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**REPORT ON THE INTERNATIONAL CONFERENCE
ON E-COMMERCE AND DEVELOPMENT IN PAKISTAN
AND POSSIBLE FOLLOW-UP ACTIVITIES**

Prepared by the UNCTAD secretariat

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I. REPORT ON THE INTERNATIONAL CONFERENCE ON E-COMMERCE AND DEVELOPMENT IN PAKISTAN

(Islamabad, Pakistan, 18–19 September 2002)

A. Introduction

The international conference on E-Commerce and Development in Pakistan, organized by the Ministry of Science and Technology (MoST) in collaboration with the United Nations Development Programme (UNDP) and UNCTAD, was held in Islamabad on 18 and 19 September 2002. The conference forms part of the Policy Support on E-Commerce and Development Project for Pakistan funded by UNDP and implemented by UNCTAD.

The purpose of the conference was to mobilize national and international expertise and to assess investor interest in the area of e-commerce in Pakistan, as well as to take stock of current initiatives and opportunities for action and investment in the information and communications technologies (ICT) and e-commerce sectors.

The conference was attended by key policy makers from Government, academia, and the private sector, including leading banks and information technology (IT) companies. The official agenda appears in the Annex to this report.

The discussions of the conference were structured in accordance with the following thematic sessions:

- E-commerce: concept and practice
- E-commerce and the financial services sector
- Physical infrastructure for e-commerce
- E-commerce for industry
- E-commerce and legal issues
- E-commerce for poverty reduction

The conference was opened by Atta-ur-Rahman, Federal Minister for Science and Technology, who said that the conference was a step towards formulating a clear direction for the e-commerce policy framework for Pakistan. The conference reiterated a determination to form a public key infrastructure (PKI) in the next three months, to address related laws and regulations within the next three months, and to set a target of having 15 per cent of trade transactions be occurring via this new infrastructure within one year. The speaker emphasized that the next challenge was to stimulate demand for applications of e-commerce.

Other opening addresses included presentations by Ashfad Mahmood, Secretary of the MoST information technology (IT) division; Onder Yucer, Resident Representative for UNDP; and Zhongzhou Li, Director of UNCTAD's Division for Services Infrastructure for Development and Trade Efficiency (SITE).

B. Main findings and comments

The following is a summary of the main points discussed on which there was broad consensus.

- (a) There had been important progress in the rollout of telecommunications networks in Pakistan over the past 18 months. More than 850 cities were now connected to the Internet, 240 of them by optical fibre. Bandwidth availability had increased from 32 megabits per second (August 2000) to 410 megabits per second (October 2002). Costs had therefore dropped from US\$70,000 a month for a 2-megabit link to around US\$3,500 a month. There were, however, still problems with “last mile connectivity”. The quality of connections between users and Internet service providers (ISPs) needed upgrading. There had been a dramatic increase in cellular subscribers, from 225,000 (January 2001) to 1,150,000 (August 2002). The number of Internet subscribers had grown from 130,000 (June 2000) to 1,180,000 (August 2002). It was estimated that there were more than 4 million actual users (including subscription sharers, people with business access, Internet café users, etc.).
- (b) Intra-government initiatives included efforts by the National Transport and Trade Facilitation Committee (Ministry of Commerce), the State Bank of Pakistan (regulations for merchant accounts and connectivity to national financial switches), and the Ministry of Justice (on the Electronic Transactions Ordinance, or ETO, and related laws and regulations). These initiatives had produced the following outcomes:
 - The Single Administrative Document (SAD) had been approved by the Central Board of Revenue Member Customs, and other enabling transport legislation had been drafted. All of this would ultimately facilitate trade and transport procedures for e-commerce.
 - Legislation allowed banks to provide Internet merchant credit card bank accounts, and banks were required to connect to national switches.
 - The ETO had been promulgated and work started on drafting other e-commerce laws, including data protection, an intellectual property regime (IPR), and privacy laws.
- (c) Banks had made important progress over the last three years. Of the 4,881 branch offices, 570 (8 per cent) had been connected using Internet technology and 2,036 were computerized. There were two national switches. To encourage further developments in the e-enablement of banks, the MoST proposed the publication of status reports and rankings of banks’ e-readiness.
- (d) The report of the State Bank of Pakistan noted that no financial network was deployed to cater to the needs of national interbanking financial traffic. No real time gross settlement (RTGS) payment system was in place.

- (e) Legal issues and security needed to be addressed. One of the initiatives managed by MoST, and currently under way, was the setting up of a national Public Key Infrastructure and a Certification Authority.
- (f) Gender issues needed addressing. The female workforce was an underutilized resource in Pakistan. Economic models would become increasingly unsustainable unless women were brought into the mainstream economy. E-commerce provided a tool to achieve this end.
- (g) E-commerce could leverage poor communities into the mainstream. This could be done through various applications, including e-education, e-health and e-business. Innovative IT tools could help break the vicious circle of poverty. Nongovernmental organizations (NGOs) could play a critical role in this process.
- (h) E-commerce was a vital component for industry. There were clear imperatives to use e-commerce to increase exports, develop alternative payment mechanisms, more efficient logistics, and introduce e-customs that could facilitate export and trade.
- (i) Enterprises might need to undergo extensive business process re-engineering, and many were not even computerized. This aspect was critical to participation in global e-business.
- (j) For Pakistan to transform itself into an e-enabled economy, a major shift in attitudes to e-commerce was required. Awareness and education programmes would play an important role in changing these attitudes.
- (k) The importance of e-learning or distance learning was recognized by the participants. One of the most successful initiatives managed by MoST in close cooperation with UNDP was the establishment of the Virtual University (VU) in Pakistan. The VU was a significant step towards raising the standard of IT education in Pakistan, since it was easily accessible and had the best available faculty. Its goal was to contribute to the development of a large pool of academically and technically skilled IT labour. The VU had launched its first phase in March 2002 and currently offered a four-year Bachelor of Computer Science (BCS) degree. It was expected that courses in other fields and disciplines would eventually be included in the VU curricula.
- (l) Pakistan would be nominated as Chairman of AFACT¹ in October 2002. A chairman and team would be selected. Representatives from Pakistan would attend a preparatory meeting in Kuala Lumpur in order to prepare to host the AFACT conference in 2003.

¹ Asia Pacific Council for Trade Facilitation and Electronic Business.

