Training Workshop on

"Advanced Use of the Internet for Population Research"

12-14 December 2000

Bangkok, Thailand

DemoNetAsia

DemoNetAsia is a collaborative network of population research institutes in Asia. It was set up at a training workshop on "Advanced Use of Internet for Population Research" organised by the United Nations at ESCAP in Bangkok in December 2000.

The purpose of the Network is to promote collaboration among institutions in the region, to facilitate their task of addressing the common challenges that they face regarding the adoption of new technologies of information and communication for their research and training activities.

This website offers a convenient entry point to the websites of the members and partners of the network, reports of Network activities, and links to useful resources.

http://demonetasia.multimania.com

Report of the Workshop

edited by

Ramon C. Sevilla

Institute for Population and Social Research
Mahidol University, Salaya Campus
Nakhon Pathom, Thailand
March 2001

Population Division
Department of Economic and Social Affairs
United Nations Secretariat

Population and Rural and Urban Development Division
Economic and Social Commission for Asia and the Pacific

Institute for Population and Social Research
Mahidol University

Training Workshop on

Advanced Use of the Internet for Population Research

Organised by the Population Division of the United Nations Department of Economic and Social Affairs and the Population and Rural and Urban Development Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

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Cataloging-in Publication Data

Sevilla, Ramon C.
Training Workshop on Advanced Use of the Internet for Population Research Report of the Workshop (2000:Bangkok, Thailand)

Advanced use of the Internet for population research/ organised by the United Nations Population Division of the Department of Economic And Social Affairs and Population and Rural and Urban Division of the Economic and Social commission for Asia and the Pacific, 12-14 December 2000 Bangkok, Thailand, edited by Ramon C. Sevilla

(Mahidol University. Institute for Population and Social Research Publication No. 256)
ISBN 974-665-218-4

1. Internet (Computer network)--Demographic aspects--Asia—Congresses. 2. Population research--Asia--Congresses. I. Sevilla, Ramon C., ed. II. Mahidol University, Institute for Population and Social Research. III. Title. IV. Series.

HB849 T768a

Published in 2001, 300 copies

Published by: Institute for Population and Social Research
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EXECUTIVE SUMMARY

During the last few years, the new technologies of information and communication – in particular the Internet – have rapidly imposed themselves as indispensable tools for the work of professionals in most disciplines. However, differences in conditions of access, awareness, motivation, and acquired skills have created a divide between those who are able to capture the benefits of those so-called digital technologies and those who are not. That "digital divide" separates countries and regions of the world, roughly - but not always - along the demarcation between developed vs. developing areas. The digital divide also separates disciplines – and compared to economics, statistics or the health professions, population research is not doing well enough in this respect. It is also striking that few population research centres in Asia have seized the opportunities afforded by the comparatively favourable technological and human resource environment of their countries.

Many population research and training institutions in developing countries face the risk of marginalization because the have fallen on the wrong side of the digital divide. Those institutions urgently need to embrace technological change and incorporate it in a sound and sustainable way in their work and their institutional development efforts. The present workshop on *Advanced Use of the Internet for Population Research,* held at ESCAP, Bangkok on 12-14 December 2000, is part of a series of efforts being deployed by the United Nations Population Division and its partners to help population centres meet that need. The organization of the Workshop benefited in particular from the experience acquired by the Population Division in setting up the DEMONETA network of population research and training centres in francophone Western Africa (http://demoneta.multimania.com), geared to the same purpose of facilitating regional cooperation among like-minded institutions with respect to these issues.

After a broad presentation of the context and objectives of the present workshop, the participants reviewed the situation of the eight institutions regarding various aspects of Internet connectivity and use, according to a set of suggested guidelines (Annex 1). This roundtable survey and discussion indicated that all of the Institutes faced difficulties with some aspect of Internet connectivity, even as the Internet is being used increasingly in many aspects of population researchers' work. Most of the Institutes faced similar problems in terms of inadequate hardware, connections, software, and dedicated technical support in their organizations. Moreover, the Institutes perceive a pressing need to upgrade the skills of their staff, improve effectiveness of their web presence and develop sound institutional strategies and attitudes towards the Internet.

Presentations by resource persons followed. The first set dealt with relevant Internet-based resources beginning with the advantages and requirements of going online, basic formats for web page files and the use (and demonstration) of freely available Internet-related software. Other resources of specific interest to demographic research shown included directories, search engines, bibliographic and statistical databases, chat, and mailing lists. Network security issues (viruses and virus hoaxes) and appropriate coping strategies were presented and discussed.

To illustrate innovative Internet applications, a representative from Statistics Singapore (SINGSTAT) made a detailed presentation of SINGSTAT's experience

with using the Internet for data collection in the context of Singapore's 2000 Census. The discussion of the electronic submission system (ESS) explained its design considerations, security features, and advantages. There was also a brief discussion of "E-Survey," another Internet data collection system and other ways in which SINGSTAT plans to take advantage of the Internet for its future operations.

Issue of standards and best practices for establishing a web presence were the object of several presentations and demonstrations. This included the discussion of strategies to increase the visibility of a web site in relation to search engines, issues of web site architecture and design, maintenance and quality assurance as well as institutional issues related to the management and development of web sites. As a practical exercise, participants designed and wrote the homepage for the DemoNetAsia network (http://demonetasia.multimania.com) to be launched at the Workshop, and uploaded it to the Multimania server thus gaining some familiarity with using Microsoft Word to produce HTML documents and with file transfer protocol software. An electronic discussion forum for the Network (http://groups.yahoo.com/group/demonetasia) was also established and all participants were subscribed to it.

This was followed by discussions on how to address the sustainability issues of the DemoNetAsia network. Members were asked to help publicize the existence of DemoNetAsia and to promote its web site and discussion group among colleagues and professional contacts. They were also invited to contribute actively to the discussions in the discussion forum IIPS volunteered to act as webmaster for the web site and moderator for the discussion forum.

In the closing session, the participants discussed and adopted a set of eleven recommendations regarding DemoNetAsia and the follow up activities to the workshop (chapter 14).

Participants were requested to fill out an evaluation questionnaire (Annex 3), the results of which indicate that the network strategy meets an institution-building and institutional development need and is well appreciated by its beneficiaries (Annex 4).

LIST OF ABBREVIATIONS

ANU	Australian National University
DI	Demographic Institute, Faculty of Economics, University of Indonesia
CDPS	Central Department of Population Studies, Tribhuvan University, Nepal
CPS	College of Population Studies, Chulalongkorn University, Thailand
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand
IIASA	International Institute of Applied System Analysis
IIPS	International Institute for Population Sciences, Mumbai, India
IPR	Institute of Population Research, Peking University
IPSR	Institute for Population and Social Research, Mahidol University, Thailand
IUSSP	International Union for the Scientific Study of Population
PAA	Population Association of America
PRUDD	Population and Rural and Urban Development Division, ESCAP
PTRC	Population Teaching and Research Center, National University of Mongolia
SINGSTAT	Statistics Singapore
UNFPA	United Nations Population Fund
UPPI	Population Institute, University of the Philippines
USCB	United States Census Bureau, Washington, DC, USA
WHO	World Health Organization

PREFACE

The present report contains the proceedings of the *Training Workshop on Advanced Use of the Internet for Population Research* held at the Economic and Social Commission for Asia and the Pacific (ESCAP), Bangkok, from 12 to 14 December 2000. The Workshop was jointly organised by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat at Headquarters in New York and the Population and Rural and Urban Development Division of ESCAP.

The Workshop trainees were drawn from eight population research and training centers in the ESCAP region, namely the Institute for Population Research of Peking University (Beijing, China), the International Institute for Population Science (Mumbai, India), the Demographic Institute of the University of Indonesia (Depok, Indonesia), the Population Teaching and Research Center of the National University of Mongolia (Ulaan Baatar, Mongolia), the Central Department of Population Studies of Tribhuvan University (Kathmandu, Nepal), the Population Institute of the University of the Philippines, (Quezon City, Philippines), the College of Population Studies of Chulalongkorn University (Bangkok Thailand) and the Institute of Population and Social Research of Mahidol University (Nakhon Pathom, Thailand). The various activities of the workshop benefited from the participation of experts kindly made available to the United Nations by the Demography Program of the Australian National University (Mr. Terrence Hull and Ms. Diana Crow), Statistics Singapore (Mr. Kenneth Goh) and the International Programs Center of the United States Census Bureau (Mr. Peter Johnson and Mr. Larry Hartke). Mr. Ramon Sevilla of the Institute for Population and Social Research of Mahidol University was the rapporteur of the Workshop. The United Nations wishes to express their gratitude to those experts and their institutions for the support that they provided to this enterprise.

Funding for the workshop was provided under a funding mechanism for supplementary development activities known as the Development Account. At General Assembly negotiations concerning the Development Account, Governments have directed the Secretariat to emphasise development activities geared towards capacity building in developing countries and to give special attention to the mobilisation of technical, human and other resources available in those countries, also through regional and subregional cooperation.

The design and implementation of the Workshop were very much shaped by those guidelines. The Workshop had a double objective of capacity building (training in the use of new technologies of information and communication for population research) and institution building (setting up a regional collaborative network of population research and training centres). In doing so, the Workshop also endeavoured to respond to the recommendations of the Programme of Action of the International Conference on Population and Development, 1994 regarding the strengthening of population research capacity in developing countries.

The favourable evaluation of the Workshop by the participants (see Annex 4) and particularly the enthusiasm expressed for the setting up of the regional network DemoNetAsia suggests that this project met important needs for training and for collaboration among the participating institutions. It also raised expectations for follow-up activities. The United Nations hopes that the momentum thus generated

will prove sustainable and will lead to further opportunities to assist the capacity and institution building efforts of population research centres in developing countries.

