IUCN PAKISTAN PROGRAMME

SDNP Progress Report
Oct 1994 - Oct 1995

December 31, 1995

The Sustainable Development Networking Programme (SDNP) in Pakistan is part of a global programme supported by the United Nations Development Programme (UNDP). In Pakistan, SDNP receives programmatic support from IUCN--The World Conservation Union. This work was carried out with the aid of a joint grant from the International Development Research Centre (IDRC), Ottawa, Canada, and UNDP.

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1. EXECUTIVE SUMMARY

The Sustainable Development Networking Programme (SDNP) has been successful as a catalyst for networking activities in Pakistan. When it began there was only one email service provider, but today there are several, including one offering full Internet connectivity in Karachi. Most credit SDNP's presence as opening the market for them.

SDNP did not set out to compete with other network operators. The prospect of several providers becoming available may now require SDNP to move away from providing connectivity. This transition, foreseen at the start, would still require SDNP (a) to help connect stakeholders of sustainable development nationally and internationally and to each other, as well as to sources of information using the newer networks and (b) to help encourage the opening of national information sources that are critical for proper planning and sustainable development.

SDNP's fast-growing user base has put a strain on the small staff numbers of SDNP and the IUCN management to provide effective service. Most of the staff time is used in catering to user needs, billing and collection, and system management, with hardly any left for information services. There is therefore a need to increase the staff strength and facilities and thereby offer better services with a greater emphasis on information. Alternatively, SDNP can limit its connectivity activity and concentrate on information issues. In either case, significant changes in the nature and number of the staff would be needed.

The future role of IUCN and UNDP in managing SDNP needs to be determined, and consideration may be given to setting up SDNP as an independent NGO which offers connectivity as well as information services. Attention to long term support for SDNP's operations is required, because given its current mandate and management structure it is unlikely to become totally self supporting in the near future.

SDNP can also move into a business partnership with a data network operator who will take over SDNP's user base and in return support the information services activities of SDNP. It is important that this partner shares the goals of SDNP for reliable and affordable access to network services by all sectors.

The information brokerage and dissemination role of SDNP should be coupled with training of end-users in network use. The transition needs to be speedy, and will require intensive consultation between UNDP and IUCN. Inputs and advice from IDRC should also be sought. Ideally this should be worked out in the first quarter of 1996.

2. INTRODUCTION

The Sustainable Development Networking Programme (SDNP) is a global initiative launched by the United Nations Development Programme (UNDP). In Pakistan it receives joint support from UNDP and the International Development Research Centre (IDRC) of Canada. The global SDNP is managed by the SDNP office in New York which handles operational nodes in at least 16 countries, with Pakistan being one of the most active nodes. In Pakistan, SDNP is managed by IUCN – The World Conservation Union.

This progress report of SDNP, Pakistan, covers the period Oct 1994 - Oct 1995. It also gazes into the future and suggests where SDNP can be most useful in the changing networking scene in Pakistan. It is primarily produced for UNDP and IDRC, and is meant to assist in developing plans for the SDNP's direction in the near future.

An overview of the activities of SDNP is provided, pointing to both its achievements and some, as yet, unaccomplished goals. Modifications to the original plans are described. A financial statement is attached. This gives the expenditure for this period and estimates until October 1996.

Many changes have taken place in the computer mediated communication scene in Pakistan over this period covered by the report. A review is presented of what other email operators are doing as well as the current government policy on this matter. See Appendix 7. These have relevance to SDNP's future strategy.

UNDP's and IDRC's financial support for this programme will end on July 31, 1996, and March 31, 1997, respectively. Several future options for SDNP are described while answering the following questions:

1. Should SDNP continue beyond March 1997? If yes, then how would it be funded and what should be its activities? If not, then how should it operate until this date?

2. If there is a possibility of a business partnership, what should be the criterion for selecting such a partner? What are the issues that need to be negotiated with the partner? How, in turn, is the partner to assess the value of SDNP for its operations?

3. The United Nations Environmental Programme (UNEP) is planning to offer Pakistan the use of a satellite connection for data communication specifically for environmental information. Should SDNP be considered as the manager of this UNEP project?

These and related issues are discussed principally in section 6, The Way Forward.

3. BACKGROUND AND OBJECTIVES OF SDNP

SDNP in Pakistan is part of the global UNDP programme to improve access to information on sustainable development issues. Its developmental objective is to promote sustainable development and the implementation of Agenda 21 through the National Conservation Strategy (NCS) in Pakistan by facilitating access to information, knowledge and expert advice, and by increased communication between stakeholders locally, nationally and globally.

SDNP in Pakistan started in December 1992 with the appointment of the Coordinator followed by other staff. During the pilot phase (Dec 1992 - Jun 1993) the tasks performed by the SDNP team were according to the terms of reference stipulated by UNDP.

Since June 1993 SDNP has been at the forefront of the networking effort in the country, with activities involving the setting up of an electronic network, public outreach for popularizing this medium for information exchange, and in trying to change government policies that still restrict the free flow of information nationally and globally.

4. PROGRESS DURING OCT 1994 - OCT 1995

SDNP in Pakistan has recorded steady progress in achieving its objective of encouraging the flow of information about sustainable development in Pakistan. Its principal focus has been the provision of email services to a large number of users from a variety of sectors in three cities, and to point them to sources of information on the Internet and nationally, as well as help connect them to each other. In addition, SDNP has helped to popularize networking and issues connected with sustainable development through participation in fora, consultative groups and by presenting opinions in the national and international newspapers, journals and conferences. A list of these articles appears in Appendix 3.

After initially starting email services in Islamabad (within the IUCN office) SDNP moved to set up a full-fledged node in Karachi (in the IUCN's main country office) which was soon followed by a node in Lahore (in collaboration with an educational network, Edunet). The node in Peshawar will start operation in December 1995 and is housed in the IUCN office.

During this period a number of network services have become fairly active. Subsidiaries of large communication companies, public and private, have sprung up in the aftermath of the government's "liberalization" policy in the communication sector. There remains a great deal of confusion about the government's thinking about the data networks, particularly those in the private sector. Clarity of government policy on import facilities, regulation and monitoring, will determine how quickly the private sector networks are going be become operational. A few brave companies, however, have already decided to take the plunge and will begin to provide service before June 1996. Concise background information about these developments is provided in Appendix 6.

4.1 ADMINISTRATION AND MANAGEMENT

SDNP is managed by IUCN-Pakistan, and receives general supervision from IUCN's Communications Unit.

The Coordinator is responsible for the routine functioning of SDNP. Advice is sought, when significant changes are made, from an informal advisory committee comprising of 5 members. UNDP and IUCN are represented on this committee. All interactions with the committee members is by email. Most importantly, all senior members of the SDNP team are closely involved in decisions made regarding the operational plans and the future of the project. In addition, there is regular consultation with IUCN's Country Representative, its Communications Unit and Finance Department (who are responsible for the financial aspects of SDNP), as well as SDNP, New York.

The Steering Committee set up as part of UNDP's requirement for SDNP, and chaired by the UNDP Resident Representative has not been effective. It did not meet over this period. If it is to become an effective body in future then UNDP and IUCN will need to request attendance from the right persons -- a combination of decision makers and technical persons -- who are interested in networking in the country. They should help create an environment for the opening of national sources of information and facilitate the reduction of telecommunication cost thereby making national and international access through the networks affordable for most citizens.

4.2 STAFFING AND EQUIPMENT

The SDNP personnel are listed in Appendix 1. Also listed are the starting dates of our services in various cities. SDNP still operates with a lean staff, with staff members working an average of 50-60 hours a week. With over 1250 nodes and steadily rising, user training and support takes a great deal of time.

The expertise developed in-house is unique and therefore it is all the more necessary to retain it. With new commercial data networks appearing on the scene it will become difficult to provide competitive salaries to those who now find their "market-value" considerably elevated by the healthier networking scene. Interests of staff also change over time and it is likely that some of the senior SDNP staff may move during 1996 to other occupations not connected with networking.

Shortage of staff at SDNP in New York has often restricted the kind of services that we have been able to offer to our users. Requests such as having New York dial our Islamabad and Karachi nodes for exchange of international mail has not been granted. This has increased unnecessarily the telecommunication costs. Currently, all international mail is collected in Islamabad and this is where SDNP, New York dials. Since the

inter-city communication costs in Pakistan are very high, New York should dial all our nodes with significant international traffic.

Equipment has increased steadily and we now have a reliable email facility available through the use of LINUX (a UNIX derivative) system installed in all hubs in four cities. See Appendix 2 for details about the systems.