C. Recommendations

The very rich presentations and discussions of this two-day conference resulted in a number of concrete recommendations to the key e-commerce players in Pakistan, including the Government. The recommendations focused on creating appropriate national e-commerce strategy and policy in Pakistan. Highlights included the following:

- (a) The Government should be the key player and facilitator and, together with the business community, should take a lead role in the development and use of e-commerce.
- (b) The current state of IT "enablement" for e-commerce should be evaluated. Surveys to determine levels of user adoption, "last mile connectivity" and demand for applications should be used. These results would contribute to the development of a national e-commerce policy.
- (c) Internet access should be spread to the rural and poor communities. It was stressed that this must be treated as a priority.
- (d) Extensive training should be provided to enablers, users, demand generators and underprivileged communities.
- (e) Priority should be given to the promotion and encouragement of developments to interconnect customs, ports, banks, exporters and importers for paperless trading.
- (f) Seminars and training sessions should be organized for the staff members of ports, the Central Board of Revenue, and business and industry associations.
- (g) Funds should be raised to enable the E-Commerce Task Force of the Ministry of Science & Technology of Pakistan to drive the implementation process.
- (h) Legislation should be formulated taking into account the unique nature of the Internet and the IT-enabled world – for example, to waive the withholding tax for prepaid cards.
- (i) Duties on automatic teller machines (ATMs) and data communications equipment should be eliminated.
- (j) The digital cross-connect charges of the Pakistan Telecommunication Company should be reduced to a minimum for the trade and financial sector.
- (k) Banks' authorized dealers should be linked to the State Bank of Pakistan. The same links should be used for the e-form project.
- (l) Banks and the State Bank of Pakistan should be encouraged to establish an electronic funds transfer infrastructure.

(m) The PKI should be established in the next three months.

D. Future directions and policy framework outline

- (a) Pakistan must aggressively move in the direction of an e-enabled economy and a networked society.
- (b) E-commerce leadership and vision should be pervasive throughout management structures in all ministries and private-sector companies.
- (c) Pakistan must define in its strategy how this strategy relates to internal and external stakeholders. It needs to articulate trust, transparency and predictability to promote confidence internationally.
- (d) Pakistan should continue to address, at the government level, issues of Internet infrastructure, e-payment infrastructure and legal infrastructure.
- (e) The Government, in cooperation with the private sector, should build awareness among businesses and citizens of the opportunities and benefits of ICT. It is equally essential to create a demand for the new technologies and e-commerce. This element must be taken into account when formulating a national e-commerce strategy in Pakistan.
- (f) Areas to focus on include:
 - Promoting an e-oriented national culture using e-government, e-health and e-education
 - Addressing pro-poor issues (in addition to connectivity, identifying imperatives and providing opportunities)
 - Promoting enterprise automation or computerization
 - Developing human resources
 - Developing local information systems/content at the government, institutional and enterprise levels (e-enabled economies need electronic information)
 - Encouraging cross-functional initiatives when creating the government task team (i.e. including professionals with different interests, such as business specialists, sociologists and specialists with gender and pro-poor interests)

E. Concluding remarks

- (a) In his concluding statement, Atta-ur-Rahman, the Federal Minister for Science and Technology, urged all parties to move forward with e-commerce initiatives. He stressed the need to have a draft e-commerce policy in place within 90 days.

UNDP was requested to provide an international expert who could assist in this regard.

- (b) He stressed the need to research best practices to support initiatives such as the implementation of a national PKI infrastructure.
- (c) He suggested that similar conferences be held in other major cities such as Karachi and Lahore. These awareness efforts must be publicized, including the e-readiness status of banks.
- (d) He proposed that work be done to stimulate demand. Training programmes and promotion of appropriate applications were needed.
- (e) He affirmed that the Government was committed to the development of e-commerce in Pakistan. He said that the Government would provide a predictable legal framework and a safe and secure environment to accelerate the development of e-commerce in Pakistan.

F. Conclusion

The conference discussed a number of key issues central to the development of a national e-commerce strategy in Pakistan. It examined the specific measures that were most likely to create an enabling environment for e-commerce in Pakistan, and it assessed existing experiences in this regard. Key e-commerce players were given the opportunity to express their views and concerns, and to discuss their e-commerce practices and prospects and the challenges they were facing in this area.

The conference concluded by affirming the pressing need for formulation of an e-commerce policy in Pakistan. The Minister of Science and Technology in his concluding remarks emphasized that e-commerce could contribute greatly to poverty alleviation, create employment, improve efficiency and reduce transaction costs. Furthermore, in terms of awareness-raising and policy and regulatory frameworks, the conference stressed the need for capacity-building initiatives, increased e-readiness of banks, and the establishment of a predictable legal framework aimed at maximizing certainty and encouraging confidence and the use of e-commerce tools, as well as for the implementation of a national PKI infrastructure.

The conference also highlighted current opportunities for action and investment in the ICT and e-commerce sectors in Pakistan.

II. POSSIBLE FOLLOW-UP ACTIVITIES FOR E-COMMERCE IN PAKISTAN

After the successful conclusion of the Islamabad conference, and based on research by consultants and project staff members, the E-Commerce Branch of UNCTAD's SITE submitted the following report on possible themes for follow-up activities, which should be further reviewed with a view to future project possibilities and should be subject to separate project drafts.

* * *

A. Themes

From the International Conference on E-Commerce and Development in Pakistan (2002) and field research conducted before and during the conference, three themes emerge that could involve joint activities between international development agencies and the Government to promote the development of e-commerce in Pakistan.

Theme 1: Supporting the development of a national e-commerce strategy

An e-strategy may facilitate coordinated movement toward an e-enabled society. Important progress in the area of Internet and e-payment infrastructure has been made while other issues, such as that of PKI, still need to be addressed.² The application of e-commerce at the business, government and civil society levels needs further support, judging from low user demand and negligible e-commerce activity. A coordinated national strategy with strong government leadership is essential for e-commerce to take root in Pakistan, in particular if its local business is to benefit from the new Electronic Transaction Ordinance (ETO) and PKI infrastructure.