1. PROGRAMME OF THE WORKSHOP

Tuesday, 12 December 2000	
08:30 – 09:00	Registration of participants
09:00 – 09:30	Opening statements
09:30 – 10:00	Coffee break
10:00 – 11:30	a) Introduction of the participants b) Introduction to the training workshop: context, antecedents and objectives
11:30 – 13:00	Lunch
13:00 – 14:30	Institutionalisation of the Internet by demographic research centres in Asia: A benchmark review (Roundtable)
14:30 – 15:00	Coffee break
15:00 – 16:30	Institutionalisation of the Internet by demographic research centres in Asia: A Benchmark Review (Roundtable) – Continuation
Wednesday, 13 December 2000	
08:00 – 09:30	What can the Internet do for demographic research? Presentation of relevant Internet-based resources. Part I
09:30 – 10:00	Coffee break
10:00 – 11:30	What can the Internet do for demographic research? Presentation of relevant Internet-based resources. Part II
11:30 – 13:00	Lunch
13:00 – 14:30	Cutting-edge applications: The experience of Statistics Singapore with using the Internet in the context of a population census
14:30 – 15:00	Break
15:00 – 16:30	Establishing a web presence: Best practices in demographic research institutions. Part I - Standards for web site design
Thursday, 14 December 2000	
08:00 – 09:30	Establishing a web presence: Best practices in demographic research institutions. Part II – Summary
09:30 – 10:00	Coffee break
10:00 – 11:30	Setting up the Asian Network of demographic research institutions: Part I – Setting up the DemoNetAsia web page: Hands-on exercise
11:30 – 13:00	Lunch
13:00 – 14:30	Setting up the Asian Network of demographic research institutions: Part II – sustainability issues
14:30 – 15:30	Closing session: Discussion of recommendations and closing remarks.

2. ANNOTATED AGENDA

Registration of the participants

Administrative formalities required by the United Nations with respect to travel and DSA.

Opening statements (representatives of the organising institutions).

Formal statements welcoming the participants on behalf of the organising institutions.

Presentation of the participants (Roundtable)

Participants will briefly identify themselves: name, institutional affiliation, functions.

Introduction to the training workshop (Armindo Miranda)

Keynote presentation of the workshop in the context of the technical cooperation efforts by the United Nations Population Division to bridge the "digital divide." Antecedents of the workshop, in particular, the experience of the DEMONETA network in francophone Western Africa. Objectives of the workshop.

Institutionalisation of the Internet by demographic research centres in Asia: A benchmark review (Roundtable chaired by Terry Hull)

Each of the eight centres will be invited to present the status of its Internet-related efforts, highlighting salient experiences, successes and obstacles as well as its objectives for further work in this area. The organisers will provide guidelines for these presentations, which should not exceed 15 minutes on average per centre, with some room for Q+A. At the end of this segment, the chairman will attempt to sum up. This segment will yield benchmark data for the project and establish what each institution is bringing to the table with a view to peer-to-peer cooperation. In addition it will provide a realistic snapshot of the current state of advancement of Internet-based operations among the leading demographic research centres in the developing countries of Asia.

What can the Internet do for demographic research? Presentation of relevant Internet-based resources. (Presentations by Peter Johnson and Diana Crow in data lab setting).

Presentation of the range of Internet services (World Wide Web, FTP, Usenet, chat, mailing lists) including "legacy" services such as gopher and telnet. Presentation of resources of specific interest to demographic research such as directories, search engines, bibliographic databases and statistical databases. Network security issues (viruses and virus-hoaxes) and how to address them.

Cutting-edge applications: The Experience of the Statistics Singapore with using the Internet in the context of a population census (Presentation by Kenneth Goh)

Mr. Goh, Deputy Superintendent of the Census of Singapore, will review and discuss the experience of Statistics Singapore with the use of the Internet in the context of a census and briefly present other ways in which Statistics Singapore is taking advantage of the Internet for its operations or plans to do so in the future.

Establishing a web presence: Best practices in demographic research institutions (Presentations by Diana Crow and Larry Hartke)

This segment will demonstrate how the Internet is being used by (primarily) population-related institutions to establish a useful presence on the web. A number of successful web-sites will be examined to illustrate various Internet strategies, including efforts by demographic research centres to position themselves as reliable sources of national socio-demographic data. The challenges and opportunities of an effective Internet presence will be examined, especially from the often neglected institutional point of view.

Setting up of a network of Asian demographic research institutions
Demographic research institutions in developing countries face many common challenges concerning the adoption and proper institutionalisation of the Internet. One of the objectives of the workshop is to launch a sustainable collaborative structure (network) that will enable the participating institutions to exchange experiences, share resources, organise training workshops and other capacity-building events - as far as possible taking advantage of the possibilities offered by the Internet for international collaboration. This segment will seek to establish a consensus on the modalities and objectives of such a network, including the creation of an Internet web site and a discussion group, based in part on the lessons learned from the DEMONETA experience.

Part I - Setting up the DemoNetAsia web page: Hands-on exercise (Led by Armindo Miranda)

This segment will be a hands-on exercise to find sources of freeware and shareware, create the web page for the network in an HTML document and demonstrate how to create the electronic discussion group.

Setting up the Asian network of demographic research institutions:
Part II - Sustainability issues (Chaired by Jerrold W. Huguet)

This segment will discuss how the network can be useful to its members and what immediate steps should be done when participants return back to work in their home countries in the following week to ensure continuity and follow up.

Closing session

Discussion of recommendations of the working group, adoption of recommendations and amendments, and concluding remarks by organizers.

3. ORGANIZATION OF THE WORKSHOP

Drafting Committee

A drafting committee was organised in order to facilitate the drafting of the recommendations of the workshop on the basis of the discussions and presentations. The committee was composed of the following: Ms. Napaporn Chayovan (CPS), Mr. Terry Hull (ANU), Mr. Bal Kumar KC (CDPS), Ms. Sri Moertiningsih Adioetomo (DI), Mr. Armindo Miranda (Population Division) and Mr. C.V. Prakasam (IIPS).

Secretariat of the Workshop

The secretariat of the workshop was responsible for coordinating the logistics for the smooth conduct of the workshop and facilitation of participants' travel and accommodation arrangements. The secretariat was composed of the following:

Mr. Armindo Miranda, Interregional Adviser, Population Division, Department of Economic and Social Affairs, United Nations, New York

ESCAP secretariat:

Ms. Kayoko Mizuta, Deputy Executive Secretary and Officer-in-Charge, a.i., of the secretariat
Mr. Nibhon Debavalya, Director, Population and Rural and Urban Development Division
Mr. Jerrold W. Huguet, Chief, Population and Development Section, Population and Rural and Urban Development Division
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5. OPENING STATEMENTS

Mr. Nibhon Debavalya
Director of the Population and Rural and Urban Development Division
ESCAP
United Nations, Bangkok

Dear Colleagues, Ladies and Gentlemen,

It is my pleasure to welcome you to Bangkok and to this Training Workshop on Advanced Use of the Internet for Population Research. I consider it a privilege for my Division to cooperate with the United Nations Population Division in organizing the Workshop. We are happy to collaborate in this activity with our friend, Mr. Armindo Miranda, Interregional Adviser on Population Programmes and Projects.

The topic of the Workshop is clearly important for research institutes in Asia in an era when information is critical to economic and social development. It is important that Asian societies develop and utilize the technology needed for information dissemination and for access to information. For these reasons, I am especially grateful that the eminent resource persons have consented to assist us with this Workshop.

A challenge that population research institutes face is finding ways to ensure that their research is taken into account in the process of formulation of population and other development policies. The Internet provides a potential channel for reaching policy makers and planners directly but it will be useful only if format and content are designed especially for this purpose. As is true of any form of publication, the format of the information presented must be tailored for specific audiences.

The recently appointed Executive Secretary of ESCAP, Mr. Kim Hak-Su, has made information technology a major focus of the efforts of ESCAP to assist member governments to achieve their development goals. The activities of this Division in this area have been modest but, I believe, quite useful. We disseminate both our *Asia-Pacific Population Journal* and the annual *ESCAP Population Datasheet* via the Internet on the ESCAP web site. Our Division web site also contains numerous other population information databases that have been compiled in cooperation with member institutions of Asia-Pacific POPIN. The *Asia-Pacific POPIN Bulletin* is published only in electronic form. Nonetheless, we also have much to learn and we look forward to discussing issues of common interest with you during the Workshop.

I am pleased to see so many old friends and colleagues together today. I am happy to welcome the demographic researchers and information specialists from the many prestigious population teaching and research institutes represented in this room. Over the years, this Division has often cooperated on research projects or joined in policy seminars with most of your institutes. This Workshop presents the opportunity to renew those ties and to build a foundation for future cooperation. I hope that we can explore many ways of using the Internet to enable us to collaborate more closely. We look forward to our work together this week.

I hope you find the Workshop to be of value to your institutes and to your individual work. If there is anything that I or my colleagues can do to assist you this week, please do not hesitate to inform us.

December is a pleasant month to visit Bangkok, so I hope that you will take the opportunity to see more of it than you might in the summer or the rainy season. Please enjoy your visit. Thank you.

Mr. Joseph Chamie

Director of the Population Division
Department of Economic and Social Affairs
United Nations, New York

Mr. Chairman, ladies and gentlemen

I sincerely regret that my responsibilities here at the United Nations Headquarters prevent me from attending the workshop on "Advanced Use of the Internet for Population Research" that you are about to launch.

As you know, the Workshop was organised jointly by our office, the Population Division of the United Nations Department of Economic and Social Affairs and by our counterparts at ESCAP, the Population and Rural and Urban Development Division. To us, the Workshop is part of an effort that we have undertaken to reach out to population research centres in developing countries, to assist them in responding to one particularly important and urgent challenge: the challenge of integrating and institutionalising the Internet throughout the full spectrum of their research and training activities. We strongly believe that the institutions which might fail to address this challenge will be rapidly marginalised in the coming years. Obviously, we will need to make all efforts to prevent that from happening.

I have followed closely the preparations for the workshop and I know that it is the object of very high expectations. All the institutions that we invited to participate accepted the invitation promptly and with enthusiasm. So did the resource persons, who all graciously agreed to come to Bangkok to share their expertise and to help build up capacity in the region. The United Nations is grateful to the institutions for which they work, namely the Australian National University, Statistics Singapore and the United States Bureau of the Census for making them available to us for the purpose on a no-fee basis, so that we could do more and reach more institutions with our very modest budget. I am also gratified by the support received from the Department of Economic and Social Affairs, which funded this project through a recently established mechanism known as the Development Account. Finally, I would like to thank our counterparts at ESCAP, particularly Dr. Nibhon and his staff, for their great flexibility and team spirit

I know that the Workshop is in good hands. I send you our best wishes and look forward to receiving the report of what will certainly be an exciting and productive workshop.

6. INTRODUCTION TO THE TRAINING WORKSHOP: CONTEXT, ANTECEDENTS AND OBJECTIVES

by Mr. Armindo Miranda

As we all know, the Internet has emerged in the last few years as an extraordinarily powerful vehicle for the flow of information. It has become so pervasive and so indispensable to many professional and daily activities that one is usually astonished to remember that this mass phenomenon is less than a decade old. The Internet became popular only around 1993 when the first graphic browsers became available. By 1994-95, a number of academic and research institutions in the industrialized countries began to actively look for ways to make use of the Internet to disseminate information in a graphic form. Soon, most academic institutions in developed countries had a *web site*, that is, an "electronic window" to the world where they were able to present information about their activities, their staff, their projects, and perhaps their history and even links to sister institutions and other resources.