Since SDNP moved from using a Waffle-UUCP system to LINUX the data transmission rate has increased considerably and so has the reliability of connections between cities.

Power problems though minimized by using long-backup-time un-interruptible power supplies (UPS) have occurred due to breakdown of UPS.

Hardware has been purchased locally and through OPS, UNDP, New York when appropriate. In 1995 six 486 PCs were ordered through a vendor in Karachi for all our new nodes and Islamabad. Three of the machines (one for Karachi node and two for the Peshawar node) were paid for from IUCN project funding and the money was deposited in the SDNP account. Two PCs set up at the SDNP in Lahore, and one in Islamabad, were paid for through SDNP grant, sanctioned by OPS.

4.3 PROJECT ACTIVITIES

In the project document submitted in 1994 for the current phase, the objectives of SDNP and the activities necessary to fulfil them are listed. The six outputs are:

1. Set up a functional node in Islamabad.
2. Set up and make operational nodes in Karachi and Lahore.
3. Develop nodes in Peshawar and Faisalabad.
4. Develop about 500 active users of SDNP's services in each city where a node exists.
5. Increase computer mediated communications nationally and globally and for making national and international data sources readily available in electronic readable form and on networks.
6. Market SDNP's services and develop a plan to move towards self sustainable operations.

The activities during Oct 1994 - Oct 1995 that relate to the above outputs are described in the following text. There is considerable overlap among the activities related to these outputs.

OUTPUT 1: SET UP A FUNCTIONAL NODE IN ISLAMABAD

The node was set up as planned.

ACTIVITIES

1.1 In the second half of 1995, IUCN Islamabad, changed premises and SDNP moved with them. This was quite unsettling for the staff but led to only a short disruption in service.

1.2 Free training workshops are held twice weekly. One of these is for new users with little or no experience of networking and is advertised in the newspaper. The second is for users who find installation of the software difficult or have other technical queries. There is a continuous stream of questions that is normally handled by staff through email and telephone. Of late we have started charging a fee of Rs 500 for home visits to set up modems and software. There is also a charge of Rs 1500 for setting up the email software on office LANs.

1.3 A range of printed material and electronic information is provided to all users. Most of this is developed within SDNP Islamabad. An accounting package has been developed for billing from all nodes in the country.

1.4 A regular fortnightly meeting of networking specialists is organized by an SDNP staff-member and held on the premises. This allows us to keep abreast of national developments. This "Sysops' Group" consists of sysops of all the Bulletin Board Systems (BBSs) and other networks in Islamabad. Anyone who is interested in these issues can participate in the meetings. Thanks to this group there is now a thriving network community and all BBSs and networks in Islamabad are linked up through the Islamabad hub. The group has also launched a number of local Usenet-like

newsgroups and mailing lists which are now fed to other networks in Lahore and a number of BBSs in Karachi as well.

1.5 A wide range of users and organizations use SDNP's services as do several local and national BBSs who receive discount rates from SDNP. This subsidy is to encourage the spread of this technology. Despite a strong effort to get UNDP and other UN agencies to adopt SDNP as the communication medium of choice we have had only limited success. UNICEF is a significant user as is the World Food Programme. UNDP itself continue to use their internal email system, Higgins.

1.6 The response of government departments has been mixed: some have become active users while others, despite solicitation from SDNP, have not found it necessary to try email. See Appendix 5 for a list of some significant users. This list includes users from all sectors and in all cities where SDNP has a node.

OUTPUT 2: SET UP AND MAKE OPERATIONAL NODES IN KARACHI AND LAHORE

Both the Karachi and Lahore nodes have been set up as planned.

ACTIVITIES

2.1 Weekly workshops are held at both Karachi and Lahore. As the Lahore node is located at Edunet, which is away from the town centre, a venue in the centre of town is used for the workshop. These workshops are advertised through the newspaper.

2.2 An article in a national newspaper supplement about SDNP in general in addition to an advertisement announced the start of SDNP's service in Karachi and Lahore.

2.3 Most material for users that is distributed has been developed in Islamabad but some is generated locally.

2.4 The Karachi node is in the process of hiring another staff person to join the current team -- an information and marketing specialist.

OUTPUT 3: DEVELOP NODES IN PESHAWAR AND FAISALABAD

ACTIVITIES

3.1 A Research Assistant for operating the Peshawar node was appointed in late Oct 1995. She received a week-long training in SDNP Islamabad.

3.2 Soon after the new IUCN office premises became available the SDNP Peshawar node was set up. It will start operation in December 1995. Users in Peshawar who were dialing long-distance to SDNP, Islamabad, have been transferred to the local Peshawar node.

3.3 We have not found a suitable partner for a node in Faisalabad. The setting up of this node will depend on the future option chosen for SDNP. See later.

OUTPUT 4: DEVELOP ABOUT 500 ACTIVE USERS OF SDNP'S SERVICES IN EACH CITY WHERE A NODE EXISTS

[Islamabad and Karachi have over 500 nodes each, and Lahore over a 100. Each node is used on average by 2-3 users, so the target figure has been exceeded, and more users are expected. In Lahore the growth of users is steady but lower than in the other cities because there were already two commercial operators present there when SDNP started.]

Figure 1 gives the percentage breakdown of number of users in the three cities. Figure 2 gives the evolution of nodes in the three cities. For the income from these nodes refer to section 7.

A representative list of significant users of the SDNP network nationwide is given in Appendix 5.

ACTIVITIES

Many of the activities listed under the other outputs are common to this output.

4.1 Training was given to staff at Karachi, Lahore and Peshawar.

4.2 Interacted with BBSs and other network operators to help exchange of newsgroups and email nationwide. Provided concessional rates to BBSs.

OUTPUT 5: INCREASE COMPUTER MEDIATED COMMUNICATIONS NATIONALLY AND GLOBALLY AND FOR MAKING NATIONAL AND INTERNATIONAL DATA SOURCES READILY AVAILABLE IN ELECTRONICALLY READABLE FORM AND ON NETWORKS.

ACTIVITIES

5.1 In collaboration with the US Information Centre, organized a workshop on Usenet and APC conferences. October 22, 1994.

5.2 Staff member attended a two day conference on Telecommunications organized by the Lahore University of Management Sciences (LUMS) and presented a paper, "Issues of Internetworking in Pakistan". November 13-14, 1994.

5.3 Staff member delivered a talk on "Prospects for Networking in Pakistan" delivered to the Computer Society of Pakistan, Islamabad chapter. May 1995.

5.4 Internet Forum, a forum of email service providers, BBS operators and active netters, formed under imminent threat by the government to clamp down on all email activity. July 1995.

5.5 Staff member delivered a talk "Latest trends in global Internetworking" to the Sustainable Development Policy Institute's (SDPI) Group on Information and Communications. July 1995.

5.6 Reorganization of the Pakistan-wide newsgroups. Since March 1995, SDNP has provided the backbone for the circulation of these newsgroups.

5.7 A full day workshop for library scientists under the auspices of the Pakistan Library Association on "Email and Internet for the library scientists." This included talks and demonstration. August 1995.

5.8 A very successful mailing list on women's issues for the Beijing Conference. At the end of the month there were more than 1300 uucp leaf nodes fed by the our network. September 1995.

5.9 A seminar and video show for school kids on the Internet at the Roots School, Rawalpindi. September 1995.

5.10 Seminar on "Networking through the Internet" in the Technology Conference of the SAISA (South Asian International Schools Association). September 1995.

5.11 Pakistan's first electronic workshop on Internet conducted by SDNP. More than 300 nodes participated in this workshop. October 1995.

5.12 Lecture delivered by SDNP staff member on "The Information Highway: Resources available and issues involved" as part of the course on Information Technology for Foreign Service officers, at the Ministry of Foreign Affairs. October 1995.

5.13 The Federal Bureau of Statistics has a large repository of statistical data and SDNP has advised them on making access to it easier.

5.14 Participated in many meetings with potential user groups to encourage networking and for them to make their data available electronically.

5.15 Material produced for users of our services has been either in electronic form that they can easily access or in printed form that is given to all new users. It has therefore not been necessary to get any guides printed formally.

5.16 In the original plan for the current phase of SDNP it was expected that a booklet or two about networking in Pakistan would be produced by SDNP staff. This may now be unnecessary as an adequate book written by a staff member of the National University of Science and Technology is available. There may however be a need for a more elementary book. This could be produced as part of the training programme that SDNP expects to start during the next year. See below.

5.17 SDNP's directory of sustainable development will be published early next year. This lists organizations in Pakistan which work in the area of sustainable development, listing their areas of interest. The paper version will be circulated nationally and to appropriate organizations in the region that are on the mailing list of IUCN.