Theme 2: Building e-capacity in exporting enterprises

Improving international competitiveness and developing an e-trade infrastructure go hand in hand. Special attention must be paid to the growing threat of marginalization of Pakistani exporting enterprises in the global economy. Low levels of information technology (IT) adoption in most of these enterprises may threaten their future, and addressing this situation could significantly increase export earnings as international buyers increasingly opt for e-enabled suppliers. Enterprise managers should embrace the changes as essential and should be encouraged to realize that IT and e-initiatives will make a difference in their business. On the administrative side, there is an urgent need to improve the efficiency of export/import procedures. Electronic document processing between customs facilities, ports and banks can reduce transaction times and costs, thereby helping Pakistani companies compete globally.

² Terms of reference for work on the PKI project attached in the annex.

Theme 3: Bringing the benefits of e-enablement to civil society

To ensure long-term prosperity for all, the digital divide must be eradicated. This quest has many facets. They range from providing “last mile” access to e-infrastructure to providing useful and necessary applications for rural communities. E-enablement must strive to make a difference in the lives of average citizens.

B. Agenda for action

A number of cross-cutting issues will affect Pakistan's ability to take advantage of the new e-enabled world. Gender issues, development of appropriate human resources through appropriate education, and development of e-leadership at the political, institutional and business and civil society levels are essential if e-commerce is to contribute to the economic and social development of Pakistan.

The proposed agenda for action should leverage existing capacity and projects as far as possible. In practice this means coordinated efforts between UN and other agencies, and between international agencies and local organizations such as the Small and Medium Enterprise Development Authority of Pakistan (SMEDA). It requires mutual understanding of current activities and leveraging of existing activities into the Pakistani context, as well as joint initiation of new programmes. The following four interventions are recommended and are related to particular themes.

Theme 1

The Government of Pakistan can be assisted in developing its e-commerce strategy and policy framework. The Ministry of Science and Technology (MoST) has requested a draft e-commerce and PKI strategy that is to be presented to the cabinet by the newly formed National Task Force on E-Commerce. This work could be conducted under the aegis of the existing UNCTAD/UNDP project, to the extent that funding and resources allow.

Theme 2

- (a) Establish an UNCTAD/UN Industrial Development Organization (UNIDO) e-commerce project with a special focus on initiatives to develop e-commerce capacity in exporting enterprises. The immediate objective of the project would be to give SMEDA the capacity to assist with the e-enablement of small and medium-size enterprises (SMEs) and other stakeholders.
- (b) Building on UNCTAD's current trade facilitation activities in Pakistan, establish a project to help mobilize and coordinate stakeholders' progress toward an e-trading infrastructure. This would require technical cooperation activities in applying e-commerce solutions to the revised trade procedures and developing consensus on a central document processing system.

Theme 3

Establish a project that would create a focal point with UNDP/UNIDO for developing e-enablement strategies for civil society, with an emphasis on the marginalized poor and women. This would involve provision of technical assistance in identifying best practices from around the world and providing support to NGOs already in this field. It might also involve facilitating the development of project funding proposals.

C. Rationale

1. E-readiness and institutional capacity

The e-readiness of Pakistan can be described as reasonable in terms of Internet infrastructure, promising in terms of e-payment infrastructure and a regulatory environment, and very weak in terms of e-commerce applications and general user demand. While e-readiness may improve without a focused government policy, it is likely that a well-designed and implementable e-strategy would greatly improve overall e-readiness.

The Economist Intelligence Unit's 2002 ratings place Pakistan fifty-seventh out of the 60 surveyed economies, lower than Iran, Nigeria, Indonesia and Viet Nam. The country has, however, moved up three places (from number 60) since 2001. The survey noted that, while infrastructure was a general consideration, business culture was decisive in the scoring.

The MoST has taken steps to promote an e-commerce drive as part of its Information Technology Policy. The Policy devotes a small section to e-commerce, but mainly at the technical level. However, a unified e-commerce strategy may still be needed, together with improved coordination between ministries and industry organizations in order to improve e-commerce development in Pakistan.

A certain capacity to implement e-commerce-related projects already exists in Pakistan. This capacity ranges from a group of key people and a few task teams to business associations and business development agencies. The banking industry has an active task force on e-commerce. As part of the UNCTAD Trade Facilitation Action Programme, a National Trade and Transport Facilitation Committee (NTTFC) has been formed. Alliances and partnerships with overseas Pakistani networks and universities, the Government, and private-sector leaders that are users or providers of e-commerce and information and communication technologies (ICT) are welcome and needed.

Capacity building and awareness building exercises are a prerequisite to establishing a workable institutional arrangement for implementing a comprehensive e-strategy. The September 2002 conference in Islamabad moved the agenda forward. Earlier, in May 2002, UNIDO had held an ICT conference jointly with the MoST, the Federal Secretary of IT and Telecommunications, the Managing Director of the Pakistan Software Export Board (PSEB), and private-sector (SME) IT leaders. The conferences

served as launching pads for joint collaboration by the Government, the private sector, and international organizations in ICT.

SMEDA (Small and Medium Enterprise Development Authority – <http://www.smeda.org.pk/>) is an organization focused on developing the business capacity of small businesses in Pakistan. SMEDA's management has expressed strong interest in supporting e-commerce initiatives and should be considered as a prime partner for future e-strategy and capacity-building activities in Pakistan. The Industrial Information Network (IIN – <http://www.iin.org.pk/>) is a joint developmental project of SMEDA, SME Bank, COMSATS and UNIDO. It has been active in research and the promotion of e-commerce initiatives.

2. ICT and Internet infrastructure

The telecommunications infrastructure has improved dramatically in the past two years. According to government reports, more than 850 cities are now connected to the Internet, 240 of them by optical fibre. The number of mobile phone subscribers has increased dramatically (from 225,000 in January 2001 to 1,150,000 in August 2002) as liberalization in the telecommunications sector has freed up the wireless frequency. Pakistan is about to license additional fixed-line telecommunications providers, thereby ending the current monopoly of Pakistan Telecommunications Company Ltd. (PTCL), the state telecommunications company. However, the terms of the licenses are still being debated.

The Internet infrastructure has experienced similar improvements. VSAT (very small aperture terminal) licenses are not required. Bandwidth availability increased from 32 megabits per second in August 2000 to 410 megabits per second in October 2002. While bandwidth costs for Internet service providers (ISPs) connecting through PTCL have dropped from US\$70,000 per month for a 2-megabit link to around US\$6,000 per month,³ they are still costly compared to rates in developed countries.