While this trend went on at great speed in the developed countries, many academic and professional institutions in developing countries failed to recognize and take advantage of this new technology. Obviously, up to some point there was a sense that the Internet was a luxury or a gadget – while in fact it was becoming part of the basic infrastructure of professional life. We will later revert to some of the obstacles that may have led to this situation. Nevertheless, the result was that when people turned to Internet looking for information – as they are increasingly doing as a matter of course - the information that could be found and the institutions that were represented there came mostly from developed countries. Institutions that did not have access to the Internet became quickly marginalized. Since they did not have a presence in the WWW, they were perceived not to be "there" and their absence suggested that they were not keen players in an increasingly competitive world. The arrival of the Internet has therefore created a "digital divide" between those who are using and those not using its resources – which is to some extent an additional fault line between the more developed and the less developed areas of the world.

Recognizing this divide, my office, the Population Division of the United Nations Secretariat at Headquarters, has proposed that the international community should give itself the goal of ensuring that all population professionals and population research institutes throughout the world should have, as a minimum, access to the Internet by the end of 2001. For the longer term, "access" alone is not sufficient: for professionals and institutions to become adept in using these technologies, training and resource allocation arrangements need to be established and adjustments to some job descriptions are likely to be needed because the Internet changes the way people and institutions do things. It is essential that the adoption of these new technologies is done on a sustainable basis; it is also critical that the results of the work are of good quality, because the level of exposure and public scrutiny will become much higher. Sustainability of these efforts is a key consideration. There has to be a major change of attitude when it comes to the production of electronic resources like web sites, which are essentially different from, say, books. Technically speaking, a web site normally requires frequent updating and validation. Unlike writing a book, a web site is not something that is "done" once the last draft has been completed. There is simply no last draft – creating a web site is akin to giving birth to a live organism that needs to be nurtured over its life course and receive constant – or at least, periodical – attention.

All of us should realize that the successful creation of a web site is accompanied by potential risks. If the information becomes outdated and loses its relevance, this powerful window to the world that is supposed to celebrate your institution instead speaks badly of it, suggesting that your institution may not be well organized, or perhaps even that it has ceased to exist. This has happened to many institutions that have not kept their web sites up to date in the past several years. In such cases, instead of being an asset to the institution the web site becomes a liability, projecting a negative image of the institution – which may in fact be doing quite well professionally in every other respect.

One question that we asked ourselves was how could our office play an effective role in assisting the international community towards this goal. I would like to spend some time explaining our perspective on this process and our experiences so far. We in the United Nations Secretariat at Headquarters have a relatively limited mandate for technical assistance at country level; as far as our office is concerned, it would not extend into the area of telecommunications; the scale of our resources precludes any serious investments in equipment or infrastructure. We have, however, a strong commitment to promoting and enhancing demographic research and we are well positioned to speak at the United Nations for our demographer colleagues throughout the world. As a unit in the secretariat of the UN headquarters doing research on population, particularly in order to supply the whole UN system with authoritative population data, we are very much aware of how much the quality of our work depends on the quality of the data and insights that population research and statistical institutes in developing countries are able to pass on to us. It is therefore very important from our point of view that the research capacity of population research institutes in developing countries is strengthened and that every effort is made to prevent such institutions from becoming marginalized. In the present context, this means that there is a priority need to assist these institutions in their efforts to fully integrate the Internet in their operations. And since we are not a funding organization, we have had to find strategies in which we could play a catalytic and leveraging role, using whatever modest amount of resources we have available to organise and set in motion processes that others may wish own and pursue collaboratively.

One of the experiences gained from contacting research institutions in Africa and Asia was the discovery that many of our partner institutions faced common challenges. Although some are better equipped than others or have been working on the Internet for a longer period, they are basically facing the same challenges such as getting a fast, reliable and affordable connection, or making sure their staff have appropriate skills to use the Internet and that resources are available to update their web site. Basic issues of web site design and management are also similar. There are so many commonalties that any institution that is just starting its process of adopting the Internet could learn much by studying the experience of other institutions a little more experiences in the use of the Internet. This process of learning from each other would make it easier and more effective for each institution to make progress. To us, it seemed a good use for our limited resources to try to organise opportunities for these exchanges of experiences to take place, so that institutions would not need to be "reinventing the wheel" in isolation.

The approach that we have developed is based on establishing relatively small networks of "like minded" institutions – institutions that operate on a similar basis or had something important in common. We started with a group of population

research centers in the francophone countries of Western Africa and asked them which ones they would like to work with if a network of friendly, like-minded institutions in their region using the same working language was to be set up. This way, we arrived at a mutually co-opted group of six institutions, one from each country, that all expressed an interest in establishing a network to help themselves get started or integrate the Internet more fully in their operations. It was also their hope that once the experience of collaboration on the Internet had been successful, this exercise would inspire the institutions to keep collaborating for other purposes.

Our office, in collaboration with the University of Ouagadougou in Burkina Faso, was then able to organize a workshop on "Internet for Population Research," which took place in Ouagadougou in October 1999. There were representatives from the six research institutes, following the same format used by our workshop here: for each institution we had its director (or a senior staff member representing the institution's leadership) and another person from the IT side (i.e., the institution's "computer network specialist"). In addition, we invited various resource persons to lead specific segments of the workshop – they were experts from various francophone institutions, universities, bilateral organizations, and a number of supporting organizations.

That three-day workshop in Ouagadougou basically demonstrated what a population research institute could do using the Internet, what resources were available and what the institutions should be aiming for in their web sites. As a hands-on exercise a web site for the network (http://demoneta.multimania.com) was set up - to demonstrate how easy it is to create one. In addition, we also created an electronic discussion group (which works like a mailing list) for the six institutions of this network. It was agreed that staff members of the six institutions with e-mail would immediately be enrolled in this mailing list so that the information generated would start flowing immediately to all the staff members of the institutions in the network. (However, members were free to cancel their membership in the mailing list if they later found that it was not relevant to their needs).

The whole exercise of creating this web site and the discussion group during the workshop was indeed an "eye-opener" for many of the institutions. Another important lesson learned was how so much could be achieved without spending any money – all the software needed to create a web site and start a discussion group is freely available on the Internet. In fact, since it would be too complicated for the United Nations to host (or pay for the hosting) of the network's web site, we decided to use the services of one of the various companies that host web sites for free – their operations being funded by advertisement banners that pop up on the screen from time to time. However, this is a small price to pay. As millions of enthusiastic teenagers the world over have discovered, if one wants to get started with a web site and does not have any money to spend, this is the way to go.

After establishing the network, the participants at the Ouagadougou workshop discussed and adopted a number of recommendations concerning activities and procedures that would ensure the continuation of the network after they returned home. One of the recommendations was to have a follow-up survey a few weeks after the workshop to determine its impact on the participating institutions. Another recommendation was to organize a second workshop about six months after the first one. The success of the first workshop and the relevance of its approach to network organization enabled DEMONETA to obtain additional support from a non-UN

source (namely, the French authorities) to organize the second workshop, which was eventually held in Niamey, Niger in April 2000. Also the Niamey workshop was very successful, particularly as a training event in web site design and management. At Niamey, assurances were received that more resources (this time through the University of Montreal in Canada) would be available to organize a third workshop for the network in 2001.

We feel that the creation of the DEMONETA network in Western Africa was a very encouraging experience and one that can serve as a model to inspire the participants in the Bangkok workshop to do something similar for this group of eight institutions in Asia. In this respect, I would like to note that when to set out to design the project activities in Africa and in Asia, we thought that the needs of research institutions in the two regions would be very different, because the human resources and infrastructure situation in Asia are so much more favourable in Asia compared to Africa. For Asia, we had envisaged to take a group of fifteen to twenty institutions with well developed web sites and explore with them how cutting edge technologies would be help them further along in the next ten or fifteen years. However, an important and surprising lesson that emerged from the project's planning process was that academic institutions in Asia are in fact - at least as far as population research is concerned - not much more advanced in their institutionalisation of the Internet than their counterparts in Africa. In fact, it turned out that there were only a couple of population research and training institutions in the region that had well developed web sites; the others, including some of the most prestigious centers in the region had either a very limited and tentative internet presence, or no presence at all.

This discovery suggested that we need to reach a better understanding of the obstacles that have slowed down the process of adoption and institutionalization of the Internet in knowledge-based institutions which should have been very much at the forefront of technological innovation. While the technological environment is different from Africa, the results are unfortunately and to a very large extent the same: population research centres are having difficulty in adopting the Internet and making full use of it. This finding also forced us to rethink our objectives for this workshop to meet sensitization and skills-imparting needs at a more basic level. We will therefore be drawing more fully on the DEMONETA experience, trying to replicate the concept of like-minded institutions in the Asian context, with some more advanced institutions and some less advanced, so that the former can play a leading role among their peers and the latter can be assisted in a collegial and cost effective manner.

This workshop has, thus, two objectives. One is to establish a regional network – we will try later to agree on what to call it – initially based on all the institutions that accepted our invitation to participate in the workshop. All these institutions have expressed enthusiasm for the idea of the workshop and considered that it met a felt need. The other objective of the workshop is to demonstrate the usefulness of the Internet in research and training, share experiences about obstacles encountered and how to handle them so that others can learn from it, and discuss how to sustain this effort.

One of the themes that will deserve our attention is the "institutionalisation" of the Internet. It is clear that the level of Internet capability that research and training institutions need to attain cannot be adequately met by inviting a consultant to come to these institutions, design a web site for them and then leave. That kind of one-shot

approach is inappropriate because it typically leads to unsustainable outcomes. There might be a more or less well-conceived web site by the time the consultancy is over, but the institution does not really "own" it. The World Wide Web is littered far and wide with orphaned web sites which institutions were somehow able to create but subsequently abandoned because they did not have the resources, the technical skills or, perhaps more importantly, a motivating vision to care for them. To be meaningful, the adoption of new technologies – particularly a technology of such far-reaching implications as the Internet – needs to be accompanied by a number of supporting initiatives relating to, among other things, training, resource allocation, readjustment of job descriptions and responsibilities. For instance, most number of staff members will need to upgrade their skills so that each person has the minimum skills necessary to make as much as a web page for their CV, or are able at least to put up a document on the web. Having a large base of relatively savvy Internet users increases the chances that the institution's efforts will be sustainable. With these capabilities, each staff member can contribute to make the institution's web site lively, interesting, and easier to maintain. This will help tremendously in providing a sense of ownership and pride of the product among the staff members. By contrast, having a consultant come in and design the web site often results in nobody else in the institution knowing how to upgrade or improve on it.