5.18 Articles of interest to the general public that are obtained by SDNP in electronic form or in print are often passed on to national newspapers. Several of these have been reprinted.

OUTPUT 6: MARKET SDNP'S SERVICES AND DEVELOP A PLAN TO MOVE TOWARDS SELF SUSTAINABLE OPERATIONS.

ACTIVITIES

6.1 Several articles were written in the national and international press highlighting the role of SDNP in Pakistan and elsewhere. See Appendix 3 for a list.

6.2 Kept in touch with other networking activities in the country, particularly the emerging commercial data network operator with whom SDNP could enter into a business partnership.

6.3 Organized free workshop on networking and advertised them free of cost in national newspapers.

6.4 Participated in discussions with IUCN and UNDP to establish ways of making SDNP self-sustaining after the current phase of donor support ends in March 1997.

6.5 Discussions have also been held with data network operators which will soon be offering full Internet services in Pakistan.

6.6 From the start imposed a user charge for use of email and other services. While local mail within city is free there is a charge for inter-city traffic as well as international messaging.

5. ISSUES AND CONSTRAINTS

There have been several problems of an administrative and financial nature that hampered the progress of SDNP, Pakistan.

The very technical nature of the project meant that the majority of the personnel in the agencies in Pakistan (IUCN and UNDP) generally remained unclear about its activities and direction. Increased participation by IUCN and UNDP personnel in using the network would help. This will also allow them to act as ambassadors of SDNP's services.

Some financial resources and time will need to be expended by both organizations to help this transition. UNDP in particular will need to see how its existing internal system that offers limited international connectivity could be supplemented by SDNP's services. They may also wish to revisit the suggestion put to them of connecting all UN offices and the projects that they support in Pakistan through SDNP's network. IUCN will need to install small local area networks to facilitate the use of SDNP's services by its staff. In turn this will improve office communication.

Businesses, international agencies, computer enthusiasts, academics and scholars have started using SDNP's services enthusiastically. This is encouraging, but it is no surprise. The greatest challenge for SDNP lies in getting the government offices and NGOs to begin to use electronic networking effectively.

For a change of attitude in the government, it is necessary that a champion for this technology appears in these higher echelons. Perhaps the NGOs are also looking for a leader within their ranks who can lead by showing the benefits of networking electronically. IUCN with its close contact with SDNP should be well placed to take on this challenge.

There are some signs of progress, but only time will tell how effective they will be in making networking affordable to all sectors. The government has agreed to allow major incentives for software development. Also, the denationalization of the Pakistan Telecommunication Corporation (PTC), and the appearance of a range of data network operators would help to bring down the tariffs. The development of indigenous databases is a long-term process and again one will have to wait and see how the government and the private sector provide for this need.

The Pakistan Council for Science and Technology (PCSIR) which was to collaborate with SDNP in setting up a directory of national experts has not been able to match their initial enthusiasm with action. SDNP's plan was to first help PCSIR set up a database of experts within this organization and then cover the Ministry of Science and Technology and all its affiliated departments. This database was to be used as a model for other government departments and finally for non governmental organizations. This project is on hold until PCSIR is reactivated to start building this database. An effort to get this database developed in another organization of the Ministry of Science and Technology (which oversees PCSIR) has not been successful.

Acquisition of telephone lines in Islamabad and Karachi has been problematic for us, particularly in Islamabad where a lack of lines is preventing the setting up of a BBS at SDNP. This situation exists despite attempts by UNDP and IUCN to rectify it.

As part of its effort to popularize APC conferences and others SDNP requested that a limited number be provided -- not the two dozen that had been chosen in NY for all SDNPs. [The demand for such conferences is expected to be small initially.] This request remains unfulfilled because of some problem at SDNP, NY. Since the NY office had until recently only one technical person there have been serious delays in responding to SDNP's requests of a technical nature and those related to information access.

As inter-city dialing within Pakistan is very expensive (e.g. calling Islamabad from Karachi is almost as expensive as calling NY) SDNP repeatedly requested that SDNP NY, poll Karachi (the node with the largest international traffic other than Islamabad) to collect and drop international mail. As international traffic builds up at the other nodes SDNP would like NY to dial them too. Currently SDNP has to get all international mail from its nodes sent to Islamabad at considerable cost. NY presently only dials Islamabad.

The financial aspects of the project have remained confused for a very long time. Delay in the approval of the project document, change of staff at UNDP in Pakistan, and the slow pace of getting responses from OPS have all contributed. Lack of familiarity with a new, complicated financial software package at IUCN's finance department has also caused problems in getting timely information.

6. The Way Forward

There is common understanding in Pakistan within IUCN and UNDP that SDNP's role should shift towards information related issues. The transition from connectivity concerns to information access and dissemination is a natural consequence of the evolving networking scene in Pakistan. When SDNP began offering email service there was only one other provider. With time, more commercial providers have appeared which can now offer connectivity at a lower cost than SDNP. They are able to manage this because connectivity is only a very small part of their larger business. See Appendix 6, which is primarily a review of what the various email service providers offer. It also gives a brief description of the somewhat confused state of regulations that will soon affect data network operators and email service providers.

Information related to sustainable development, both national and international, will initially have a limited clientele in Pakistan, and it is unlikely in the near future for SDNP to become self- sustaining by working only in this area. Those who need this kind of information, such as NGOs, would generally not be in a position to pay much, if anything, for it. Long-term financial support for this work is therefore called for.

Equally important is the need for UNDP to convince the government at the highest level to make national information available in electronic form at rates which would encourage access. This will require strong, persistent lobbying. Without the government's support such activity will not bear much fruit; it is the vast range of government data that is demanded by development, private and government sectors. Ironically,

one government department finds it difficult to get data from another, so it is clearly in the government's own interest to make this data more easily available. However, governments are generally wary of revealing "too much" and so reform in this area may be slow.

Currently, national data of a commercial nature generated by the private sector would best be handled by private sector information providers. They would be able to operate in a more competitive mode than SDNP. International data available on the commercial databases accessible via Internet, on the other hand, is expensive, and only a small number of agencies could afford it. SDNP can point users to the free data and the commercial data on the Internet. It could also obtain the data from commercial databases on the Internet and charge for this service. SDNP should distribute international computer conferences relevant to sustainable development but these will have limited appeal initially. While all these activities are desirable and should be pursued, none of them by themselves can make SDNP self-sustaining in the near future.

Networks in Pakistan will gain most of their income in the foreseeable future from providing connectivity, be it email or some of the other more sophisticated services that will become possible with full Internet connectivity. Information provision activity will take time to pick up. Current activity suggests that much of the traffic will consist of data that large financial and news organizations exchange between their branches. Use of networks by schools, academics and researchers will continue to be limited as long as this is not actively supported by the government.

For the government to use networks for its own operations will take a very long time. That is unless there appears a champion for this technology from within its ranks. Even so, the training effort required will be enormous given the low level of computer literacy in the government sector. To encourage the government to use networks, donor agencies could support information scientists (perhaps affiliated with SDNP) in key ministries who would use the Internet to get valuable information for the decision makers; information that would otherwise be very difficult to get. Donor agencies could insist that all future development projects within and outside the government should have a line item in the budget for electronic communication.

Information services will develop gradually: first these will cater to the business sector where there is a greater willingness and ability to pay for commercially relevant information. Training in network use and information technology has potentially a big market and this is where SDNP can be most effective in the short to medium term in generating revenue. A possible scenario for SDNP's future could be to enhance and actively market its email and training services particularly in the developmental community, while at the same time establishing a team of information specialists who can begin to build, or help to build, data sources in government and private organizations. With time, these sources of information can become useful to a large number of users nationally and internationally. A study of what data is required by the public and private sectors should be carried out as part of the information brokerage activity of SDNP.

A decision by UNDP, IDRC and IUCN on the future direction of SDNP is essential at this stage. There are essentially four directions SDNP can take:

(a) Business partnership and information brokerage.

(b) Greatly strengthened SDNP network offering connectivity and information brokerage with enhanced donor support.

(c) Same as 2 with additional responsibility for managing UNEP's Mercure project.

(d) Close down SDNP.

These are described below:

(a) Business partnership and information brokerage

SDNP can enter into a partnership with a data network operator who has the license to operate such a network in Pakistan. SDNP's license currently is only for "educational purposes" and will expire at the end of 1996. As part of this plan SDNP would retain its identity and enter into a partnership with this operator. Some criteria for selecting a suitable company are listed below.