Concerning “last mile connectivity”, the quality of connections between users and ISPs needs upgrading. The number of Internet subscribers grew from 130,000 in June 2000 to 1,180,000 in August 2002. It was estimated that more than 4 million actual users were accessing the Internet (including through shared subscriptions, in offices, and in educational institutions and Internet cafés). Wireless solutions are being rolled out in four cities. Paknet.com (a subsidiary of PTCL) is behind the roll-out and claims that it will offer connectivity of 64- to 128-kilobit lines for around US\$770–\$1,100 per month, with plans to install these solutions in educational institutions. The quality of ISPs varies, which is understandable given the relatively low number of subscribers. High-quality access is important to achieve economically viable e-commerce applications, and its lack may generate psychological barriers to assimilation.

³ *Pakistan Economist*, Issue 10, 2002.

3. *E-commerce*

General e-commerce activity is virtually nonexistent. It is estimated that there are less than 100 companies engaging in some form of e-commerce in Pakistan. The reasons range from the limitations of the physical infrastructure to a lack of user interest. Most small companies do not have automated systems and hence are not in a position to benefit from the various e-commerce applications such as customer relations management (CRM). This situation is in sharp contrast with the substantial level of intellectual capacity in Pakistan that can be mobilized for e-commerce. IT engineers abound, and key figures in the government and business sectors have already devoted a great deal of time to the issue of e-commerce.

UNCTAD's research reveals that, in general, businesses are not familiar with e-commerce and consequently do not feel compelled to move in this direction. Amid the many obstacles, the following are worth singling out:

- Insufficient computerization and IT automation in enterprises
- Underdeveloped IT infrastructure, including insufficient access to uninterrupted power
- Lack of IT managers who can analyse and integrate systems and supervise programmers
- Fear of the transparency that IT and e-commerce may bring through improved financial reporting capabilities, including the complementarities between e-commerce and e-finance
- Poor success of business-to-business (B2B) portals
- Lack of government-level guidance and support, in particular for SMEs

Exporters will increasingly feel pressure from international buyers to use IT and e-commerce tools. E-commerce helps trading partners manage and plan their activities and schedule production and shipments. For example, a sales manager can give a buyer a firm shipment date when the order is placed. Large buyers in the United States are requesting electronic reporting and want to process and track orders using Internet and e-commerce applications. Companies that have not automated their internal business processes will find this demand impossible to satisfy. Some buyers such as Walmart (<http://www.walmart.com/>) have already started to disqualify suppliers unable to comply.

There is surprisingly little teleservicing activity in Pakistan (given that Pakistan has many workers with English-language and computer skills), and this activity is still restricted to a few small companies – another indication that the business community is ill-informed about opportunities offered by Internet technologies.

4. *E-commerce and civil society*

People have not yet felt the positive impact of e-commerce. The majority of the population is oblivious to discussions and developments in this area. There are, however,

signs of increasing use of e-mail and the Internet. Some estimates put general e-mail and Internet use at around 4 million people (about 3.5 per cent of the population).

Business-to-consumer (B2C) e-commerce is almost nonexistent except for sites targeting expatriate Pakistanis and a few local sites offering limited offerings. Many of these sites are hosted outside of Pakistan and sell home-grown products sought by people living abroad. A main reason for the lack of local B2C e-commerce is the virtual lack of credit card use in Pakistan. Banks have only recently been able to offer e-payment over the Internet.

The lack of B2C e-commerce can be attributed partly to people's need to "touch and feel" items before making the final decision to buy. Pakistanis are accustomed to buying on site rather than via mail order.

5. *E-finance*

On the other hand, in the past three years banks have made important progress in developing an e-payment infrastructure. Of 4,881 bank offices, 570 (8 per cent) are connected using Internet technology and 2,036 are computerized. However, the National Bank, which has the most branches and provides services to smaller cities and towns, is far from full automation and connection. The current approach to developing an e-payment infrastructure is therefore not addressing the needs of the majority of Pakistanis. To encourage greater e-enablement of banks, the MoST has proposed publication of the e-readiness status and rankings of banks. The State Bank of Pakistan has noted that a financial network is needed for national inter-banking financial traffic and that a real-time gross settlement (RTGS) payment system is lacking. A tender for procurement of an RTGS infrastructure was placed with a deadline of 21 January 2003, so this situation is expected to improve significantly in the next 12 months. Recent developments allow people to make utility payments via ATMs. Utility companies such as the power supply and telecommunications monopolies have entered into agreements with some of the banks to allow payments to be made from various pay points.

Discussions with MCB⁴ (a private bank and a subsidiary of the Nishat Group of companies – <http://www.mcb.com.pk/>) revealed that private banks are making impressive strides in networking. Their target market consists mainly of middle-class salary earners. MCB now spends 25 per cent of its total budget on IT. As a result, 20 per cent of MCB branches are electronically connected, while almost 70 per cent are computerized, and these figures are expected to increase in the next two years. MCB's e-finance initiatives allow it to offer new products and services while shifting more than 8 million transactions from the counter to ATMs, thus taking pressure off tellers. The company just signed a memorandum of understanding with PTCL for MCB to offer electronic billing facilities to PTCL customers. MCB has also launch a Cirrus money card, which allows electronic purchases via points of sale in certain supermarkets and similar venues. In the next 18 months it expects to distribute more than 1 million cards involving more than 75 million

⁴ Rating information is available from JCR-VIS at www.jcrvis.com.pk.

transactions. Deposits have increased and ratings are favourable,⁵ which suggests that e-enablement is good for business. Similar developments can be expected of the other major private banks. International banks have limited representation in Pakistan but are almost all electronically connected.

The National Bank of Pakistan's e-commerce and ICT infrastructure needs modernizing. Even though it is the largest domestic bank; most of its branches are not even computerized, and IT deployment may become an important issue in the increasingly competitive financial sector. Connecting branches is difficult when many branches are not even automated. Bank offices that are computerized often have legacy information systems, and establishing compatibility between systems is difficult. Networking branches is beneficial only if the necessary back-end systems are in place. The biggest challenge has been to positively orient employees to the new online culture and train them in the processes involved. Banking procedures have had to be reviewed and lines upgraded or installed. The National Bank has a task force in place involving key people from the banking industry in particular to deal with improving e-payment operations in and among banks.

During the Islamabad conference in 2002, bankers often discussed e-payment mechanisms and the associated technological requirements and reported on progress in efforts to interconnect. It is not clear what applications would be available to users, in what form, and how they would enable users to become e-commerce-enabled.