It is therefore important in this workshop to discuss institutional issues because this is often ignored. People tend to focus more on technical aspects, resources, and funding. The are for example very important institutional issues, such as the attitudes regarding the flow of information in many institutions. It is often naively assumed that everybody in an academic institution subscribes to the principle that the largest amount of information should be made available to the largest amount of people at all times as would be typical in the context of commerce or industry. However, this may not be a case in an academic setting. It is known for example that an article published in the Internet would have great difficulties being accepted subsequently for publication in an academic journal. Thus, scholars thinking strategically about their careers could have reason to be reluctant about making an article available on the Internet – a form of publication which, for all its advantages, is of still largely unproven career furthering merit. Another obstacle relates to the issue of control of information as an important aspect of institutional power. Many institutions are not ready and perhaps have no interest in letting others know what they are doing in an indiscriminate manner. There could also be political difficulties because the Internet is a very powerful means of communications that threatens authority relations, particularly - though not only - in the management and governance cultures of many developing countries.

To illustrate the last point, I would cite the example of a team of students from an African country who were very much interested in researching the position that their country had taken at a certain inter-governmental meeting. In their capital, they were given the runaround when they went to the responsible Ministry to ask for a copy of the statement that their representative had read at the meeting. After repeated delays, they finally managed to meet the official in question, but then they were told that he was not authorized to release the statement to them. Luckily, these students came to New York and it so happened that in the course of a meeting with the staff of the Population Division they described their research and the obstacles that they had been facing. To their great amazement, we were able to tell them that the United Nations and some accredited non-governmental organisations routinely publishes statements and detailed reports of intergovernmental meetings, which are made

available to all and at no cost through certain web sites of which they were given the address. Shortly after their return to their country, we learned that they had easily accessed in this way not only of the statement of their country, but also the statements of several other countries that offered intriguing opportunities for comparison.

The implications of such a resource are clearly far reaching. That one can have access to information from the comfort of one's office without having to go to some Ministry and suffer the inconvenience and sometimes the humiliation of being given extensive runarounds or being denied access frees a lot of energy that can be put to better use in one's research and teaching. It fundamentally alters existing relations of authority in social settings the control of access to information is a guarded prerogative of power. Thus, as valuable and efficient as the Internet might be on the one hand, its ability to empower ordinary people with information can have frightening implications and thus generate fear and strong resistance to its widespread use.

While there are many obstacles, the message essentially is that we need to recognize these obstacles and determine what needs to be done. The objectives of this workshop are basically to inspire all participants to their best to institutionalize the Internet in their respective organizations, to provide a sense of its usefulness, to provide some tools and specific knowledge about a few important issues and how to deal with them. One example of these issues is Internet security. Sometimes, institutions do not realize that being linked to the Internet exposes them to security threats in the form of malicious programs commonly called viruses. Creating an e-mail link in one's web site invites visitors to send messages which in some cases may be deliberately infected; however, one will sometimes find that the first-line worker handling such mail, perhaps a secretary, will have received no training on how to recognize and handle suspicious messages. Clearly, handling e-mail involves a number of considerations (and training needs) that do not arise in the context of traditional media such letters and faxes. In the course of the planning process for this workshop, we made a note to talk about security issues when we started receiving obscene, virus infected messages from one of you: clearly, this was a case of an institution that had failed to make adequate internet security arrangements or had been very unlucky – or both.

Another lesson learned from the African experience is that when people first become aware of security issues, they tend to become very nervous and not always is a helpful way. A relatively large number of messages that were exchanged in the initial stages of the electronic discussion group that turned out to be virus hoaxes. These virus hoaxes purport to be messages that warned about viruses that were circulating on the Internet. These messages are designed to multiply very fast since people who receive them are instructed to send it to as many people they know as soon as possible. As a result, staggering amounts of e-mail may be generated clogging-up e-mail servers - creating panic is really the main purpose of the exercise. More experienced users learn to quickly recognize telltale signs of such virus hoaxes, particularly the insistence on the recipients writing to "all their friends and colleagues" to alert them about a certain virus. Somehow, genuine virus alerts do not generally contain such exhortations. Of course, the proper way of handling such messages is to verify whether they refer to known virus hoaxes. There are indeed sites on the Internet which compile information on both real viruses and virus hoaxes, and help users to search and identify the nature of the threat. If you find that

it is a false alarm, you simply ignore the message that you received and not forward it to your friends to put a stop to the perpetuation of the virus hoax. Thus, one of the subjects that will be taught in the workshop is where to find information on viruses. Security is a very important concern and it is a concern that follows automatically from becoming engaged in the Internet. However, ensuring a minimum level of security in one's network is something relatively easy and not terribly expensive, provided that one is aware of the issues involved and has the information about specific resources such as the appropriate software and the web sites that one can consult for information and software acquisition.

Another objective of the workshop is to offer an opportunity for all of the participants get to know and appreciate each other's work. We have here two representatives from each institution, one a director or a senior researcher and the other a computer specialist; they will be sitting side by side for three days – and that may be an event that does not happen so often at home in their institutions. It is also a good opportunity for people to meet their counterparts from other institutions, find out more about each other's institutions and perhaps get a sense of other substantive areas in which collaboration might be feasible; collaboration is of course something that will be greatly facilitated by the adept use of the Internet's many powerful features. This is also an excellent occasion to establish or strengthen links with the partner institutions represented by the resource persons (the ANU, Statistics Singapore, and the US Bureau of the Census) and the various United Nations represented here. Having a professional network is not only fun and exciting, it is also tremendously helpful from a technical cooperation point of view. It makes life much easier for anyone who wants to assist you to be able to do it through the network rather than going to individual institutions. At least for the kind of capacity building operations that we at United Nations Headquarters might be involved, an international network of partners is preferable to a piecemeal approach country by country. It is our hope that this network building exercise at regional and subregional level will eventually lead to a global network of population research and training centers, if that idea proves useful and viable.

It should be clear that the network to be launched by this workshop will be, in the spirit of the Internet, a "virtual" organization. The network is meant to be lean and very informal structure that does not require too much attention or a lot of resources. The web site created for the African network is a very simple web site. Basically what the DEMONETA site provides is links to the web sites of the six institutions in the African network, the reports of the activities of the network, the report of the workshop, the first workshop in Ouagadougou, and the report of the second workshop in Niamey. In addition, it also includes a number of links to resources that are particularly useful for African researchers such as links to demographic research and statistical institutions in Africa, links to demographic software (mostly in French) and links to statistical databases that are of direct interest to those researchers looking for figures on population and social indicators, etc.

The DEMONETA web site is not meant to substitute the web sites of each individual institution. This should be the spirit of the web site that we will develop for the Asian network. The procedure established in Africa assigned the responsibility for managing the DEMONETA web site to the member institutions on a rotating basis. Each institution is responsible for updating and keeping it alive for six months each, after which it would move on to the next institution. Such an arrangement provides a chance for each institution to stamp its mark on the web site and for those who

haven't done it before, to learn what is involved in maintaining a web site. We will discuss whether we should follow this model for the Asian network or whether some other model would seem preferable.

One important aspect of the workshop is the benchmark review of the state of progress in various aspects of Internet use and institutionalisation in the member centres. For this review, guidelines have been distributed listing various issues and variables that would be particularly interesting to learn about. The review will provide the benchmark data to measure subsequent progress, next time when we hopefully meet again.

At the end of the workshop all participating institutions will be asked to fill in an evaluation form. The participants are also invited to organize a committee to draft some recommendations that the group as a whole may wish to adopt at the end of the workshop. One of the recommendations may well be that the participants meet again at an appropriate time in the future in order to review the progress of each institution and identify what new needs have emerged. It is sincerely hoped that all participants of this workshop can continue to help each other in the future.

Mr. Miranda's introductory remarks were followed by an on-screen demonstration of DEMONETA web site. The following points were noted:

- Files of various reports were uploaded in pdf format. The reason being that a file in pdf format will print exactly the same way as the authors of the original document intended regardless of the printer and word processing software used by the reader (e.g. font, lay-out, graphics and pagination does not change). In addition, in many cases a file in pdf format is smaller in size compared to a file in Word format.
- The second workshop was set up to train the institutes specifically to make their own web sites. As for the ideal contents of a demographic research center's web site, the agreed format (to be implemented will, all necessary flexibility) would include links to staff, news, research, teaching/training activities, publications and other institutions/resources.
- The DEMONETA site provides separate links to other resources, one for demographic resources and another one for general resources. Demographic resources include a link to other institutions, professional associations (e.g., PAA), and other networks in Africa, grouped by country. There are also links to governmental organizations, statistical offices, and databases/software useful to demographers, as well as links to other portals (e.g. WWW Virtual Library (Demography/Population Studies), POPIN, SOSIG). Links to general resources and tools include for example information links on initiatives taken on promoting the use of the Internet in Africa.

7. Institutionalisation of the Internet by Demographic Research Centres in Asia: A Benchmark Review (Roundtable)

Chaired by Mr. Terry Hull

7.1. College of Population Studies, Chulalongkorn University, Thailand

by Ms. Nappaporn Chayovan

The College of Population Studies' (CPS) Internet infrastructure is an integral part of the Chulalongkorn University Internet system (CUNet) which has had a relatively long experience in Internet connectivity. The e-mail system in the university was set up around 1992. The university has also designated an Office of Information Technology to supervise all matters related to Internet use such as e-mail and other services for faculty and students.

All faculty members and some senior researchers at CPS are provided with a computer linked by LAN to CUNet. Every faculty member and registered student owns an e-mail account. CPS also has a computer room for both research staff and students where computers have Internet access. Those who have Internet accounts can access the Internet for up to 80 hours via remote log-in. The university has approximately 400 lines to its main server for remote connection by modem. However, connection may sometimes be difficult during peak hours and subject to line drops.

The CPS web site was created in 1998. It took the College some time to complete the web site because of lack of expertise. Eventually, it was able to overcome this limitation and establish the CPS web site with the assistance of a web designer.

The appearance and content of the web page is determined by the Director of the College, although faculty members are consulted about the contents. The cost of creating the web site was covered by an external source - the Hewlett Foundation. The CPS now has no other source of funding to maintain the web site. The web site is updated on a monthly basis by Ms. Darawan, an activity that does not involve any additional cost to the CPS. The University has a Committee on Information Dissemination whose Director is empowered to authorize the information presented in the web site.