All current email users of SDNP would start using the network services of this partner. Most of the existing staff that are with SDNP -- with expertise mainly in the networking area -- would thereafter enter into a new contract with the partner. Based on the equity of SDNP, the remaining funding from the two current donors,

and the current balance from SDNP's earnings, a small staff should be retained by IUCN and/or UNDP to wholly concentrate on information access, dissemination and training. This smaller unit could continue to receive donor support but also generate funds through information provision and training. Under this arrangement a certain percentage of the partner's profits would be used to provide subsidized access to users in the development community who would otherwise be unable to use these services freely. Such profits could also be used to support personnel and activities at SDNP. This new crew would comprise of network trainers and information specialists, principally. These points will have to be negotiated with the partner. The "worth" of SDNP to the business partner has to be determined. Whether it should be done by an independent assessor in combination with the parties involved is also to be decided. SDNP while entering a partnership should retain its NGO status, thereby allowing it to be eligible for further support from donors. This would be for work concerned with accession and dissemination of information related to sustainable development. SDNP can then fulfill its intrinsic mandate: to help in the implementation of the objectives of Agenda 21, by using information access as a tool for empowerment.

Fairly respectable repositories of information (books, reports, journals and audio-visual material) currently exist in IUCN's libraries in Karachi (largest), Islamabad and Peshawar. There is also the well-stocked library and the CD-ROM resources at the Sustainable Development Policy Institute (SDPI) in Islamabad. Recently the Pakistan Environmental Protection Council announced its intention to set up a resource centre in Islamabad. There are in addition several other specialized and general libraries that have material of interest to workers in the field of sustainable development. SDNP can work toward networking these resource centres.

It is most likely that the new staff members to support the information outreach will be principally located in Karachi while a person could be supported at SDPI with partial support from them. It is presently too early to be completely clear about all the logistic arrangements.

The support and training function of SDNP in future would require a strategy which identifies those institutions which have an important role to play in the implementation of the National Conservation Strategy (NCS), and which we feel could benefit most from access to electronic communication and information. The sort of activities that SDNP could subsequently undertake might include:

- an initial needs assessment to identify hardware/software requirements, training needs, and the type of information required by each organization identified in the strategy;

- development of a marketing strategy/plan to demonstrate and actively promote the benefits of using SDNP to key constituencies;

- assistance with installation of equipment and hardware. In case of NGOs, some equipment could be provided at subsidized cost;

- provision of customized training in email, conferencing, accessing/providing information on the Internet and setting up a Web site for information of relevance to the National Conservation Strategy, etc;

- helping IUCN and other NGOs to access material of interest from the Internet for their publications.

Only by carrying out these sorts of activities will SDNP begin to fulfill its ultimate mandate of promoting sustainable development.

If a business sector partnership does not materialize due to a whole range of reasons, there will continue to be ways in which SDNP can continue in these activities provided there is donor support. Funding could also come from the National Conservation Strategy projects and the Provincial Conservation Strategies as well as UNDP supported projects that would like to access information that SDNP could provide. There is currently, however, no allocation in the budget for electronic communication in the various Strategies; an omission that needs rectification in the near future.

IUCN's own projects can also benefit from the connectivity and information sources that SDNP could provide. The same applies to NGOs, government and other organizations working in the environment and development sector. Special line items in the budget for electronic communication will need to be added before it can become a practical tool for these constituencies. Another method, though difficult, is to convince these organizations to estimate their current communication bill (telephone, fax and mail) and show that email could greatly reduce it, and also provide other benefits. This alone may not be sufficient: a

change in the management's attitudes coupled with staff training in electronic communication will be necessary.

The business partner for SDNP should preferably be a reputable company with plans to set up a nationwide network. Its support offices in most of the major cities and proficient staff should provide support to the users in the development sector. It should ideally have a track record of service to the community or, if this is a new company, it should pledge to support actively the aims of SDNP.

i. A business partner would wish to put a monetary value on SDNP's current operations. This issue should be agreed to in discussions between the partner, IUCN and UNDP. There are several factors than will decide the "value" of SDNP for the parties involved:

ii. The total amount spent by UNDP and IDRC on this project. This will be US $ 540,000 by the end of March 1997. Of this $90,000 was for the pilot phase.

SDNP currently provides email service to over 1250 nodes in three cities. The numbers are growing steadily and we will soon be operating from Peshawar. Total number of users can be estimated by assuming that 2-3 persons on average use a single node. One of the most important reasons why a new network company would like to enter a partnership with SDNP is that it has perhaps the largest user base in the country. Such a large clientele for a new network from the start is a big attraction for the partner.

SDNP has the reputation for generally providing reliable service that users have come to trust. Also, the reputation of UNDP and IUCN has a value that one cannot put a figure on.

SDNP have some of the most experienced staff in the business and most of them would be available for employment in the networking company. This will release funds to allow a few new staff members with an information science profile to replace the current staff whose interests are mainly in networking.

It is likely that the business partner will be principally interested in the present revenue of SDNP, and not in the amount invested to build the network. The equipment currently used by SDNP will most probably not be of much use to the partner.

(B) GREATLY STRENGTHENED SDNP NETWORK OFFERING CONNECTIVITY AND INFORMATION BROKERAGE WITH ENHANCED DONOR SUPPORT

To date UNDP-PK has not used SDNP in any significant way for its operations. In the past SDNP had suggested to UNDP-PK to connect all UN offices nationally through its network, as well as all projects that it supports. This network could be open to all development agencies and NGOs working in the sustainable development area. Funding would then have to be provided by UNDP with partial support from a user charge. UNDP could solicit additional support from other agencies, particularly those who will also gain from SDNP's services.

UNDP and several other UN agencies will be moving into a high rise office block in the centre of Islamabad's commercial district by the middle of 1996. This will facilitate inter-agency communication as well as allow the sharing of resources for communication nationally and internationally. It is very easy to get telephone connections in this commercial district and if SDNP were to move into the new premises or near it, it could get more lines and thus begin to offer a Web site and a BBS.

It is well know that use of email and Internet greatly reduces communication cost (fax, telephone and postage) of organizations. The initial cost of setting up an SDNP network that will connect UNDP and other UN agencies to their nationwide projects will not be insignificant. However, when viewed in the light of the overall communication cost currently incurred by these agencies, just the email facility with its user charge may well recover the capital expense very quickly. Since SDNP will also cater to other agencies and NGOs concerned with development, their expenditure on communication should also be taken into account when looking at the capital and recurring costs of SDNP. Once set up, SDNP will also be able to offer email to fax service in the cities where it has nodes thereby considerably reducing the cost of fax.

SDNP does not have a "proper" license to operate a network. To overcome this, it was suggested above that SDNP get into a business partnership with an outfit that has one. On the other hand, SDNP could itself apply for a full license for provision of electronic mail and associated services. This costs in the region of Rs 300,000 per year. There may be additional charges above that for commercial service providers. It is possible that UNDP can get these charges exempted from the PTC as SDNP is a not-for-profit network.

If UNDP wants SDNP to operate as a fully open network/information provider it needs to takes a firm stand and guarantee to all concerned that SDNP is not meant to under-cut private sector investment in networking. SDNP was set up to be an open network and has operated in this spirit in Pakistan and elsewhere. It is necessary to emphasize SDNP's mandate, which is to improve information flow, particularly in areas which are crucial to sustainable development. The information resources relevant to this field that SDNP will carry in future should be available to all those who are interested, and not just to the conventional users of such information. By ensuring that SDNP's connectivity rates are competitive yet do not under-cut those offered by other networks it should attract a large number of new users from all sectors and retain many of its present users. They would principally use SDNP for its information resources but also for email and other services.

A less desirable variant would be to cater to a limited clientele. This would still allow users from other networks to access SDNP's information resources but not to its network services for mail, etc. SDNP's own users would very clearly be concerned with sustainable development, such as NGOs, government and developmental agencies. Networking enthusiast may then have to be excluded. Currently we welcome users from all sectors.

As commercial and national networks come online there may be a widening of options for connectivity leading to several users moving away from SDNP's service. To avoid this, SDNP will need to upgrade its facilities considerably and increase its staff. In addition, it would need to focus sharply on information gathering, access and dissemination of national information, as well as provide training in network use. These activities have been elaborated in option (a) related to the business partnership.

SDNP would facilitate national data to be made available through its network as well as help government and other agencies to disseminate their own information in electronic form directly to users through their Web site or a BBS. SDNP could assist in setting up this facility as a service or for a charge. UNDP itself may also wish to consider using SDNP's Web server, when available, and other services, to disseminate UN related information such as that currently distributed by the UN Information Centre and much more. This server could also carry information relevant to the National Conservation Strategy and would therefore be useful to a wide range of users.