6. *E-commerce regulation*

Promulgation of the Pakistan Electronic Transaction Ordinance in September 2002 was an important step in creating the required regulatory environment for e-commerce. The Ordinance mainly deals with the legality of electronic contracting and nonrepudiation. A major challenge in promulgating this ordinance was the number of amendments that had to be made in related laws. Apparently more than 100 amendments were required. The next areas that need to be addressed are data and privacy protection, consumer protection, and the use of encryption and electronic signatures.

7. *Awareness building, e-education, human resources development and software exports*

Several developments are underway in e-education. University entrance applications can now be done online. The Virtual University has recently been launched and is expected to be fully operational by next year. UNIDO has partnered with the Virtual University to promote e-learning via Internet-based short courses for upgrading professional skills, as well as for women's development. General e-commerce promotion initiatives and surveys are beginning to surface. The International Telecommunication Union (ITU) sponsored a training programme on e-commerce in April 2002. The ITCN Asia 2002 conference "Emerging IT Trends and Business Opportunities", held in Karachi in August

⁵ The current entity rating (by JCR-VIS) is AA-.

2002, focused mainly on ICT with a section on e-commerce. The IIN has conducted a survey on levels of ICT use among small companies.

There is enough talent within Pakistan to take advantage of an e-enabled economy. Younger people have an affinity with technology. Software development companies claim that available programmers are in oversupply for the moment. This situation could, however, change very quickly should export orders for software development increase. The Software Export Board of Pakistan (PSEB – www.pseb.org.pk) believes that Pakistan should aim for a yearly turnover of US\$1 billion and estimates that this would require 10,000 local programmers.

A significant network of expatriate Pakistanis channelling programming and IT-related contracts and work to Pakistani software and teleservicing companies has not materialized, perhaps owing to perceptions of continued instability in Pakistan. While commercial considerations are important in doing business, institutions such as the Institute of Overseas Pakistanis⁶ can play a role in getting businesses in developed countries to rethink their present restrained position.

A number of incentives can be used to promote export software development, including tax breaks, duty-free imports relating to computers, investment incentives, and the like. However, such incentives have yet to make an impact in terms of dramatically increased software exports. Breaking into the international market is a far more complex process than human resources development and professional capacity building. “Brain drain”, often cited as a problem, is caused by a lack of professional and economic opportunities.

Even though programmers are available, a related area of weakness is the lack of people possessing both computer systems literacy and business management skills. The greatest challenge of an e-enabled society is to have people that can run and manage these systems as well as run businesses using these systems. Greater creativity, problem-solving ability, accuracy and the ability to benchmark are examples of the kinds of skills that will be needed in a future e-enabled Pakistan. Furthermore, acceptance of change as a permanent situation and endless questioning of existing solutions and systems in order to improve and stay competitive in a globalized market should become defining characteristics of an e-commerce- and IT-enabled Pakistani economy. In contrast, the educational system tends to follow the traditional model of rote learning, and young people are unprepared for the jobs of the twenty-first century.

8. *E-trade facilitation*

There has been work on simplifying international trade procedures, which will encourage e-trade. However, currency exchange controls can impede e-trade facilitation. A Internet readiness survey of SMEs is currently being conducted by UNIDO. The Export Promotion Bureau plans to establish an UNCTAD Trade Point in Karachi.

⁶ www.iop.org.pk

An important issue is interministerial cooperation. A cooperative framework for supporting e-commerce should be considered by the Ministry of Science and Technology, the Ministry of Commerce and the Central Board of Revenue, among others.

There have been isolated attempts by some port terminals and by Customs to move toward electronic processing of documents. Many businesspeople believe that this is an area where e-commerce could play a major role in increasing efficiency and reducing costs. Delays in processing shipments through Customs and ports are resulting in significant penalties to shipping lines. The UNCTAD Trade Facilitation Action Programme has developed the Pakistan Goods Declaration (PGD), a single document that replaces over 20 forms that were previously required for import and export transactions. Pakistan Revenue Automation Ltd. (PRAL) has developed personal computer software and a Web-based application for completing the PGD forms electronically via the Internet. Owing to the absence of a legal and technical infrastructure to support electronic signatures, however, traders still have to submit signed paper printouts of the PDG to Customs.

Successful e-capacity building among Pakistan's exporting enterprises depends on the *interoperability* of e-commerce applications, both domestically and internationally. Within Pakistan it is essential that the several Government institutions currently computerizing their operations (i.e. Customs, the ports and state-owned enterprises, such as the Pakistan National Shipping Corporation) coordinate this development among themselves, as well as with representatives of the business community (transporters, shippers, forwarders, etc.). It is not necessary for every agency to use the same hardware and software as long as common data standards are adopted. Adoption of internationally recognized standards will ensure that the same interoperability can be extended across national borders. Participation in global trading increasingly requires meeting certain standards, and UNCTAD is well positioned to support this aspect of e-commerce development in Pakistan

9. *Pro-poor e-commerce*

The United Nations and in particular UNDP has expressed concern that the e-commerce and IT focus in Pakistan has generally been on modernization and advanced infrastructure issues, with most efforts aimed at bringing mainstream businesses into the e-commerce arena. More has to be done to implement IT and e-commerce applications that can improve the lives of young people and the poor, and, in particular, can empower women living in rural areas. So far, success stories unfolding in rural Pakistan that involve poor communities benefiting from e-commerce are limited to NGO interventions such as the Aga Khan Development Network (www.akdn.org).

The UNDP in Pakistan has geared up to tackle the broader e-commerce agenda, including pro-poor issues. UNDP involvement in development of the Virtual University has been significant, and the Government has a number of initiatives to promote ICT use in society, which should be supported by the development organizations of the international community. UNIDO is starting a dialogue with organizations, associations

and NGOs to build partnerships for utilizing e-commerce and ICT to assist the marginalized poor and women.

There is general agreement that technology and finance go hand in hand. While micro-finance banks have been instrumental in bringing e-payment initiatives to low-income earners in other parts of the world such as Bangladesh, Kenya and Tanzania, no such initiatives are visible in Pakistan. Experiences in other countries and regions should be explored with a view to their possible replicability in Pakistan.