While CPS does not have an explicit goal to train research staff/faculty in Internet skills, it is one of the priorities of the College to train its staff in any knowledge and skill that enables them to make use of new technology related to demography and information technology (IT). Not all faculty and staff have adequate knowledge to use the Internet effectively. While all know how to use e-mail, only about eighty per cent know how to search the Internet for information. Most of the knowledge in using e-mail and searching has been acquired individually, without formal instruction. One reason for the low level of knowledge in search procedures among staff members is that assistance with Internet searches is provided by Library Services. This is especially the case for faculty members, as they have many responsibilities and tend to find information searching a laborious and time consuming process.

Approximately twenty percent of the CPS research staff know how to write a web page using Microsoft *FrontPage*. This was probably the result of special training organized by CPS in web page design, with a view to enable the staff to create and

maintain their own web pages. However, none of the trained staff members had applied this knowledge in practice, partly because the College used the university server and because staff was pressed for time by other commitments. The CPS did not organise regular IT-training of its own, but sent faculty and staff to attend university-sponsored training that might be available.

The use of Internet is felt to have a considerable impact on the operations of CPS operations. In particular, the speed of communication has changed working patterns. Both sending and receiving patterns have changed. There is now less need to write formal letters. However, the Internet has made life more hectic because everything happens faster. Sometimes it is difficult just to keep up with the volume of incoming e-mail.

Since the university absorbs the cost of e-mail, the use of the Internet has tremendously reduced telephone and postal costs for the institution. Papers, reports and publications are now often sent as attachments to e-mail rather than mailed the traditional way. It has changed the method of sharing publications. Now, CPS does not have to wait for the final copy of a paper or a report to send it to anyone who requests it. The Internet has expanded the perspectives of the faculty and research staff by giving them a channel to access new knowledge and information.

In terms of receiving information, requests or inquiries, the CPS receives general e-mail through the general address of the CPS. The secretary sorts out the e-mail and forwards the message to the person concerned.

As to specific obstacles, CPS does not face major problems with the infrastructure because the university maintains it and provides the College with technical support through the Office of Information Technology. The main problem however concerns the status of the existing hardware and software. Of the about 30 computers in the CPS, sixty percent are slow and have no multimedia capabilities. Twenty per cent are in the moderate category, while the remaining twenty per cent may be considered "high capacity" computers. The College has built up its infrastructure of computers primarily through budget allocations from research projects, since the government does not provide state universities like Chulalongkorn with a budget for the purchase of hardware. Because of these budget limitations, the CPS cannot upgrade its computers as often as it needs to.

Almost all the software of the CPS has been obtained free of charge through research projects or the university. However, the College does not have the most recent versions of software such as SPSS or STATA because of financial limitations.

Although some faculty members are skilled in the use of specific software, the main problem faced by CPS in terms of skills is the absence of staff who have overall responsibility for IT and can provide support and maintenance.

The CPS does not face any administrative/political issues regarding the use of the Internet.

7.2. Institute for Population and Social Research, Mahidol University, Thailand

by Mr. Varachai Thongthai

The Institute for Population and Social Research (IPSR) has 28 staff members, of whom 22 are faculty and six are researchers. The institute has three graduate programmes with about 78 students currently enrolled. A graduate from IPSR is expected to be computer literate, including Internet literacy. The staff is expected to know how to use e-mail, search, and surf the Internet, do file transfers, and design a web page.

All staff members have computers, which are directly connected to the Mahidol University Computing Center via fiber-optic line within the campus and leased telephone line between campuses. Common printers and files are shared through the LAN. Every one has his/her own e-mail account. Students have access to the Internet in the student computer laboratory, which has about 20 PCs. All students have their own e-mail accounts.

In the past, IPSR had provided several in-house training programmes in the use of computers for its staff. Thus, all of them knew how to use e-mail, 75 percent knew how to search for information on the Internet, and 30 percent knew how to write a web page. There will be a workshop on "Promoting Teaching and Research via the Internet" for the staff early next year, supported by the Carolina Population Center, University of North Carolina. Moreover, the Institute has just subscribed to JSTOR, an on-line database of journal articles, through a grant from the Mellon Foundation via George Mason University. This subscription is for the whole Mahidol University system.

IPSR does not have its own web site, but shares a space in the university web site. IPSR's home page is at http://www.mahidol.ac.th/mahidol/pr/pr.html. A committee looks after the design of the home page and has full control of the appearance and contents of the home page. The Institute had hired a part-time web designer to design and update the home page according to the suggestions of the committee. The home page has been updated weekly since September 2000.

IPSR has benefited from its Internet connection in terms of increased efficiency in its operations. This includes the ability to work remotely, for example, supervising data collection and data processing in field stations, or writing and editing research reports with colleagues. There is also greater volume of communication flows nowadays than before the Internet era came to the Institute.

Everyday the Institute receives several e-mail messages sent to the Director's generic e-mail address <directpr@mahidol.ac.th>. The Director forwards such e-mail to the relevant person concerned.

The Institute faces the following obstacles in the institutionalisation of the Internet:

a. Infrastructure: Heavy traffic during the day slows the connection.
b. Equipment: Lack of server for IPSR.
c. Software: The cost of software is very high. IPSR plans to migrate to Linux OS.

Discussion
One participant asked what proportion of time was spent using e-mail versus the web and other Internet activities. Mr. Varachai replied that e-mail usage took up most of the staff's Internet time. For time devoted to surfing the web, an estimate would be twenty percent. Regarding costs, Mr. Varachai indicated that here was no charge for connection and downloading via the computer facilities of the Institute. Faculty and students could connect remotely from their homes since Mahidol had over 300 lines for remote log-in. However, users had to pay a nominal telephone charge to the telephone company. The university charges each faculty and staff member around 1,000 baht per semester (US$23) for an Internet account, but the Institute absorbs the fee.

7.3. Population Institute, University of the Philippines
by Ms. Josefina Cabigon

The University of the Philippines Population Institute (UPPI) is making every effort to expose its faculty and students to Internet technology. The UPPI research staff consists of eight faculty members and two university researchers. It is envisaged that all UPPI faculty and staff members will have a computer. By the first quarter of 2001, the remaining fifteen per cent of the staff who do not yet have a computer will be receiving their computers.

The faculty and researchers of the Population Institute (UPPI) have their own computer accounts that enable them to access the university IT infrastructure through designated areas on campus. Another way of Internet access is via modem. The limited number of telephone lines available and the large number of people trying to access the Internet make it difficult to access the Internet through the latter method.

The present major connection to the Internet of UPPI is via a dial-up connection to a private Internet Service Provider (ISP) using a 56K modem. The UPPI pays a minimum rate of US$ 20 for 20 hours of Internet connection per month. Additional charges are paid for use in excess of 20 hours. The computers of UPPI are currently not connected to a LAN server but a LAN server and a web server will be installed at UPPI by the first quarter of 2001.

Seventy percent of faculty and staff at UPPI have individual e-mail accounts provided by the Institute. The UPPI currently maintains two web sites: one with the server of the College of Social Sciences and Philosophy (CSSP) of the University of the Philippines and another with Yahoo GeoCities. The responsibility for designing the web sites was assigned to three junior faculty members who were sent to a training program. For lack of funds, UPPI never relied on consultants to do this kind of job. However, the faculty member who was mainly responsible for the design of the web site at Yahoo GeoCities left to study for a PhD in the United States. Now, the two remaining junior faculty members and Dr. Ogena, have taken up the responsibility for maintaining the web site. The last updates of the web site were done in 1998 for the UP hosted web site and in 1999 for the Yahoo GeoCities website. There have been no recent updates as of 2000.

Since there were no outside experts or consultants involved in the design of the UPPI web sites, no budget, or specific grant was expended for this initiative. The UPPI has established a web-site committee consisting of all eight faculty members. Dr.

Ogena has planned a series of training programs for the UPPI faculty on web-page design to ensure sustainability and upkeep of the UPPI web pages.

UPPI has full control of the appearance and contents of the web site since the Institute is autonomous in this initiative. The UPPI does not have to report to university officials on developments concerning the web pages. The planned establishment of a UPPI Internet and Intranet facility is even independent of the CSSP.

The Institute aims to train all faculty members to be Internet literate. The training for web site development has been ongoing, starting in November 2000. Seventy-five per cent of faculty and researchers know how to use e-mail, while the remaining twenty-five percent still need to be trained. Despite the majority of the researchers knowing how to use e-mail, only fifty percent know how to search information on the Internet. Still fewer, perhaps twenty percent of the UPPI researchers, know how to write a web page. The on going in-house training programs offered for the faculty and staff will continue for the next three years dealing with e-mail, local area networking, and Linux. Since the training has recently started, there has not been much impact on the more advanced use of the Internet to date. In terms of receiving e-mail of a general nature, the Institute staff has handled it successfully since a majority of them already had the basic knowledge of e-mail functions such as forwarding.

The UPPI has identified the following obstacles for the institutionalisation of the Internet: Firstly, acquisition of equipment - although early in 2001 the rest of the researchers will be provided with computers, additional servers still have to be acquired. Secondly, software is considered a major problem, particularly due to the prohibitive cost of licensed original software. Thirdly, skills training has to be expanded for faculty and staff members, a problem that will be addressed during the next three years through scheduled in-house training programs. A fourth obstacle that echoes a concern common to other Institutes is funding. UPPI is trying to respond to this particularly difficult challenge by taking a self-sustaining approach. To maintain and regularly update Internet and Intranet facilities, UPPI will be charging users such as students and faculty from outside the Institute. The fifth important obstacle is the maintenance of hardware and software. UPPI needs a dedicated person skilled in these areas, if possible added to the roster of the Institute staff.

Discussion

Ms. Ogena added that the UPPI infrastructure is still basic in terms of the Internet. Not all students are provided with e-mail accounts yet. By next year (2001), when UPPI gets its own server, it will be able to cater to the Institute's own students and faculty. Cabling of the offices is scheduled for completion by December 2000.

Mr. Hull commented that the situation at UPPI seems more limited than in Bangkok because of financial constraints and the difficulty of maintaining the hardware. He raised the question how Institutes keep up to date with the latest hardware. Participants agreed that this presented a big challenge for Institutes to have budgets available that allows them to update their technology to keep up with the needs of their staff and students. On the other hand, given the constraints, Institutes oftentimes have no other recourse than to keep the old machines (386 or 486) going, so that the junior staff will have something to work with.