If UNDP is to directly support and manage this project, SDNP could continue to provide email services on a store and forward off-line basis in the short term as it does presently. Meanwhile, it should speedily upgrade its facilities and increase its staff in the three cities where SDNP has a presence and also in Peshawar. Depending on the availability of funds it could explore setting up hubs in cities such as Faisalabad, Quetta, Hyderabad and Sialkot in partnership with other agencies. Use of commercial networks to link developmental projects to SDNP's information databases should be explored if it not possible, as seems likely, to open SDNP hubs in these and other cities. It needs to be emphasized that SDNP needs internal expansion and consolidation of its nodes rather than the creation of more nodes in the near future.

A phased upgradation of SDNP could possibly start with providing full Internet connectivity in Islamabad initially, followed by Karachi and Lahore. The international 64 Kbps line would be provided in Islamabad thereby allowing users in this city to access textual (not video, because of high bandwidth requirement) and a better email service from other cities. The nodes in these cities would continue to dial SDNP's Islamabad node, but more frequently, say hourly, during working hours. The next step would be to link the cities by the public data network thereby allowing users in other cities to communicate instantaneously with persons in other cities. A 64 Kbps will barely suffice for Islamabad's users in the medium term. Soon, 64 Kbps lines will need to be provided in Karachi and Lahore and other cities where SDNP operates. Alternatively, a higher bandwidth should be obtained in Islamabad and have all (online and store-and-forward) international traffic pass through it.

Capital and operating costs will depend on how the new SDNP network is planned and how many users it wants to cater to. Hardware and personnel costs for setting up a network are listed in Appendix 7. It cannot be more specific at present. Exact estimates will depend on the plan for expansion that is suitable for UNDP.

What needs to be decided by UNDP and IUCN is:

- whether the re-focussed SDNP is to become an independent NGO or continue to be managed by IUCN, or
- would it become a project directly supported and managed by UNDP, and if so,

- what would be the role of IUCN in the future operation of SDNP.

The plan outlined here is independent of the Mercure project becoming operational in Pakistan. For Mercure to be managed by SDNP, it has to be managed by UNDP and not by an organization such as IUCN. Mercure is described below.

(C) SAME AS (B) WITH ADDITIONAL RESPONSIBILITY FOR MANAGING UNEP'S MERCURE PROJECT

This is a grander version of the last option in that it would in addition involve SDNP in managing the Mercure project. The United Nations Environment Programme (UNEP) has come to an arrangement with the European Commission to allow their satellite to be used by the development community in some countries for data communication. In the first quarter of this year it is expected that a technical mission from UNEP will be coming to Pakistan to assess the suitability of setting up a Mercure project here. According to UNDP-PK, the GOP would welcome this connectivity for itself and the development community. The GOP would, however, like the UNDP to directly manage this project. Mercure project management by SDNP would require that it be directly under the management of UNDP.

Currently, the bandwidth envisaged by Mercure is only 64 Kbps and in any case more bandwidth from another source may need to be provided by SDNP.

(D) CLOSE DOWN SDNP

If the business partnership does not materialize and there are no donor funds for SDNP then plans should be made to close down the project when the funding runs out or earlier as soon as reliable network services appear. Given that SDNP only has a license to operate for "educational purposes" and that too only until the end of December 1996, it may become necessary to get another license for the remaining period of its existence. Although SDNP can operate as a funnel for other larger networks in that we can handle their small users, the pressure of work will not allow staff members to work on information issues. Under these circumstances there would be no real justification for continuing SDNP.

The following are some items that require immediate attention:

1. SDNP's new direction could have a major impact on the future of its existing staff. Since they are nearly all networking experts the best thing they could do for themselves is to latch on to the new network companies that are springing up. It would be unfair to persuade them to stay with us and then let them go at a time when they may not get such good offers from the companies. On the other hand SDNP cannot run its present operations without them. A business partner who is willing to take on most of them and allow SDNP to retain those and recruit others who are more in tune with SDNP's future plan could be the best solution to this problem. Alternatively, if SDNP gets increased funding it could retain these experts and recruit others to work on information brokerage.

2. While users have continued to increase in Karachi, fee paying traffic has not kept pace. This suggests that SDNP's service is being used for local messaging and for receiving newsfeeds for which there is no fees. This change has happened since a commercial operator, Digicom, started offering full Internet services in the city. It is expected that they and other larger companies, as well as the government's own Internet services, will soon provide full Internet connectivity in other cities. When that happens, it is certain that our revenues in other cities will drop considerably. Under these circumstances we will merely become just another provider of services, and that too at higher prices. This situation needs to be avoided fast. SDNP should move into another mode of operation -- to become increasingly involved with information provision -- as soon as possible.

7. ACCOUNTS/FINANCIAL PROJECTIONS

The sustainability of our own operation requires that we charge for the services we provide. Appendix 4

contains a spread sheet giving the income generated at our three nodes in Islamabad, Karachi and Lahore. The two graphs illustrate the income from the three cities and their income (which we expect will rise considerably as we get full Internet connectivity at affordable rates). Advance payments account for some of the "amount received" figures to exceed what was billed.

It may be useful to know how much the donors have invested in SDNP's operations over the past year or so, excluding investment in hardware and the polling cost that SDNP New York incurs when dialing Islamabad. The total cost for January 1995 to January 1996 (incl.) was Rs 2,460,111, which includes IUCN's management fees and all other expenditure incurred in Pakistan. Over this period the total income of SDNP was Rs 1,665,982. This amounts to a "subsidy" of just Rs 61,087 per month over this 13 month period. In addition, IUCN also accounts for the time spent by its non-SDNP staff on SDNP related work. IUCN estimates that Rs 350,000 of IUCN staff time was contributed in managing SDNP's node in Karachi over the 13 month period. This time is not covered by the management fee paid to IUCN by the project, and is based on IUCN's consultancy rates.

SDNP does not wish to compete aggressively with private sector network businesses because of the nature of our current financial support. As a catalyst for networking in Pakistan SDNP is set up to encourage the development of other networks. This does not mean that we can afford to lose our customer base to commercial operators that are now able to offer a cheaper service as part of their much larger businesses, which allow for economies of scale. Since they are now starting to offer full Internet capabilities, albeit bypassing government regulations, we have to actively search for ways in which comparable services can be offered in the short term. Within a few months, however, SDNP would do well to transfer these concerns to a business partner or to enlarge its staff and services to handle the increased traffic and the growing expectations of its users.

The project has been operated frugally because of the uncertainty of long-term support, and hence many budget lines have been under-used. Also, increasing of our activities, which seemed desirable at times, was not possible as we were constrained to keep a small staff. The amount of money saved could be used by SDNP for its future activities after a business partnership is established. The release of this money by the donors would depend on a new plan of operation. Clearly, totally new budget lines would need to be established based on the new plan.

8. SUMMARY AND RECOMMENDATIONS

SDNP has generally been quite successful as a catalyst for networking activities in Pakistan. When it began there was only one email service provider, but today there are several, including one offering full Internet connectivity in Karachi. Most credit SDNP's presence as opening the market for them.

The government has begun to notice the need for improving connectivity, and even though current tariffs are high, software companies have been given special privileges. There is still a long way to go before open access to indigenous and international information becomes possible for a wide range of users. While the coming of the Internet to Pakistan is a matter of time only low tariffs will allow everyone to benefit from it. This may become possible if there is sufficient incentive provided by the government to public network services and private sector operators.

The development of indigenous electronic information sources will require a long term effort. Much of the indigenous data important for sustainable development may not necessarily be of commercial value and hence a long-term subsidy would be necessary to make it generally available. UNDP may wish to help some key government departments through expert advice and funding to make their data more easily available. An enlarged SDNP can play a role in helping with this activity. For SDNP's role to be effective, however, lobbying by UNDP with the government at the highest level is essential.

SDNP can now either move into a business partnership with a data network operator or choose to become a network and information provider supported by UNDP, IUCN and funds from other agencies concerned with sustainable development. Even though the catalytic role of SDNP in setting up of national networks has been successful, what it can offer in the future in the area of information and training requires its continued existence.

