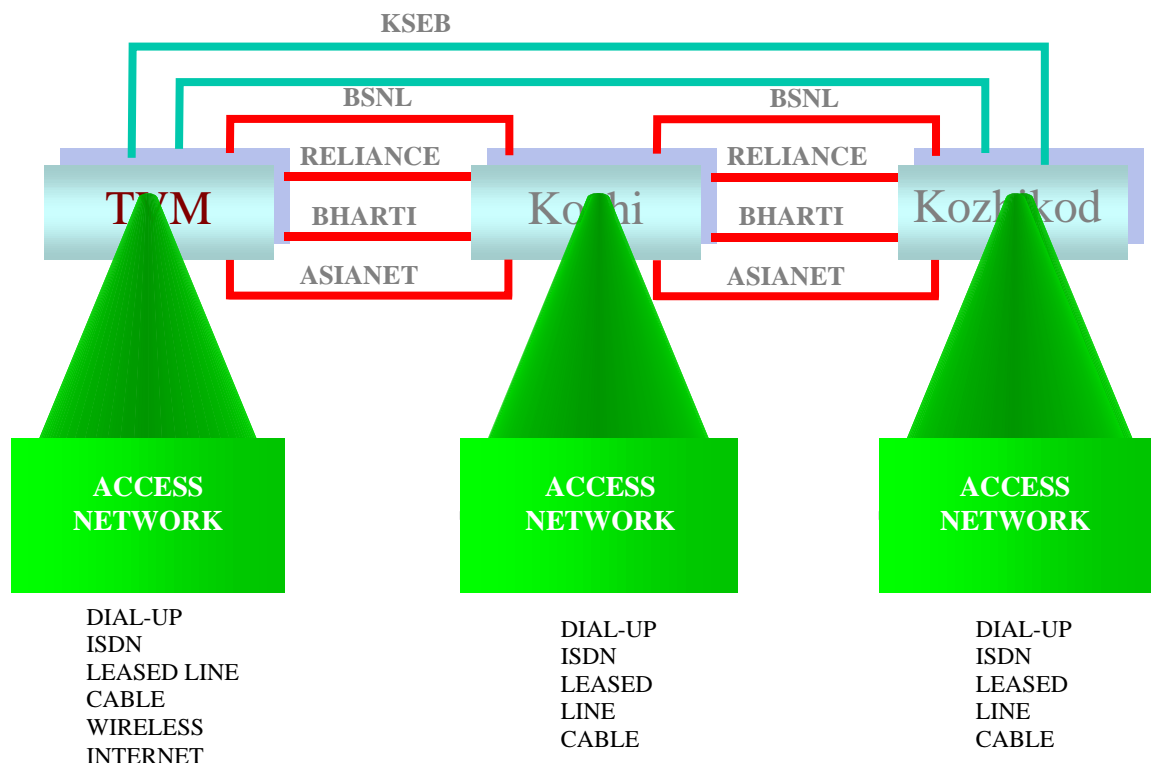
**Table 21.10**  
**E-Governance Investment**

E-Governance	No.of Centres	Employment (No of persons)	Investment (Rs cr.)
FRIENDS	14 HQs	650	4.50
Department Computerisation	11 Departments		200.00
Secretariat WAN	Government Secretariat		8.00

Source: IT Department.

21.29 The Government of Kerala had declared a Rights of Way Policy, permitting private and public sector infrastructure providers, who propose to lay OFCs, to have the Rights of Way over public properties including National and State highways, village roads and other public properties for laying OFCs on a non-exclusive

basis. Integration of Optical Fibre Lines of BSNL, BHARTI, RELIANCE, ASIANET and usage of the free bandwidth offered by these providers are envisaged under the State Information Infrastructure. The project aggregates the bandwidth from the bandwidth providers to make it available to Govt. departments.



Major Projects as on 2003	Department	Networked/ Standalone
Documents Registration	Registration-NIC	Standalone
Treasury computerisation	Finance-NIC	Partly networked
Civil supplies computerisation	Civil supplies-NIC	Standalone
FRIENDS	IT Dept-CDIT	Standalone
CancerNet	RCC-ERDC	Networked
Billing	KWA-NIC	Standalone
Information Kerala Mission	Planning Board-IKM	Standalone
Treasury computerisation	Finance-NIC	VSAT/leased line
Civil supplies computerisation	Civil supplies-NIC	64 Kbps
Registration	Registration-NIC	
Video conferencing facility	IT Dept	128 Kbps
Billing	KWA-NIC	
IT@School	Education-GOK	
Educational grid	Education-IIITM-GOK	2MBPS
ICDS networking	Social Welfare-ERDC	
Employment exchanges	Labour	
IKM	Planning board-IKM	64 Kbps
Computerisation	Motor Vehicles-NIC	
Forest MIS	Forest	
Land records	Revenue-NIC	VSAT
Commercial tax	Taxes-KELTRON	
Police network	Police	64 kbps
KTDC network	KTDC	ISDN
Ministers' MIS	IT Dept	64 Kbps
KSEB billing	KSEB	