Mr. Miranda inquired why the UPPI had two web sites. Ms. Ogena responded that the first web site was hosted by the server of the university (UP). However, the Institute found that it was difficult to access it (slow downloads) especially for international users, although it was kept very basic, with a few graphics. Consequently, UPPI decided to develop another web site with more graphics, accessible to outsiders via the Yahoo GeoCities site.

Mr. Miranda commented that unless the second site is a mirror it creates a problem especially if the update of information is not properly coordinated. If the site found by the search engine is the site that is not updated or has a totally different design or content, it may be disorienting to users and it may project an image of confusion, which may not be the image the institution intends to project. It is therefore not a good idea to have multiple sites and it is a situation that should be avoided. It is however, a good idea to have a mirror site wherein the content of one web page, say at the UP server, is mirroring the one in GeoCities. However, definitely having two independently managed and updated web sites is redundant and costs more in the end. Ms. Ogena responded that they plan to correct the situation. Once UPPI sets up its servers, the Institute will only have one web site.

7.4. Central Department of Population Studies, Tribhuvan University, Nepal

by Mr. Bal Kumar KC

The Central Department of Population Studies (CDPS) belongs to Tribhuvan University (TU), the leading university in Nepal that imparts education to around ninety-five percent of the total student population in the country. The University has over 200 campuses throughout Nepal. These campuses are not connected via Internet or e-mail. The country is served by a poor and unreliable telephone system. Official business with the government is better conducted and concluded if a letter is hand carried to the different offices. Nevertheless, the Internet is becoming popular among private organizations in Kathmandu.

The CDPS was established in 1988 and has fifteen faculty members. Over the last ten years, the center has produced around one hundred and sixty master's level students. All of their graduates are employed, and at least twenty percent have a second masters degree from foreign universities (e.g., ANU, UP, Mahidol).

The IT infrastructure of TU is still undeveloped. The university has started to establish a computer science department.

Earlier in December 2000, CDPS created a web site consisting of around eight pages. CDPS has an option to expand this web site to 20 MB in the future, which may well happen as the Department learns more about web design and the Internet, starting with the new skills learned at this workshop.

The Director of CDPS approves the content and format of the CDPS web site. Mr. Gurung designed the web pages in consultation with software consultants. Overall, the creation of the CDPS web site was not expensive and was absorbed by the regular budget of the Department. UNFPA will also support the expansion of the LAN in the CDPS building as part of the fifth country program. In the initial phase of setting up the web site, it was thought that it was more efficient to limit the involved members of the staff to a few. Thus, only the Director and Mr. Gurung

were involved. Mr. Gurung is responsible for the management of the web site, in consultation with the software consultant. CDPS has already established a departmental committee to oversee of the web site.

All researchers at CDPS have access to computers. The department has 30 computers all together. The main problem faced by CDPD, similar to Mahidol and UPPI, is the varying capabilities of the range of hardware held by the institution. CDPS has, for example, five Pentium computers, five Pentium II, and another five Pentium III. However, there are also a large number of older 286, 386 and 486 machines. The 286 and 386 models are used for word processing only, since they are not able to run demanding statistical software like SPSS. The underlying problem here is related to budget limitations. Individual faculty members made an effort to buy 486 computers just a couple of years ago, but they now find it difficult to access the Internet unless they upgrade. Upgrading a computer in Nepal is expensive. A basic component such as a hard disk costs a substantial amount of money to replace or upgrade. Most faculty members have their own computers in their homes but these are old 486 models. Eighty percent of faculty members know how to use the Internet. As far as basic Internet skills are concerned, the sense is that the Internet does not really require special training once one keeps using it.

In relation to remote log-in to the Internet, Mr. KC explained that while he can use a dial-up connection from his home to connect to the ISP, the downside is having to pay high telephone bills out of his own pocket. However, he praised the benefits of the Internet, using as an example his own experience in arranging most aspects of his participation in a recent international conference in Switzerland (including, accepting the invitation, sending papers, travel arrangements). The e-mail feature had also improved his efficiency in writing letters; in the last five or six months he estimated to have sent over 300 letters via e-mail. The speed of the Internet is a powerful force that drives one to reply immediately. However, the big problem is the poor quality of the ISP services, resulting in frequent disconnection.

Only seven computers at CDPS are presently connected to the LAN, but cabling has been set up for the building. The Department's main problem is to upgrade or replace computers so that they can be connected to the LAN. All of CDPS's students are required to acquire basic computer literacy and all of them know to use e-mail. CDPS faces the additional constraint of having only five telephone lines for the entire Department; yet it was considered fortunate, taking into account that other departments have only a single telephone line. Of those five lines, two were dedicated to Internet connection.

Since the Internet is still relatively new to the Department, one issue of concern is the actual use of the Internet by the faculty and staff. It is suspected that there is some degree of misuse, such as using the Internet for frivolous pursuits (games and the like), with very little time actually devoted to research. However, the director is keen to educate the staff about useful web sites such as those of the world's major demographic centers. CDPS is still very much a "beginner" in the Internet and is eager to learn from the experience of others, particularly institutions that are more advanced in this respect.

The one e-mail account in the Department is presently shared by all faculty members. It is irksome to download messages meant for other staff members, particularly when accessing the common mailbox from home at one's own expense.

CDPS plans to provide individual e-mail accounts to all the faculty members and staff in the near future.

The CDPS has full control of contents of its web site. There is no need for CDPS to report to higher authorities in the University system. However, the relevant University offices have been informed that CDPS has a web site.

Based on the lessons from the Bangkok workshop, CDPS plans to conduct its own workshop for its staff members, in order to help them improve their skills. They may even visit other institutions like Mahidol, Chulalongkorn and UP to learn more about the Internet so that they can teach new skills to their faculty members. However, it is emphasized that the Internet is only a means. If one does not know how to do research, it will be difficult to make effective use of the Internet. A basic skill in how to conduct research is an essential foundation for intelligent use of the Internet. Besides, the Internet does not provide everything, as in the case of generating a bibliography for a research topic. The Internet can provide one with a list of books and other references, but very often does not give the full text. However, despite this limitation, one has at least some place to start, with the knowledge of what to look for. Then one can decide whether to go to a large university abroad, or which library to visit to find these materials.

CDPS receives plenty of e-mail of a general nature. A lot of it is junk e-mail such as unsolicited information and petitions in support of various causes. The Department's secretary forwards the e-mail messages to the relevant persons in the Department.

As for specific obstacles, CDPS considers the limited bandwidth and the unreliable dial-up connection to the ISP with frequent line drops to be major concerns. The Department does not yet face any major problems with software packages. However, its staff as a whole still needs further training. The Department does not face serious administrative or political obstacles in the development of its web site. However, there is need to learn from other universities, especially from other institutes attending the Bangkok workshop that are perceived to be more advanced than CDPS.

Discussion

The Chairperson commented that many institutes may empathize with the experience of CDPS in their relations with their university administration, who have not even seen their building much less understand what a web site is all about. This only underlines the gap between what the institute is trying to do and what the university administrators are prepared or unprepared to support.

7.5. Population Teaching and Research Center, National University of Mongolia

by Ms. BOLORMAA Tsogtsaikhan

The Population Teaching and Research Center (PTRC) of the National University of Mongolia was established in 1990 with the financial assistance from UNFPA. The Center is located in the School of Economic Studies and has currently seven staff members and about fifty students of demography.

The center has two main objectives. First, to provide full-time teaching for students and short-term training programs for teachers, researchers, and governmental

officers. Second, to carry out research dealing with high priority policy-oriented subjects concerning population and related topics, in order to provide the Government with fundamental information for socio-economic planning and formulation of population policy.

To serve both training and research activities a Population Reference Library and a Computer Center have been set up at the PTRC. The computer center has ten computers dedicated exclusively for use by students. These are extensively used for teaching and research activities. Computer facilities are also provided for the teaching and research staff. There are five computers for them. All computers in the Center are connected to the university network. Therefore, PTRC has a connection to the Internet via a LAN. The teachers and students use the Internet heavily for their teaching, study and research. Faculty, researchers, and students all have their own e-mail addresses. All know how to use and search information on the Internet. The PTRC does not have its own web site but there is a link to their web page on the university web site.

PTRC plans to create its own web site and preparations are now in progress. Last year, the librarian and a researcher participated in a UNESCO training to design and create a web page. The researchers also participated in a training program organised by the School of Economic Studies to impart Internet skills. The training included how to use e-mail and search for information on the Internet. This kind of training is organised by the university once a year.

To create its own web page, the Center needs a web site designer and a regular staff member as well as high quality computer. This is because students' computers are only 486SX-25 with 8 or 16 MB RAM. Because of these slow computers, most of them are used only for teaching purposes. However, PTRC strives to enable its students, researchers, and faculty to make more use of the Internet because the Center's own library resources are insufficient for training or research purposes. At present, the Center's library has an Internet connection through the university LAN. In addition, with the generous support of UNFPA, the Center will soon have access to JSTOR.

Discussion

Mr. Hull noted that this was the second time access to JSTOR had been mentioned. He drew the particpants' attention to the fact that a subscription to JSTOR provides access to the full text of articles in a number of major population journals. Full collections - both recent and old issues - of journals such as *Population Development Review, Demography, Studies in Family Planning* are now available in JSTOR.

There are currently numerous projects to make journals available through the web. One of the great challenges is to have a computer that is fast enough and has a good Internet connection that will enable full use of those resources. This is an issue that deserves consideration when discussing how to take maximum advantage of using the Internet.

Earlier, preceding the presentation, the Mr. Hull also commented that in writing e-mail in Mongolian, the Roman alphabet is used rather than the Cyrillic alphabet, which is the normal alphabet in the country. He saw it as a reflection of the dominance of English as the language of the Internet.

7.6. Demographic Institute, University of Indonesia

by Mr. Yoswandi Herwin

Up to early 2000, there were only two computers at the Demographic Institute (DI), Faculty of Economics, University of Indonesia that could access the Internet via modem. In addition to the very limited number of telephone lines available to the Institute, the e-mail facility uses the same two lines used for the Internet connection. This severely restricted researchers' access to the Internet.

In February 2000, the International Institute of Applied System Analysis (IIASA) provided assistance to DI in terms of facilities to access the Internet through a cable network. In this system, DI's network acted as a sub-network to another network that is equipped with high-speed modem. This setup enables all researchers of DI to access the Internet from almost any computer in the Institute that is connected to the LAN, twenty-four hours a day, seven days a week. This facility costs Rp. 2,000,000 (around US $216 at current rates) per month to operate. At present, about seventy percent of the researchers have been provided with individual e-mail addresses. The e-mail address registration is still in progress. It is expected that all of the researchers will have their own individual address in the very near future.