Based on an agreement on:

common understanding that SDNP should, in the future, concern itself increasingly with information issues and training of users in network use;

that the current users of SDNP should not be asked to move to another email service provider in the near future, i.e. that some email service needs to be provided in addition to working more on the information issues;

the current staffing and equipment is insufficient to handle the current large user base of SDNP. For continuing service at its present level, expansion in staffing and equipment is essential and is needed immediately -- enhanced service including work on information brokerage would require a larger expansion;

UNDP needs to make decisions on:

SDNP entering into a partnership with a commercial network provider which takes over its existing user base and in return provides sufficient support to SDNP's information activities. A suitable partner needs to be identified and the terms and condition be worked out to the best advantage of SDNP's future operations in the information brokerage area.

SDNP being enlarged considerably to make it an email and Internet service provider catering primarily to the sustainable development community. It should also be used for communicating among all UN agencies and UN supported projects nationally, in addition to those concerned with the various conservation strategies, NGOs and key government agencies. A large part of its work would deal with making national data available through its network. Consideration should be given to set up SDNP as an NGO and provide it the financial resources and the autonomy to act effectively.

Essentially the same as the previous point but, in addition, SDNP managing UNEP's Mercure satellite communication project if and when it comes to Pakistan.

Instituting a plan based on there being no additional funding after March 1997, the cut-off for the current funding. This plan of operation needs to be put into effect so that SDNP can operate effectively until the end of the project.

Requesting an independent assessment, if necessary, to be made by UNDP and SDNP, New York, to see how this project can be enlarged--provided there is a possibility of additional long-term funding.

The transition needs to be speedy and will require intensive consultation between UNDP and IUCN. UNDP should take the lead in bringing the consultation process to a quick conclusion. Inputs and advice from IDRC should also be sought. Ideally this should be worked out in early 1996.

APPENDIX 1

PROJECT PERSONNEL (LIST, FULL NAME, TITLE, EMAIL ADDRESSES)

Islamabad Node:

Isa Daudpota, Coordinator, daudpota@sdnpk.undp.org
Hasan A. Rizvi, Research Associate, rizvi@sdnpk.undp.org
Wajih Ahmed, Research Associate, wahmed@sdnpk.undp.org
Quddus Khan, Exec Sec/Research Assistant, quddus@sdnpk.undp.org

Karachi Node:

Moin Zaidi, Research Assistant, root@khi.sdnpk.undp.org
Kamran Ahmed, Research Assistant, as above

Lahore Node:

Nadeem Aslam, Research Assistant, root@edunet.sdnpk.undp.org

Peshawar Node:

Ms. Maliha Tayyab, Research Assistant, root@pwr.sdnpk.undp.org

Year/Month Host started

Islamabad: March '94
Karachi: March '95
Lahore: March '95
Peshawar: December '95 (expected)

APPENDIX 2

Charges and Misc. technical information on hardware and software used

Charges per KB

International mail
---
*Rs 5 with 20% discount for 1 MB or above.
*Rs 3 for BBSs, UUCP hosts and selective educational institutions.

Inter-city mail
---
* Islamabad <=> Karachi Rs 3 per KB
<=> Lahore Rs 2 per KB

* Lahore <=> Karachi Rs 3 per KB

Local mail
---
* Free.

Number of phone lines connected to host

Islamabad:3
Karachi: 3
Lahore:2
Peshawar: 2

Hardware Info

Host Computer (CPU, RAM, HD, Operating System)

Islamabad:
AST Bravo 486 4/66d, 16 MB RAM, 1 GB HD, Linux 1.2.13

Karachi:
Compaq Prolinea MT 486 DX/2, 16 MB RAM, 1 GB HD, Linux 1.2.1

Lahore:
Compaq Prolinea MT 486 DX/2, 16 MB RAM, 1 GB HD, Linux 1.2.1

Peshawar:
Compaq Prolinea 486 MT DX/2, 16 MB RAM, 1 GB HD, Linux 1.2.1
(Equipment already bought)

Modems (brand, model and speed):

Islamabad:
1 Telebit Worlblazer V.32bis (14400 bps) standard, proprietary turbo-PEP (upto 23000 bps)
2 ZyXel U-1496E V.32bis (14400 bps) standard, proprietary (Zyxel-Zyxel) 19200 bps

Karachi:
1 Motorola lifestyle 28.8 V.34 (28800 bps)
1 ZyXel U-1496E V.32bis (14400 bps) standard, proprietary (Zyxel-Zyxel) 19200 bps
1 US Robotics Sportser V.32bis (14400)

Lahore:
1 ZyXel U-1496E V.32bis (14400 bps) standard, proprietary
(Zyxel- Zyxel) 19200 bps
1 US Robotics Sportser V.32bis (14400)

Peshawar:
2 US Robotics Sportser V.32bis (14400)

Host software (email, other applications, etc.)

Islamabad:
taylor uucp 1.05, sendmail 5.67b +IDA 1.5, cnews, listproc 6.02.

Karachi:
taylor uucp 1.05, sendmail 5.67b +IDA 1.5, cnews.

Lahore:
taylor uucp 1.05, sendmail 5.67b +IDA 1.5, cnews.

Peshawar:
taylor uucp 1.05, sendmail 5.67b +IDA 1.5, cnews (plan to be supported)

Client software supported (Pmail, Waffle, Winsock, etc.)

Waffle, FXUUCP, Pmail, Winpmail
Winnet, UUPC, FSUUCP
Macport for UUPC, UUCP Connect, Fernmail (for MACs)

APPENDIX 3

ARTICLES AND LETTERS PUBLISHED BY STAFF

1. Internet a Winning Strategy, The News, Jun 17, 1994.
2. Handling Hospital Waste with Care, Part 1, The News, Aug 26, 1994; Part 2, The News, Sept 6, 1994.
3. Ramps for Handicapped, The News, Sept 12, 1994.
4. Help the Handicapped, The Friday Times, Sept 15-21, 1994.
5. Submarines for Pakistan, The Nation, Sept 28, 1994.
6. Information Highway, The News, Sept 29, 1994.
7. 'Sub' say acchi hai..? The Friday Times, Oct 6-12, 1994.
8. India's Software Development, The Muslim, Nov 4, 1994.
9. SDN Programme in Pakistan, Dawn, Feb 10, 1995.
10. Green Electrification and Energy Conservation: A plausible solution, The News, May 19, 1995. (with F. Habiby)
11. A Report on Pakistan, in "Eye on Developing Nations" edited by Laurence Press, On The Internet, A magazine of the Internet Society, pp 41-43, May/Jun 1995.
12. Electronic Networking and Sustainable Development, Proceedings of the 20th Annual Conference of the National Association of Environmental Professionals, Washington, DC, June 1995.
13. The Sustainable Development Networking Programme: Concept and Implementation, Proc INET '95, Hawaii, June 1995. (with Raul Zambrano)
14. Information Superhighway--here we come!, The Way Ahead, A Quarterly of IUCN, Pakistan, pp 26-28.
15. Pakistan's Dismal Science, The Muslim, Sept 8, 1995. (Also appeared as Science Scene in The News, Sept 13, and as Science? What's That? in The Friday Times, Sept 21-27, 1995.)
16. S&T ruined by Myopic Policies, The News, Oct 15, 1995.
17. New Electronic Streams of Knowledge, The News, Oct 13, 1995.

Appendix 4

Nodes and Income Statistics

EXPLANATIONS/CLARIFICATION

SDNP will have 3 nodes (Karachi, Lahore and Peshawar) other than the Islamabad node operational by the end of Dec 1996. There is now only a faint chance of getting a node in Faisalabad, which is now contingent on the future plans for SDNP.

Due to increasing cost of living expense, and the rising demand for good computer personnel in the market, we expect to increase salaries to encourage staff to stay with SDNP. It may be noted that most of them were recruited at lower than market rates with the understanding that their salaries would be increased based on their good performance.

The numbers below refer to the Categories above:

- SDNP is exploring a business partnership and there may be a need for this position in the coming year.
- Increase in salary to bring up to current market rates. only 20% increase to cover inflation.
- Research Assistants. Increase in salary to bring in line with current market rates. Only 20% increase to cover inflation.
- This will be the same post upgraded so that person performs the secretarial duties as well as that of a research assistant. Hence salary the same as that for a research assistant. Travel may increase as there as international collaboration grows.
- Increase expected with the new node in Peshawar and the prospects of doing consultation work in the NWFP. Also exploration of new business partnerships will require more travel. We have only in the last year subscribed to some journals and expect to get more such material this year.
- Publication of a directory and booklets related to networking would lead to increased expenditure. Full Internet connectivity is expected and would lead to an increase due to lease line charges.
- More nodes and increase in PTC tariffs for long distance dialing is expected. Increased activity due to full Internet provision.
- Increase in the number of nodes and of activity in the existing nodes due to Internet. Constant.