**Akshaya**

21.30 Government of Kerala launched Akshaya project aiming at improving governance and introducing reforms primarily to pave the way for improved delivery of essential services to citizens in terms of transaction enabled information and communication, particularly to the disadvantaged sections of the society. Akshaya Project took off very well in its pilot phase in Malappuram district. Rural Banking on Line, Online Technology resource centers, E-Enabled Education Centers, Tele-jobs, Assisted Health Care, E-post etc. are expected to evolve to maturity in the State.

21.31 The project brought in private sector Investments of over Rs.30 crores in the first phase. IT penetration in the area also has reached higher levels testified by the increasing number of computer labs coming up in the schools, institutions etc.

**IT @ School**

21.32 IT @ School project aims at providing information technology enabled education to all high school children in the State in a time bound manner. The project has three main components viz. Computers and infrastructural facilities in schools, software and multi media materials for teaching and training including IT curriculum and IT trained teachers.

21.33 During the year 2002-03 the following activities were done for the implementation of the scheme.

- Ist phase Advisory Campaign in 36 educational districts
- Started district wise Advisory Campaigns
- Government sanctioned Rs. 25 lakhs towards the training expenditure for the scheme.
- Training for Headmasters started
- Training of leading master trainers
- Publication of the I T Textbook for 8<sup>th</sup> Standard
- Training of new master trainers
- Selected agencies for empanelment

- 2<sup>nd</sup> phase advisory campaign started at the state level and district level
- Pilot survey coordinated in Kasaragod and Trichur districts on the activities of IT @ school project
- Workshop on the preparation of 9th class IT Text book

21.34 The scheme has been implemented in 2046 schools as on 31-12-2003. Out of this computer labs were set up in 147 schools by the Kudumbasree units. Chertalai educational district is declared as the first complete computerised educational district in the State by establishing computerised labs in all the 46 High Schools.

**Box -21.3****Akshaya – Status****Akshaya**

- ◆ 617 centres functional
- ◆ 5.00 lakh people trained
- ◆ Training of 50000 people going on
- ◆ 70 panchayats could achieve 100% e-literacy coverage
- ◆ Average investment of Rs.4 lakhs per centre – total investment around Rs.25 crores.
- ◆ Entire investment mobilised by the entrepreneurs.
- ◆ Each centre employs 3 to 4 people – total direct employment around 2000.
- ◆ High Level of motivation among entrepreneurs.
- ◆ Tremendous local enthusiasm.

**The e-literacy programme**

- ◆ 15 hour module
- ◆ Focus on enabling individuals to use computers without fear or inhibition.
- ◆ At the end of the training, people to be able to use internet.
- ◆ Connectivity at individual Akshaya centres essential for this.

**Table 21.11**  
**State wise Statistics of the computerization of schools**

Sl. No	Name of the District	Total No. of Schools	No. of Schools set up Computer lab	No. of schools not set up computer labs	No. of schools have computers	No. of schools have internet connections
1	2	3	4	5	6	7
1	Thiruvananthapuram	212	191	21	111	21
2	Kollam	205	122	83	89	11
3	Pathanamthitta	161	125	36	77	18
	Alappuzha	185	183	2	129	23
5	Kottayam	225	190	35	86	37
6	Idukki	118	117	1	94	11
7	Ernakulam	262	254	8	186	19
8	Thrissur	228	211	17	122	33
9	Palakkad	139	111	28	22	8
10	Malappuram	162	131	31	72	58
11	Kozhikode	165	136	29	115	15
12	Wayanad	63	41	22	7	6
13	Kannur	162	149	13	119	5
14	Kasaragod	108	85	23	75	3
	Total	2395	2046	349	1304	268

Source: IT @ School project - 1st year Activity Report 2002-03, D P I Thiruvananthapuram

### Kissan – Kerala

21.35 To enable, educate and empower the farmer through knowledge calls for setting up of IT facilitated process in supporting agricultural agencies and institutions. Kissan Kerala project, a joint venture of IIITM-K with department of agriculture was formally inaugurated on November 1st 2003. In this Kissan Kerala Project several departments / organisations like Agriculture, FIB, KAU, Soil Survey, Soil Conservation, Dairy Development, Fisheries, Land Use Board and IIITM-K are involved. This project for agriculture is a pilot implementation of application of IT through relevant Information System and net working to aggregate, share and disseminate information of importance and interest to the farmers, agriculture workers and officials in ways that enhance agricultural development and farmer's welfare in the State. The project aims to establish a farmer centric information system for agriculture, which would focus on catering to the various requirements and services to the farmers across the State.