At present, the Institute has around one hundred workstations with four Pentium type servers. Three Pentium IIs are assigned as file servers while a fourth (a Pentium III) is assigned as the proxy and web server. The operating system used for the file servers is Novell NetWare version 3.12 and the system for the proxy web server is Windows 2000 Advanced Server. For workstations, the operating system used is Windows 95. The proxy web server provides not only access to the Internet but also safeguards the system from intrusion, by separating DI's local area network from the Internet. The Institute has obtained an IP address to assign to the proxy server as a web server. The Institute's web site address still uses the IP address in numbers. To change this address into a normal address would cost the Institute an additional Rp. 2,500,000 per month.

All the planning, maintenance and updating of the web site are the responsibility of one of the IT staff of DI. The Institute does not reserve any specific budget for that purpose. Up until now the Institute has not had a web-site committee. All concerns related to the web site are handled by one of the IT staff members of the institute.

Because the Institute-wide Internet facility is still very new, DI has not offered any specific Internet training course to its researchers. However, almost all of the researchers seem to be able to use the Internet without difficulty. When there are problems, the IT staff is ready to provide support and find solutions. The Institute expects that every researcher should be able to use the Internet to the fullest possible extent for their work.

At present, there are forty-one active researchers at DI. Of these, about eighty percent can use some Internet features, such as e-mail and browsing. However, only about ten percent can make a web page.

A major benefit derived from using the Internet is speeding the research process at minimum cost. Although DI is now wired with a cable network for accessing the Internet , allowing every researcher to use their own e-mail address, the old general e-mail account is still used and has not been discontinued. In fact, DI retains the old

general account as the main e-mail address of the Institute because it used this for past correspondence, and is the one most outsiders are familiar with. Messages meant for individual staff members but sent to the Institute's main mailbox are handled by a secretary, who has been assigned to print and distribute such messages to their addressees.

The DI considers the following as obstacles in the implementation of the Internet: infrastructure, skills, and administrative issues. Equipment, software, and political issues, on the other hand, are not serious obstacles. Regarding infrastructure, the main obstacle is the type of the telephone lines that is still being used for the two old account numbers. As for Internet skills, some researchers are still unable to make use of the Internet to properly benefit their research. In terms of administrative issues, the biggest concern is the high cost of maintaining and operating the Internet. The Institute's facilities are very simple compared to current technologies.

Discussion

Mr. Miranda sought an explanation as to why DI's web site could not be found by search engines nor found in the elaborate links of such web sites as the UN ESCAP's POPIN. He found it odd that the two major Indonesian demographic research institutes do not show up in any of the search engines, leading one to conclude that they may not have web sites – or that they may even have ceased to exist. By contrast, many less important and even marginal resources for demographic research in Indonesia show up in the search engines. It is understandable that nobody knows about DI's web site because it is very new. However, Mr. Miranda was curious why that information did not reach any other body that could have referenced it. As it were, the only way the DI's web site could be accessed was if someone gave you its numeric IP address.

Ms. Adioetomo explained that the development of their web site began when they collaborated with the APN (Asian Population Network) Meta Center coordinated by IIASA and funded by Wellcome Trust. Since the web site had been established just very recently, they have not given the matter of dissemination and updating full commitment yet. However, the Institute is included in the web site of the Family Bureau in the Ministry of Transmigration and the web site of the Faculty of Economics of the University of Indonesia (UI).

Mr. Hull noted that linkage with some of the government web sites involves potential pitfalls. For example, the Family Planning and the Ministry of Population web sites are much out of date. By contrast, the web site of the Central Bureau of Statistics (Indonesia) is relatively well maintained although still a little behind. The point is that the network is as strong as its weakest links. Thus, if you tie yourself with a weak link, you are most likely to face a potential problem.

Mr. Hull also inquired if Internet cafes are available as an alternative to students and staff for accessing the Internet, a situation that may also be relevant for other countries. Most people have Hotmail and Yahoo e-mail accounts, and, it is possible that in Indonesia for example, they may find these commercial providers even cheaper than the university service.

Ms. Adioetomo responded that most of the Institute's research staff also has individual e-mail accounts from commercial ISPs like *Indonet*. In her case she had two e-mail addresses, one for use in the office and another, at home. This makes it

very convenient to use e-mail at home particularly when dealing with people in different time zones. She sends e-mail in the evening and receives a reply the next day. The fact that most of the staff have private Internet connections has proven very beneficial for working together as a team since they are no longer limited to staying in the office to connect to the Internet. Currently, DI faculty members are using the Internet to coordinate the development of proposals for research in population development and environment among themselves. This is another solution to the university's problem of providing Internet for the faculty members.

As to the issue of DI's web site information not being found by any search engine, Ms. Crow suggested that if the main university web page has a reference to their Institute, a quick and easy solution would be to provide a hyperlink with their IP address. To underscore this issue, Mr. Johnson added that it really does not matter whether your web address (URL) is a number or not. If the Institute has a hyperlink in another page people do not care about the details of that address. They will merely click on the link which says for example, "Demographic Institute UI", and if they are interested, will bookmark the page.

Mr. Hull remarked that the discussion was becoming more complex because in the development of some of these web sites the pages may be developed but not actually released. Thus, from the viewpoint of the Institute, they have a page but nobody can access it. In addition, for as long as the web page is "in development" outsiders are not going to see it. The lesson seems to point out that the Institute develops the web page first and then makes it available for others to examine.

Mr. Hull also called attention to the sheer quantity of research centers that may not have a web presence. Indonesia as Mr. Miranda pointed out, has two major population research institutes based in the universities, and a third one. Among these three, they have twenty-five to thirty PhDs, a valuable resource that one would like to have access to. However, it was difficult to find these top three Indonesian research centers. Yet, these three centers are in fact, part of approximately a hundred research centers in Indonesia if you were to include the Women Studies and Environmental Studies Centers that often do research on population. In the end, there may be thirty important research centers scattered throughout the Indonesian archipelago that have information that you are interested in. To put the problem in perspective, the three major research centers that we cannot find are sitting on top of thirty that we cannot even "see." This opens the larger issue about the web presence of a large number of research institutes, as Indonesia - like the Philippines and Thailand - have many population research centers that do not have web sites. Participants must therefore remember that while they are an elite group, they should be aware of the large number of research centers that need to be incorporated into any effort to set up a network of population research centers. These constitute a significant group of people who are funded by governments to undertake important research for policy and planning purposes.

7.7. International Institute for Population Sciences, Deonar, Mumbai

by Mr. C.P. Prakasam

The International Institute for Population Sciences (IIPS) obtained the status of "deemed university" on August 15, 1985. IIPS is composed of three major groups namely, the student population, faculty, and administration. The entire faculty and most of the administrative staff have been allocated computers. Ninety percent of the computers are either Pentium IIs or Pentium IIIs. IIPS is slowly providing the rest of the administrative staff with computers. Down the line, the rest of the computers are 486s.

IIPS has two hubs of information, the Data Centre, and the Library. The Data Centre has one Windows 2000 server connected to the Internet through the proxy server. The IIPS Library on the other hand, has a Windows NT server also connected to the proxy server. The Data Centre consists of thirty computers for use by IIPS students. Those computers have the capability of either accessing the Internet for e-mail or browsing, which is a free service to the students. The connection to the Internet is via dial-up connection with a 56 Kbps modem connected to the LAN serving the Data Centre and Library.

The line drop-out frequency is minimal. Usually, it is possible to go for about one and a half to two hours in a stretch. If the line drops, an auto dialer program enables reconnection with a click. Faculty staff, who have their offices in different locations, have their own computers. All senior faculty members have been given a direct telephone connection as well as an individual e-mail address. The IIPS library is also connected to the Internet; library data can be accessed through the LAN.

The URL of IIPS at present is not in the format of www.iips.edu. The web site is stored in the 2 Mb server space provided by a local ISP, at no extra cost with the e-mail account. IIPS uses that limited free space to store its home page, which the Institute can edit directly. Since IIPS is also member of the United Nations POPIN network, it has been allocated space on the Asia-Pacific POPIN server run by ESCAP. While this space is not limited in the same way as the space provided by the ISP, the Institute does not have access to it directly for updating pages. Web pages are thus prepared by the Institute and mailed to ESCAP, where the Asia-Pacific POPIN services does the uploading. This procedure started in 1996 and has been followed up to 1999 for annual updates. The home page on the local ISP's server has links to the information existing on the POPIN server. IIPS is considering the option of increasing its storage space on the ISP's server to 20 MB, but it is relatively expensive (about US$100 a month). Cheaper space (perhaps US$ 35 a month) could be purchased on advertisement-based hosting services, but users would need to put up with the distraction of advertisements and pop-up banners.

In terms of training for Internet skills at the Institute: for the student population, IIPS has introduced about ten hours of classroom lectures on the Internet, providing instruction on how to access and use the web, open e-mail account, etc. For the faculty, no short-term training courses have been arranged; however, the Institute is now planning a five-day course on the Internet, that will be offered soon. IIPS also plans to train other population centers on POPIN-related activities. This is envisioned to be a separate course on the Internet, on a payment basis, that will enable those population centers to improve the quality of their web sites.

At IIPS, ninety percent of the faculty and staff know how to access the e-mail and surf the Internet. Students planning to attend the PAA Annual Meeting, for instance, download the application form from the PAA web site. While faculty members have their own computers and connection to the Internet, their technical skills have to be improved, for instance regarding how to upload their research papers. There are only four persons in the entire IIPS who have the skills to prepare a web page using HTML. Others use the facilities of MailCity or GeoCities where writing a web page is much more simplified.

Overall, the Institute sees some tangible benefits from the Internet. The Internet has been a source of excitement and motivation for the students, now that they have the skills to make use of it. In addition, the Institute benefits from the valuable research resources available through the Internet. For example, since IIPS is a member of the POPLINE support center, many of the students visit the POPLINE web site and obtain the full text files of the articles that they need for writing their research papers. IIPS feels that although the in-house training program is a good beginning, there is a strong need to enhance it.

The main obstacle faced by the Institute is the lack of connectivity of individual computers to the Data Centre/Computer Centre and Library, which are in separate locations from the main building. This is going to be addressed with the installation of a fiber-optic cable in their campus network. Moreover, IIPS will soon get an ISDN connection, possibly already in January 2001. With the completion of the campus network cabling, IIPS will be able to connect all of its computers.