*a) Expenses under UNDP heads from October 1994 to January 1995 have to come from contract with UNDP (awaiting its approval).
*b) UNDP contract ends on July 1996

Appendix 5

List of significant users nationwide

PROMINENT USERS IN ISLAMABAD:

Government/Education

Private Power Infrastructure Board.
Quaid-e-Azam University.
International Islamic University.
National Agriculture Research Council
National Institute of Electronics
Pakistan Agriculture Research Centre
GIK Institute.

NGOs

Sustainable Development Policy Institute (SDPI)
Strengthening Participatory Organizations (SPO)
Action Aid, Pakistan
SERVE
Oxfam, Pakistan
Netherlands Library Development Project (NLDP)

Business

HBI, Pakistan (Pvt) Ltd.
Mathtec Corporation (Pvt) Ltd.
Asianics Agrodev (Pvt) Ltd.
Siemens, Pakistan Ltd.
Oratech (Pvt) Ltd.
Allied Engineering Co. (Pvt) Ltd.

International

UNICEF
WFP
USIS
UNHCR

PROMINENT USERS IN KARACHI:

Government

Sui Southern Gas Co. (six nodes)
Karachi Electric Supply Corp.
Pakistan Navy
Pakistan Airforce
Karachi Water & Severage Board.
Pakistan Baitul Maal
Civil Hospital
Sindh Institute of Urology.
PIA

Education

Agha Khan Educational Services (Five nodes)
Karachi University (three to four nodes)
Institute of Environmental Engg, NED University
Sir Syed Engg. University
Usman Institute of Tech.
Pakistan Navy Engg. College
Computer training Institutes (3-4 nodes)
Government College for Women.
Baluchistan Primary Education.

NGO

IUCN , The World Conservation Union.
NGORC , NGO Research Centre.

Business

Engineering Industries
Siemens
AEG
Zelin
Allied Engg. Pvt ltd.

Software and Hardware Consultants

Oratech Pvt ltd.
ACE AIMS
Jaffer Brothers
Plato Computers
Easetech
Solutions Unlimited

Other Commercial Organizations

Alitalia
Schon group
Asiatic Advertising Pvt ltd.
Jimmy Studios
Khadim Ali Shah Bukhari Brokerage Co.
Trans Mobile
TCS
Aluminium Internationals Pvt ltd.
Alkaram Textile.

News/Publications.

Dawn
Herald
Aghaz
Pakistan Press International
Satellite News SAT NEWS.

Prominent users in Lahore:

Government/Education

FAST Institute of Computer Science
International Water Logging &
Salinity Research Institute
Institute of Cost and Management
Accountants
Imperial College of Business Studies

NGOs

South Asia Partnership, Pakistan
Insaan Foundation (Network for
Community Empowerment)
Imdad Foundation
Bunyad

Business

Allied Engineering
Jafer Consulting
Asian Enterprises
Shahid Shafique Ltd
Processing Systems
EGS (Pvt.) Ltd.

International

ORATECH (Pvt.) Ltd.

APPENDIX 6

OVERVIEW OF NETWORKING IN PAKISTAN

SDNP has now completed more than 15 months of its operations in running an electronic network providing global email and offline Internet services to its clients. Starting with a hub node in Islamabad in July '94, it established similar nodes in Karachi and Lahore in March '95 and another one in Peshawar would be coming up in December.

Apart from running this network -- which has expanded to more than 1250 nodes -- including user support and some basic training, the staff has also been advising a number of government agencies and NGOs regarding their data communications needs. So far this 'consultancy' as well as services for setting up email and training have been free.

The data communications scene in Pakistan is undergoing significant changes. Some licensed Data Network Operators (DNOPs) are going to launch their services including full Internet connectivity. The revamped Public Data Network (PDN) of the Pakistan Telecommunications Corporation (PTC) will soon become available around the country. On the other hand the government is contemplating slapping license fee and royalty on all email service providers, including perhaps SDNP.

At present, apart from SDNP, there are 5 other email service providers (ESP) (all in the private sector) operating in an unregulated environment, along with PDN which provides packet switched network services. Here is a brief account of each of these:

1- IMRAN: The oldest of all ESPs IMRAN started its operations in March 1992. Beginning with a BBS cum UUCP node in Lahore, it set up a similar node in Karachi in the next few months and another in Islamabad about a year later. It now has a node in Peshawar as well. Apart from email IMRAN distributes The News and The Nation, two of the English newspapers that have started a daily headline service in electronic form.

2- BRAIN: Computer vendors, Brain Computer Services (of the Brain virus fame) run these services. They started in Lahore in early 1994, a few months before SDNP and soon became the largest ESP in this city. With their advantage of being a large computer vendor having contacts in the government and business sectors and a large sales and service team to boot, they overtook Imran in Lahore -- which earlier had a monopoly on email services. They now have nodes in Faisalabad and Multan as well and are planning to start one in Karachi too. In addition to email, they have a large repository of software utilities which can be downloaded from their public directory. They also carry the Pakistan-wide newsgroups for which SDNP acts as the backbone. In fact, the credit for introducing local newsgroups goes to Brain. They became quite popular and contributed to Brain's rise in Lahore. Brain has plans to go online by the end of the year, as part of a consortium led by the Lahore University of Management Sciences (LUMS), through a 64 Kbps dedicated line to Singapore.

3- DIGICOM: Started a couple of month after SDNP's full operation in July 1994, they had spent more than a year in preparation, including the development of their own UUCP software. Having strong financial backing, they have by far the largest investment and launched their services from 5 cities (Karachi, Lahore, Islamabad, Peshawar and Faisalabad) simultaneously. They have also spent a significant sum on advertising in the national newspapers. Despite all these advantages, their services didn't take off before July 1995. Even now, they have a negligible presence in all cities except Karachi. One of the reasons for their initial failure had been the large start-up fees and installation charges. Apart from getting about 100 users in Karachi (albeit many of them big corporate ones), they had little success elsewhere. But in July 1995, they have launched online Internet services in Karachi through SLIP/PPP dial-in accounts. This happened for the first time in Pakistan and came as a great boon to the Internet lovers in the country. Aided by an aggressive marketing campaign, they have been able to attract both corporate and individual clients in big numbers -- to the extent that there are now complaints of extremely slow response on their 64 Kbps dedicated line to Singapore. Coupled with their online services, they also offer BBS services (for software download) and their own newsgroups. They have recently reduced the rates for their offline services drastically which have made their services the cheapest and most efficient in the country.

4- INFOLINK: They also started their operations about a year ago, though had been preparing for it since the beginning of 1993. They had planned to set up commercial data base services along with email and a host of other online services, but were content to start with offline email only. However, Infolink still have plans to provide commercial information services. Infolink's user-base is not very large but has quickly expanded to six cities -- Islamabad, Lahore, Karachi, Peshawar, Faisalabad and Multan -- with plans to set up communication nodes in 10 other cities in the next few months through a franchise scheme. They have also been able to get some big corporate clients. Apart from email, they provide newsgroups to a limited number of their clients (through SDNP), but their strong point is the email-to-fax service they provide within Pakistan in the cities where their nodes are located. Infolink operation in Islamabad alone is run by over 10 persons.

5- WIZENET: Started by a computer vendor in Lahore (by the same name), a few months ago, it has recently set up a node in Islamabad too. It is the smallest of these service providers and doesn't have more than a 100 users. They are connected locally to both SDNP's nodes in Islamabad and Lahore and carry our newsgroups.

These ESPs have so far worked under an unregulated environment. Apart from SDNP, which got a permission from the PTC to set up their network, none of the others had -- in fact, there wasn't a pressing legal requirement to do so. This was a grey area (and still largely remains so), without clear cut statutes. Although, the government has recently promulgated the Telecommunications Ordinance -- a general policy guideline on telecommunications that also covers data communications -- there is very little in terms of specific regulations that has been formulated so far.

The only statutes that have come to the fore are the terms and conditions for the DNOPs' licenses but even they were flouted when Digicom using the umbrella of Pak Datacom. Pak Datacom, a DNOP, is run by Telecom Foundation which itself is a subsidiary/off-shoot of PTC. Pak Datacom set up a 64 Kbps leased satellite circuit to Singapore bypassing the PTC's network. According to one of the conditions of the license all DNOPs would have to go through the PTC's switches for any international data communications -- and it was violated by one of PTC's own family members!

Recently the Pakistan Telecommunications Authority (PTA) has been formed under the Telecom Ordinance, which among other things, stipulates to reorganize PTC, leading to its privatization. PTA would be the supreme regulatory body in the field of telecommunications in the country. It can be hoped that the PTA would come up with the much needed regulatory framework and be able to give a clear guideline to the operators in the field of data communications. This may take some time as the PTA does not currently have adequate technical personnel.