21.36 A key feature of the proposed system is the interface provided to the rural farmers for accessing

any relevant agriculture related information through community information Kiosks which are being set up at the selected Krishi Bhavans. In the first phase these agriculture Kiosks will be set up in ten selected Krishi Bhavans in Kazhakoottam and Nedumangad blocks of Thiruvananthapuram District.

### Police Portal for Community Interaction (PPCI)

21.37 The Police Portal for Community Interaction (PPCI) is one of the E-Governance initiatives in Kerala and the first of its kind in India incorporating both Knowledge Management and smart E-Governance concepts. The portal services are opened to the public in Thiruvananthapuram City. This Portal aims to remove the barrier of physical distance between the citizens and the police, thus enabling the citizens to approach the police Department (Police) using the net to lodge their grievances, suggestions, and opinions and also get the relevant information they seek from the Police without the need for visiting the police Stations. The portal provides for three-way interaction of (i) citizens to interact with fellow citizens in both open and closed

forums; (ii) two-way interactions between citizens and city police and (iii) police to interact with fellow police officers in disciplined ways as per the internal hierarchy and protocols of the Police department. Every citizen has the facility to give online complaints to any police officer. This will be especially useful in helping the public come forward with complaints relating to matters of general concern and which affect public at large. This can include problems like anti social activities etc. There is a citizens' interaction area, where a citizen can discuss any problem, give ideas, suggestions etc. In addition to the open discussion forum, which is available to everyone, there are restricted discussion forums in which the representatives of the Residents Associations and the local police officers can have regular discussions to identify and find solutions to problems. The portal gives a great opportunity to passport applicants to check the status of the passport veri-

fication process and also enables to lodge complaints, if any.

21.38 In order to encourage citizens to come forward and share information with the police fraternity, a facility has been created for citizens to register as informants and share confidential information. They will be able to do that while keeping their identity confidential. Also available is a facility for the public to ask questions, clarify their doubts etc. This facility will make the Police Department more accessible to the common man and respond to complaint.

#### **IT Education Grid**

21.39 IT Education Grid is being implemented by IITM-K for enhancing the quality of higher education in the state with the application of IT.

#### **Business Process Outsourcing**

### **Box -21.4**

#### **Achievements of the Kerala Education Grid project**

- Established the Education Grid Operations Centre cum Resource Centre of the Kerala Education Grid at the Indian Institute of Information Technology and Management – Kerala. The operation Centre would coordinate the overall project, planning , coordination, Educational technology services for course ware development and would be the central course ware and knowledge repository for all the courses
- Established the Education Grid Resource Centres at National Institute Technology – Calicut, Cochin University of Science Technology and College of Engineering Thiruvananthapuram. The Resource Centres would co-ordinate the course ware development and maintenance activities in identified courses, organised teachers training in course ware usage and host the system required for hosting the resources of the KEG. These resource centres would be co-ordinated the KEG activities of the respective regions of the State.
- A frame work for content quality and pedagogy management for ensuring quality education through KEG has been developed
- Linkages established with the National Programme of Technology Enhanced Learning, a project funded by the MHRD, Government of India to enhance the quality of Engineering Education in the country by developing Curriculum based video and Web courses with the participation of seven IITs and IISC Bangalore
- Initiated activities for the development of Web based courseware in various subjects of Engineering
- Organised workshops and short courses for orientation of teachers in Technology Enhanced Learning and Teaching.

21.40 BPO started as an extension of outsourcing of materials and men, which in turn was born out of the necessity of business to reduce its costs. It is also called ITES. ITES generating refers to services delivered over telecom network or the internet to a lot of business processes, BPO refers more specifically is a contractual service to carry out business function that are general IT extensive. India is all set to become the hub of global business process outsourcing. What is needed is entrepreneurial initiatives that can tackle issues crucial to the success of a BPO venture. Southern States

together account for 26% share in the Indian ITES industry. Out of the total Rs.11700 crores of ITES revenue, Rs.2922 crores came from the South, excluding Kerala, with AP of Rs.1411 crores, Karnataka Rs.988 crores and Tamil Nadu Rs.523 crores. With the number of ITES companies growing States such as Karnataka have changed their positioning from a technology cluster to BPO unit. In this area Kerala has to go a long way to attain huge revenue as is being done by Karnataka (Rs.16000 crores) Tamil Nadu (Rs.523 crores) etc. in the current year.