D. Conclusions

1. Viable e-commerce follow-up through a series of projects may be useful for Pakistan.

- (a) There is a very strong sense that Pakistan's leadership is fully behind the development of ICT applications in the country. The current IT policy is extensive and has a number of elements contributing to a positive environment for the development of e-commerce. The speedy promulgation of the Electronic Transactions Ordinance indicates a willingness to make the legislative adjustments required.
- (b) The decision of the Ministry of Science and Technology to establish an e-commerce strategy and policy is a very important development. The fact that it is a local initiative and that a task force has been put in place makes it a ready-made vehicle for providing technical assistance.
- (c) There is positive movement toward developing a physical e-commerce infrastructure. The Government has earmarked significant funding for this. There are signs of private-sector investment, and there is a movement to liberalize the telecommunications provision. This bodes well for more competition and a broader range of services.
- (d) The banks are showing commitment to offering e-payment applications for enterprises and for civil society in general. E-government and e-business applications are now possible in major cities.
- (e) Through the Trade Facilitation Action Programme there appears to be a willingness on the part of the authorities to improve the international trade procedures. The initiatives of PRAL provide a solid base for developing an e-trade infrastructure. UNCTAD's current involvement in Karachi provides a ready-to-use infrastructure and network through which an e-trade infrastructure proposal can be implemented.
- (f) The fact that certain institutions and individuals have already initiated activities to develop e-commerce applications indicates that there is a local base from which to launch the project. Organizations such as SMEDA and

UNIDO provide capacity to implement enterprise e-enablement programmes. The various sector associations are expected to be receptive to e-commerce initiatives.

- (g) The positive approach of the UNDP toward e-commerce development is an important impetus for any future project.
 - (h) NGOs are undertaking impressive activities in the area of pro-poor e-commerce. The project could work with them to apply best practice and other initiatives. The interest demonstrated by the World Bank in this form of e-commerce must be exploited.
2. ***There are, however, factors that could affect the project negatively.***
- (a) There seems to be very little user demand for e-commerce applications – whether because of ignorance, lack of appropriate applications, and/or lack of e-leadership at the enterprise level. Whatever the reasons, this lack of demand will be one of the main challenges facing the project. The project will succeed only if there is a realization that business cultures and practices will have to change, which is a difficult and intangible objective to achieve.
 - (b) There is still very little private-sector investment in e-commerce applications. The lack of apparent market demand makes it very difficult for the private sector to invest. There will be heavy dependence on government to take the initiative as a significant e-commerce user, which in turn could stimulate private-sector interest. The task of mobilizing government in this direction is daunting.
 - (c) The Ministry of Commerce is a key stakeholder and player in the national strategy for e-commerce development. However, this ministry appears not to be involved in this initiative – perhaps because of insufficient awareness in the ministry regarding what e-commerce is and why it is important for the country.
3. ***A first step towards developing a project framework can be development of a national e-strategy and e-commerce policy.***

- (a) Background

Without a national e-strategy, e-commerce initiatives tend to be ad hoc and fail to mobilize the country to use e-commerce on a national scale. There is no apparent e-commerce strategy in place in Pakistan, which makes it almost impossible to generate the required environment of trust, transparency and predictability. Unless such an environment is created on a national scale, there is little incentive for

business and civil society to participate. MoST views the development of a PKI infrastructure as a way forward, and UNDP and may be a first step for follow-up.

An e-strategy may be viable, judging from the expressed commitment of the Ministry of Science and Technology to e-commerce development. The Ministry is aware that Pakistan needs to articulate a strategic plan in the form of an e-commerce policy with a view to mobilizing all sectors towards achieving e-enablement. The concluding remarks of the Minister of Science and Technology regarding an e-commerce policy are further testimony to this belief. There is a clear call for UNCTAD and UNDP involvement in e-commerce strategy development.

A major stakeholder in this regard is the recently appointed Task Force on E-Commerce, a core team with which UNCTAD's technical cooperation staff could cooperate. The task force should comprise a larger group to which developments are reported and from which approval is obtained. Members of the task force must represent all stakeholders, including commerce, health, education, government and civil society. The task force should not be dominated by an IT perspective.

In the near future, separate and distinct projects may be initiated to tackle the issues involved in development of an e-trade infrastructure and e-capacity building in exporting SMEs as well.

(b) Beneficiaries

The beneficiaries of such a national e-strategy will be the business community, government departments and civil society in general. Key stakeholders include the banking community, the Internet services community and e-commerce applications providers. These parties need to be encouraged, via a national policy, to invest in e-applications. Other ministries need to feel ownership in this process, particularly the Ministry of Industries and Production and the Ministry of Commerce.

(c) Framework

The e-strategy development activities can be initiated through the existing UNDP/UNCTAD SPPD⁷ project for initial work examining the issue of a PKI infrastructure and subject to availability of funds. Additional projects will have to be engineered following UN project guidelines and logical framework techniques.

⁷ Support for Policy & Programme Development

ANNEX I

**International Conference on E-Commerce & Development
September 18 - 19, 2002
Islamabad, Pakistan**

Wednesday, September 18, 2002

Opening Session

- 08:00-08:45 Conference Registration
 08:45-09:00 Guests to be seated
 09:00 Arrival of Chief Guest
 Honorable Prof. Dr. Atta-ur-Rahman, Federal Minister for Science and Technology
 09:00-09:05 Tilawat: Recitation & Translation from the Holy Quran
 09:05-09:10 Welcome Address
 Mr. Ashfaq Mahmood, Secretary IT & Telecom Division
 09:10-09:15 Address by Mr. Onder Yucer, Resident Representative, UNDP
 09:15-09:25 Address by Mr. Zhongzhou Li, Director OIC, UNCTAD, Geneva
 09:25-09:40 Address by Chief Guest
 Honorable Prof. Dr. Atta-ur-Rahman, Federal Minister for Science and Technology

Thematic Session # 1: E-Commerce: Concept and Practice

Session Chair: Mr. Ashfaq Mahmood, Secretary IT & Telecom Division, MOST
 Co-Chair: Mr. Tariq Rangoonwala, President, International Chamber of Commerce