One of the attempts to regulate the business of ESPs has been the government's call for proposals for the license of email. As many as 70 organizations and individuals have applied for this license, but there is a fear that the government may slap high license fees and royalty which would stifle this business. On the other hand, the DNOP's license putatively covers email as well, so they argue that a separate license is redundant. According to DNOPs, ESPs can operate under the umbrella of DNOPs. It seems likely that in the near future, no one will be able to run an email service (even a local one through a BBS) without getting a license from the Ministry of Communications. Confusion abounds.

Apart from Digicom which has started online Internet services in July, all other ESPs provide only store-and-forward email services using UUCP protocols on dial-up telephone lines. Despite this similarity of technology, SDNP's network stands out as the only network which has tried to build up a network community. We have helped set up BBSs, encouraging this activity in general, and endeavored to link up all BBSs and UUCP hosts. As a result, all the dozen or so BBSs and the ESPs are linked to SDNP's network. In one or two cases, where such links have not been formed (as with Digicom), it has invariably been the other side, which for reasons best known to them, have refused to do so.

Most ESPs have not gone beyond email, and for business reasons, are secretive and not very cooperative. This is reflected in the fact that SDNP is the only network which regularly issues its directory of users.

Not only is the SDNP the most open network, it has tried to bring people together on the net through mailing lists, newsgroups and conferences. It is the only network which provides this conferencing through mailing lists, as well as providing the backbone of Pakistan- wide Usenet which is carried by other networks as well. This activity has still not grown as much as we desired (lacking a critical mass of users), but there are

makings of a virtual community. The network is growing faster than anytime in the past which is not only reflected in the number of nodes created per month but also the number of people that are attending our workshops.

All this activity has taken place without the help of any commercial advertisement or marketing campaign. Given our limited staff numbers it would not be possible to handle a heavier demand from individual users. Most staff members are already over-worked. The word of mouth is our main advertising tool. This has resulted in our network catering mainly to individuals, small organizations and businesses, and international organizations. Though this may have cost us in terms in potential revenues (with other networks, especially Digicom and Infolink going for the big corporate clients), we have been successful in laying the foundation of a grass root network, as much as it was possible for such a network to be formed in a country like Pakistan with its peculiar socio-economic conditions.

An emphasis on the corporate clientele would not only be too much of a deviation from our mandate (which we have tried to adhere to, in spirit if not in letter), it would not have been possible to satisfy their demands given the structure of our outfit and the way we operate. The nature of funding and lack of manpower would have precluded this course of action. Even without a marketing campaign, we are barely able to cope with the growing user base -- with its initial demand for installation, basic training and continued support later on -- at least in Karachi and Islamabad.

Though the ESPs can boast of serving some big companies and organizations, the networking needs of big corporate entities, like banks, financial institutions, industrial units and business houses still remain mostly unsatisfied. This is a market niche which the big DNOPs are targeting.

About 15 licenses have been issued by the government for DNOPs in the private sector. Of them about 4 or 5 will launch their networks in the next 6-9 months. They hope to provide full internet connectivity along with the general networking services.

PTC's public data network, called the Paknet has recently been upgraded with new state-of-the-art equipment and expanded both in its traffic carrying (bandwidth) capacity and its outreach (switches have been installed in many smaller cities and towns as well). Given the resources and the infrastructure that they have (with government support to boot), no private DNOP can compete with them. But they suffer from all the ills of a state-owned monopoly which would allow the DNOPs to get most of the networking business. This is quite evident from the fact that though their new data network has been in place since March, they have still not advertised these services adequately, let alone launch an aggressive marketing campaign.

For the first time, Paknet has also awaken to the need of providing Internet services. To this end, they have set up a server connected to the MCI network in the US. The link is already operational with a few test accounts created for checking out the system. They are still undecided about the tariffs, and there is an ongoing dispute with Imran about the management of PK top level Internet domain, but once these issues are resolved, they are going to launch their online Internet services. In fact, they are scheduled to do so in the first week of November, though it seems it may not be possible till the beginning of 1996.

Paknet have a roll out plan for introducing various Internet services, with only text based tools available in the first phase, to economise on bandwidth. Paknet is the only network with the capability of setting up the national Internet backbone with a large enough bandwidth. In fact, they would have little problem in even increasing their international bandwidth, to E1 capacity (2 Mbps) right away.

Along with Paknet and the private sector DNOPs, there is the Pak Datacom (PD) run by Pakistan Telecom. Foundation (TF), a subsidiary of the PTC. Before opening public data networking to the private sector, PD was the only network allowed to operate alongside Paknet -- even to set up their own international communications channels. Since PD is also registered as a private company, the licensed DNOPs protested on this discrimination, as a result of which PD's earlier license was cancelled, and a new license, with the same terms and conditions as the other DNOPs, given to them. However, this did not prevent them from providing a direct satellite channel to Digicom for Internet services. They already have a VSAT based network serving a few big clients and would be in competition with the other DNOPs. But it seems they are not going to become an Internet Service Provider (ISP) like other DNOPs.

Because of the secretive attitude of the other ESPs which are reluctant to disclose their number of users, we can only hazard an intelligent guess. Since all these accounts are UUCP accounts, we give this number in terms of the UUCP nodes. An exception would be Digicom, which have about 1000 online users as well.

- SDNP: 1300
- Digicom: 600 + 1000
- Brain: 800
- Imran: 500
- Infolink: 500
- Wizenet: 50

We would again have to estimate the number of users per node. While we can safely give a figure of 2-3 users for an SDNP node, it may not be true for other networks. Some of these ESPs have set up charges and advance deposits according the number of users on a node, which discourages more users. Also, many of the users, mostly computer enthusiasts, have accounts on more than one networks. In Karachi, especially, nearly everyone interested in networking scrambled for Digicom's online account resulting in about 30% of our users being common. Still, a rough estimate of people using email services in Pakistan would be about 5000-7000.

APPENDIX 7

INTERNET CONNECTIVITY AND NATIONAL LINKUP FOR SDNP

This appendix gives approximate figures for enlarging the SDNP operations. This would include full Internet and national connectivity as well as have staff for working on information related issues. Subsequent to a decision to enlarge SDNP, a phased programme of expansion can be designed based on the following figures.

COMMUNICATION COST

These costs were provided by Pak Datacom for international and national connectivity. It will take them about three months to provide these services as they will need to order the equipment.

a) International Connectivity for a hub at Islamabad would be provided by a VSAT connection. The hub would need to be connected by a radio modem to the Pak Datacom switch or by a lease line. If SDNP has an office in or near the new UNDP office, which is near this network operator's office, it may be possible to connect easily by a lease line.

Identical costs would need to be incurred in other cities if direct international connections are provided from there.

VSAT

Installation Rs. 70,000 (one time)
64 Kbps Rs. 310,000/month
128 Kbps Rs. 500,000/month

b) Domestic Link between cities nationally

Fibre optic connection on 64 Kbps line

Installation Rs. 80,000 (one time)

Islamabad to Karachi Rs. 200,000/month
Islamabad to Lahore Rs. 50,000/month
Islamabad to Peshawar Rs. 40,000/month

Radio modem (optional but reliable)
Rs 240,000/site (one time)

Hardware Requirement for Islamabad Node Initially

c) Recommended d) Alternative

Sun Sparc 20Rs 450,000 Pentium 120 Rs 200,000
Mass Store CD Rs 120,000 Rs 120,000
Add. Hard Disk Rs 20,000 not reqd
Memory Rs 35,000not reqd
Modems (20) Rs 160,000 Rs 160,000
Router Rs 200,000Rs 200,000
Serial I/0 Rs 120,000Rs 120,000

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Total Rs 1,105,000Rs 800,000

In addition 25 telephone lines that would be required. The fees for getting them will be about Rs 100,000. Additional hardware, including PCs, amounting to about Rs 500,000 will be needed. Hardware Requirement for Other Nodes

Each node could be started with a Pentium and other hardware which will cost a total of about Rs 500,000. So three nodes will require an initial capital outlay of Rs 1,500,000.

The network can be started in Islamabad within the next six months and later expanded to the other three cities.

PERSONNEL AT ISLAMABAD AND OTHER NODES

It is expected that about 8 staff members will be needed in Islamabad, for which a salary bill will be around Rs 200,000 per month. At the other nodes, on average, 4 staff members will be needed.

RENTAL AND OPERATING EXPENSES

This can work out to be about Rs 50,000 per month for each node depending on the location of the office.