- 09:55-10:15 What is E-Commerce and how it works
 Mr. Khalid Nawaz Kayani, CEO, Fauji Soft, Islamabad
 10:15-10:35 Required Infrastructure
 Mr. Tariq Habib, CTO, Comtrust/Etisalat, UAE
 10:35-10:55 Certification Authorities, Banking requirements, Security
 Mr. Mohammad Iftikhar-ul-Haq, AVP, The Bank of Punjab, Rawalpindi
 10:55-11:15 B2B Payments-Implementation Scenarios
 Mr. Vincent O'Brian, Documentary Credit Specialist, Ireland
 11:15-11:35 E-Pakistan - A Gap Analysis
 Ms. Salma Abbasi, Former Lucent Technologies, USA
 11:35-11:55 Evolution of Internet Technology
 Mr. Thomas Reda, Consultant-E-Commerce and Financial Services,
 Microsoft Corp. Middle East
 12:00-12:30 Q&A
 12:30-12:50 Summation By Session Chair

Thematic Session # 2: E-Commerce & Financial Services Sector

Chair: Maj. Gen. Shehzada Alam Malik, Chairman, PTA

Co-Chair: Mr. Carlos Chanduvi, Country Head, UNIDO

- 13:50-14:10 Virtual Banking and Micro-Finance
Mr. Jonathan Campaigne, Kenya
- 14:10-14:30 Smart Card Applications
Mr. Furqan Qureshi, Principal Consultant, FQ Consulting, Karachi
- 14:30-14:50 Alternate Payment Methods
Mr. Javed Yousaf Adhi, SVP-IT, Muslim Commercial bank, Karachi
- 14:50-15:10 Merchant Accounts
Mr. Tufail Fadoo, VP, Citibank, Karachi
- 15:10-15:30 Current State of E-Banking in Pakistan
Mr. Naved Khan, Country Head, ABN AMRO Bank, Karachi
- 15:30-15:45 Q&A
- 15:45-16:00 Summation By Session Chair

Thematic Session # 3: Physical Infrastructure For E-Commerce

Chair: Mr. Akhtar Bajwa, Chairman Pakistan Telecommunications Corporation Ltd.

- 16:15-16:35 Banking Networks Best Practices: Implementation in Pakistan
Mr. Jamal Nasir, GM Engineering, SuperNet, Karachi
- 16:35-16:55 Trade Facilitation: Relevance to E-Commerce
Mr. Shanta De Silva, Chief Technical Advisor, UNCTAD Trade and Facilitation
- 16:55-17:15 PKI: Proposed Directions
Mr. Salman Ansari, Advisor to Minister S&T
- 17:15-17:35 E-Commerce & Trade: Current Limitations
Mr. Ananya Raihan, Research Fellow, Center for Public Dialogue, Bangladesh
- 17:35-17:50 Q&A
- 17:50-18:05 Summation by Session Chair

Thursday, September 19, 2002

Thematic Session # 4: E-Commerce For Industry

Session Chair: Mr. Waseem Haqqie, Chairman, Board of Investment

Co-Chair: Shaun Lake, Consultant, UNCTAD

- 09:00-09:20 Applying E-commerce as a Derrick to raise Pakistani Exports
Ms. Seema Tunio, Asst. Prof., Computer & Management Studies, Isra University, Hyderabad

- 09:20-09:40 E-Commerce and WTO: Digitizing Trade Liberalization
Mr. Yousaf Haroon Mujahid, Asst. Prof. NPGIT, Islamabad
- 09:40-10:00 E-Commerce & SMEs
Mr. Will Keenan, Regional Advisor for Trade Facilitation & E-Commerce, Thailand
- 10:00-10:20 Role of Investment Promotion & E-Commerce
Javed Naushahi, E-Commerce Task Force
- 10:20-10:35 Q&A
- 10:35-10:50 Summation by Session Chair

Thematic Session # 5: E-Commerce - Legal Issues & Security

Chair: Dr. Tariq Hasan, Advisor to Finance Minister

- 11:05-11:25 UNCITRAL
Mr. M. Aslam Hayat, Director Legal, Ministry of S&T
- 11:25-11:45 Regulatory issues with certification Authorities
Dr. Nassar Ikram, NUST, Karachi
- 11:45-12:05 Securing Networks
Mr. Qazi Ahmed, President, PAKCERT, Karachi
- 12:05-12:25 E-Commerce Law in Pakistan
Mr. M. Aslam Hayat, Director Legal, Ministry of S&T
- 12:25-12:45 Developments in Electronic Authentication & Emerging Technologies
Dr. S.M. H Zaidi, Head of Academics, NUST, Rawalpindi
- 12:45-13:00 Q&A
- 13:00-13:15 Summation by Session Chair

Thematic Session # 6: E-Commerce for Poverty Reduction

Session Chair: Mr. Onder Yucer, Resident Representative, UNDP

Co-Chair: Dr. Nasim Ashraf, Chairman, National Commission for Human Development

- 14:15-14:35 E-Commerce for Women
Ms. Shazia Haris, Gender & IT Expert, Ministry of Women Development, Islamabad
- 14:35-14:55 E-Commerce for Rural Areas Sirdar
Taimur Hayat Khan, Chairman, Khidmat Foundation, Abbottabad
- 14:55-15:15 Pro-Poor E-Commerce
Ms. Tania Paliyo, Lecturer, Mehran University of Engineering & Technology, Jamshoro
- 15:15-15:35 Success Stories & Country Experiences
Mr. Shaun Lake, Consultant, UNCTAD

- 15:35-15:55 Micro Investments in Promoting Income Generation Activities in poor Communities
Mr. Asif Kabani, Project Manager, Agha Khan Development Network, Karachi
- 15:55-16:15 Q&A
- 16:15-16:30 Summation by Session Chair

Concluding Session

- 16:45-17:10 Report of the Rapporteur
Mr. Salman Ansari, Advisor to Minister of S&T
- 17:10-17:20 Statement Mr. Zhongzhou Li, Director OIC, UNCTAD, Geneva
- 17:20-17:25 Statement Mr. Onder Yucer, Resident Representative, UNDP
- 17:25-17:35 Concluding Remarks
Honourable Prof. Dr. Atta-ur-Rahman, Minister for Science and Technology

ANNEX II

Policy-Related Publications and Activities for E-Commerce in Pakistan

Much of the existing discussion focuses more IT- and ICT-related issues rather than on e-commerce in particular. Pakistan has an IT policy but not an e-commerce strategy. Therefore, and unsurprisingly, while important work has been done on IT infrastructure development in Pakistan in the past two years, there has not been much focus on e-commerce. The result is low user awareness of and demand for e-commerce applications.

Pakistan IT Policy and Action Plan, 2000

The IT Policy and Action Plan addresses IT development policy and identifies numerous actions that should be taken to facilitate faster IT development in Pakistan. Many of the proposed actions are bold and indicate a very ambitious approach to speeding up Pakistan's entry into the information age. There is a strong focus on infrastructure development. The results of this focus are apparent in the reported progress in Internet infrastructure roll-out. However, it is difficult to determine what effect the incentives and investment in human resource development have had on development of a software export sector. Such developments are longer-term and require leadership and clear strategies. The document's section on e-commerce is very broad and does not really address the core issues surrounding this topic. There is recognition that the Government should take the lead in introducing e-government. This initiative has yet to surface.

Digital Opportunity Initiative for Pakistan

(author: Yousaf Haroon Mujahid, COMSATS)

The philosophy of the Digital Opportunity Initiative (DOI) is to see ICT both as a sector and as an enabler for development. The DOI highlights the actions included in the IT policy and action plan and covers all aspects of ICT policy intervention. The importance of training and education is stressed. The report indicates that a number of multinationals, including Microsoft, Cisco and Oracle and a venture capital fund, have committed to investments in Pakistan ranging from US\$20 to \$80 million. Whether or not these investments will actually take place is not clear. The report cites examples of ICT for health, education, e-portals and e-government initiatives.

Pro-Poor and Gender-Sensitive IT: Policy and Practice

(author: Zubair Faisal Abbasi)

The report requests that the Pakistan IT policy take gender and pro-poor issues into account. The report states that "it is essential to build capacity into communities to share and improve old and new knowledge resources for effective use and innovation in developmental products, processes and services". The report's main concern is that poor communities have to be helped into a position where they can benefit from ICT. The strategies should therefore be rooted in the community development approach. An

important element of IT development is that the community must feel that community participation can be enhanced. Knowledge must be shared so that growth can be generated. This process also breeds trust, which promotes better coordination between supply and demand.

ANNEX III

Terms of Reference for e-Commerce Public Key Infrastructure (PKI) Development in Pakistan⁸

1. The Government of Pakistan wishes to embark upon a comprehensive programme for the promotion of electronic transactions and e-Commerce. Recently, the Government has promulgated an Electronic Transactions Ordinance that envisages setting up a Certification Council (accreditation body - referred to as CC here onwards and described in Chapter 5 of the Ordinance) with the mandate to accredit certification service providers. The Ordinance is available at www.pakistan.gov.pk and can be referred to for further detail. The Government also held a seminar on e-commerce co-sponsored by UNDP/UNCTAD in September 2002 to bring local and international experts to a common platform. The Government has also launched its portal that has links to various information services and the web sites of the 34 Divisions of the Federal Government as well as 3 special purpose websites. The portal and the web sites have over 15,000 links to other sites including provincial web sites. Currently it is a static portal but it is planned that within 6 months it should become dynamic i.e. users can expect to be able to submit and receive documents, forms, applications and pay fees etc. directly through the web. It will be a gradual process of enhancing the capability and the level of interactivity will be expanded as the backend systems develop in the concerned Ministries. The Government now wishes to take next steps with the following objectives:

- (i) Chalk out a detailed blue print for facilitating electronic transactions in pursuance of the Ordinance so as to enable its citizens, businesses and various organizations to carry out electronic transactions (submission of various forms, documents etc.) including e-commerce;
- (ii) Set up a Certification Council, in accordance with the Ordinance, that will certify the Certification Authorities in Pakistan;
- (iii) Take steps to create one or more certification authorities.

The Government's role in achieving the above objectives is visualized as an enabler and facilitator, thereby restricting Government investment and involvement to a minimum.

TASK

Blue Print for Facilitating Electronic Transactions

The Government of Pakistan would like to engage a consultant who has requisite financial and technical knowledge, working experience (hands on) of electronic transactions, having designed and implemented dynamic web portals. Experience in setting up or running a body similar to the Certification Council will also be appreciated.

Within the scope of the Ordinance the Consultant would:

⁸ The Terms of Reference were drafted by the Government of Pakistan.

- a) Review infrastructure for making electronic submission and acceptance of:
 - i) forms;
 - ii) documents;
 - iii) payment/transfer and withdrawal of funds.
- b) Estimate the volume of service for electronic transaction activities in Pakistan, resources and reasonable number of feasible PKIs. The resources, *inter alia*, include the computer systems, communication lines, storage systems, and any other physical, financial and human resources required.
- c) Draft a plan of action to facilitate creation of one or more local certification service provider(s) with or without PKI infrastructure in Pakistan. This may, *inter alia*, spell out the role of the Government to help create at least one PKI infrastructure in a transparent way. It should also address the option of having entire infrastructure of PKI in-country vs. the option of front end registration in country with technical infrastructure abroad. The Consultant should present recommendations based on merits and demerits of both the options and practices elsewhere.
- d) Prepare a feasibility study for a certification service provider for the two options named in 'c' above. This study should estimate investment required, volume of business, basis of revenue and details of expenses. A complete business plan and financial statements be prepared.
- e) Based on experience elsewhere, produce a detailed description of all the functions to be performed by the Certification Service Provider (PKI) and the Standard Operating Procedures (SOPs). For the major functions, prepare an organization structure for accreditation authority and certification service provider with detailed rationale. The functions should include, but not be limited to, those listed in Section 20 and 21 of the Ordinance. The description of the functions and the SOPs should be augmented by giving scenarios for the major activities. For instance, what would be the scenario when a new CA is to be accredited, what would be the renewal process for accreditation, what role is envisioned in case of legal cases involving CAs that have been certified by the CC?
- f) Prepare set of recommendations for improvement of telecommunication infrastructure and PKI and a target oriented short and medium term implementation programme for tangible achievements In respect or 'a' above with:
 - i) Short Term Plan for specific tangible targets to be achieved in 6 months.
 - ii) Medium term Plan for specific tangible targets to be achieved in 2 years.
- g) The plans should, *inter alia*, bring out:
 - i) Specific actions required by the various stakeholders like, Government, State Bank, Commercial banks, Private Sector, E-Government Directorate and others, in achieving the objectives.

- ii) Improvements in the existing regulatory framework required to support electronic transactions including e-commerce, giving rationale and experience of other countries.
- iii) A roadmap with time lines showing how to reach the end objectives.