With the development of its Internet infrastructure, IIPS clearly realizes the need to accompany this with enhanced in-house training programs and the incorporation of an Internet related course in its Master's of Population Studies program.

The equipment and software of IIPS are purchased on the Institute's budget and if proper administrative procedures are observed, the requisition is usually approved. All the software used at IIPS is licensed software. The Institute pays for multi-user licenses, for example, for 20 or 50 users.

Another major problem faced by IIPS is the limited server space provided by the Institute's present ISP, which is an obstacle to the development of a full-fledged web site. Even the envisaged increase to 20 Mb would be insufficient for that purpose. For instance, the IIPS library is an important information source, with its collection of approximately 66,000 books, 8000 reprints, and over 1300 journals. However, making the catalogue accessible on the Internet would require an enormous amount of storage space. The Institute envisions a web page for acquisitions lists, for example and ultimately it would like to develop a "virtual library." Nevertheless, this requires the acquisition of skills to put up information on Internet; fast servers, and the necessary software. In this connection, the necessity of arranging user oriented training programs at regular intervals is emphasized.

IIPS does not have a specific web committee. The Director is fully supportive of the Internet-related initiatives and activities, and these follow the guidelines set by the Director.

Discussion

Mr. Miranda remarked that contrary to the case of Indonesia where there was a web site that could not be found, in the case of IIPS there were at least two that could be found by search engines. He surmised that the Institute over the years may have created various websites, which were subsequently abandoned but not deleted. Unfortunately, that site may be the one to which search engines will point when people search the web for IIPS. It will not be immediately apparent that the information that one sees is very old and has not been updated. He recalled that the first e-mail sent to IIPS informing the Institute about the United Nations plans for the workshop was sent to someone who had already retired.

Mr. Prakasam explained that they started to collaborate with POPIN in 1996; according to the agreed procedure, IIPS sent its information based on the Director's annual report in subsequent years. The confusion results from the fact that other old home pages containing faculty information of earlier years still exist in POPIN. The same applies to old information regarding activities and courses of IIPS. Therefore if one browses POPIN, one finds the current page of IIPS, but its links will continue to refer to older pages of information on the POPIN server. Web pages of IIPS hosted in POPIN, unfortunately, cannot be directly edited.

Mr. Prakasam believes that this scattering of pages can be resolved and consolidated once the Institute gets its own IP address (such as www.iips.edu) with sufficient space, something in the range of 20 to 30 Mb. In this way the Institute can directly add, edit or delete the web pages and keep the information current. However, to overcome this problem of several pages of information from various years existing all at the same time, he has created an archival resource list in the form of an information CD that can be used off line. This information CD provides separately the specific Institute information for the years 1996, 1997, 1998, and 1999. He is preparing the information for 2000 now.

Ms. Crow suggested that instead of deleting the older pages it would be better to put a redirection on it towards the new address and an automatic redirection that takes them there. In that way users go there and note the new address.

Mr. Prakasam replied that he could not do this at present because of the 2 Mb space limitation in the ISP-provided server space. Thus, if you click on the course work for 1996, there is a hyperlink to the old home page of 1996 courses that is hosted in the POPIN site. The same is the case for 1997, 1998 and so on.

Given the technical nature of the issue, the chairman suggested that it should be further discussed with the resource persons in order to find a suitable solution by the end of the workshop.

7.8. Institute of Population Research, Peking University
by Ms. Zheng Xiao-Ying

Different departments of Peking University have their own computer laboratories. The Institute of Population Research (IPR) used to have a big computer lab that was supported by WHO when IPR was designated as a collaborating research center in 1991. However, as financial support ended in recent years, this laboratory became progressively smaller and it now has only ten computers. All researchers at IPR have computers, but some are privately owned by staff members and kept at home. Not all researchers can use computers at the Institute because there are not enough computers.

One third of the faculty have access to the Internet at the Institute. The reason for the limited number is not because of technical reasons, but because the Institute does not have sufficient funds to pay the high monthly fees to connect to the Internet. There is no charge for sending e-mail either to local or international addresses. The service is connected through the campus network via a fiber optic cable. The service is free for the staff but a small fee is charged for receiving e-mail messages. However, connecting to the web is very expensive.

IPR does not have its own web site, separate from the university. Instead, its web pages are included in the web site of Peking University (PU), and can be accessed from a link on the home page of the PU web site. IPR has received strong technical support from the University for the creation of its web pages. IPR cannot host their own web site as budgetary constraints make it difficult to purchase the necessary hardware and software. The Institute has applied for both international and University financial assistance so that it can host its own web site. The estimated cost is US$ 20,000. Given the strong technical support provided by PU, the Institute has not assigned anybody to be responsible for its web pages.

Both faculty and administrative staff have e-mail accounts. There are no training programs for Internet skills now, although few of the faculty members have sufficient knowledge to make full use of the Internet.

IPR receives plenty of e-mail messages of a general nature. There is one person assigned to check this type of e-mail. The Institute has several e-mail addresses linked to a function or service rather than a specific individual, such as, for instance, the library, the director, the computer lab, and the administrator. Only few people use Chinese characters in e-mail because of the additional charge that the Institute has to pay for this.

Discussion

Mr. Miranda asked why the IPR could not have a set of pages to work as a web site for their Institute. In his view, the explanation that the Institute did not have the hardware to host a web site was confusing. There is no need for a server to host those extra pages, if IPR has a page in the university web site. He surmised that the reason must be related to some other difficulty not the mere absence of a piece of hardware.

Ms. Zhang explained that while other academic departments can have their own address in the regular http format, IPR could not do that because the population research center is considered differently from other academic departments in the

university. That is why their http address is an extension of the Peking University academic address. The reason IPR needs its own server is not only to have a short URL address, but also to be able to share its resources, like reports and analysis of the new Fifth National Census of China.

Ms. Crow indicated that IPR should be able to have a site name registered for users to go there directly, even if it is a subset of the university web site. This requires just a change in the DNS (domain name system). She reinforced Mr. Miranda's point that the IPR may not necessarily need additional equipment to host its web site. It might just require a change in the DNS file on the main server.

Summation of Roundtable:

The chairperson summed up the day's sessions by saying that an important theme in the presentations was that all of the Institutes were facing some type of constraint in reaching an adequate level of Internet connectivity. In all cases, the Internet is being used increasingly in many aspects of population researchers' work, but everyone would like to have improved access to e-mail usage, Internet searching and downloading of material. The presentations have also signaled other issues that would need further discussion, such as:

- How to communicate information effectively and - most importantly- how to achieve a two-way flow of information. A number of examples had been given to illustrate the potential for creating frustration among users because of faulty design, a point magnified by inadequate equipment and unreliable connections prevailing in most parts of the developing world. There is need therefore to incorporate features in design the web site that allow users to send suggestions or complaints. In addition, this should be backed up and fully supported by an institutional policy to answer all messages. If the volume of messages is high, the web site can incorporate an automatic reply that immediately sends an acknowledgement and a promise to answer the e-mail in due time.

- A number of presenters indicated interest in providing information to the world, such as the new census of China, population information of Nepal, Indonesia, and others. There should be further consideration of the format of the information put up on the web site, in terms of efficiency of transmission, integrity in the appearance at the receiving end, and availability in various formats for end users who want to work with the data. Interested participants were advised to tap the experience of the resource persons to get advice on issues of comprehensiveness in data presentation, comparability of data, and suitability to the range of analytical software packages that may be available to end users.

- The issue of expert assistance as it relates to demographers' use of the Internet. Population Institutes are well behind in this technical area, whether compared to Information Technology specialists or hackers who design malicious viruses. In addition to the ever present and evolving threat of viruses, there are also annoyances such as virus hoaxes and unsolicited commercial mail (spam). Using expert help is important, but everybody should acquire a basic understanding of the issues involved. All demographers who are not experts on IT should work closely with IT colleagues to learn about this new technology.

- Property rights in terms of the content of the web sites. Participants were reminded that the people who invented the Internet were anarchists. As such,

they did not want anybody to own the Internet. However, in reality, ownership issues come up whether it is in the form of advertisement banners flashing on web sites (e.g., the DEMONETA web site) or the rules and regulations set by university administrators that govern certain aspects of web site creation and management (e.g., the case of IPR). In a sense, these are forms of control that deal with ownership of the site and the type of information flows permitted.

- An attendant issue to ownership of contents is the tendency for plagiarism to increase among students in the writing of essays, as information becomes easily accessible in the web (e.g., electronic journals). As teachers, we should be concerned about the real possibility of our students getting through their classes without learning anything other than cutting and pasting. Mr. Hull cited the case of ANU, where the faculty is calling for students to be subject to orals not just on their thesis but on their term papers too, in order to ascertain whether their paper was truly a product of their own thinking. Web sites, particularly those set up for information about teaching programs, should include a statement about the university's policy towards plagiarism. These issues dictate that we should reflect on the value of learning to critically read the information available in the Internet and its implications for our work and the way we communicate our work to others.

- There is a need to consider the basis for the proposed collaboration of the eight institutions that are participating in the workshop. Institutions must be able to collaborate to avoid unnecessary duplication of activities either among us or with other academic groups working in similar fields. This is one of the challenges in creating a network without unhealthy competition getting in the way, in a very complex region and field of study. The chairperson urged the participants to be aware of this, to ensure that the decisions made in the workshop build a strong network rather than building in weaknesses through redundancy or competition.

Mr. Miranda's Comments on the Summation:

Mr. Miranda related the experience of the United Nations Population Division to illustrate further the implications of the Internet for our work. When the Population Division created its web site, an e-mail feature was added on the home page. Although there was no explicit encouragement for people to write to the Division, in fact, given the high visibility of United Nations institutions, it resulted in hundreds of e-mails being received every week. Some were from serious users that the Division would want to respond to, but many were from school children and students who wanted us to help them with their homework (or do their homework for them...) In any case, the volume was far more than could be handled in a meaningful way by the office. In hindsight, this situation reflected the failure on the part of designers of the web site to think in terms of institutional issues. One can simply not have a system with one high-tech end that makes it possible for millions of people to write to you by pressing a button and a very low-tech end where messages are read and processed individually by a staff member. Obviously, some kind of automatic filtering and answering was required. Eventually, the office decided to remove the e-mail link until such automation could be implemented.

In retrospect, Mr. Miranda noted that while this was the Division's institutional response to the problem, it was not however the institutional response that they would have liked to have. There is need to seriously think through the implications of what we offer the public on our web sites – if we are successful in creating a demand, how are going to meet that demand? The way the work in our offices may have to be to some extent reorganized in order to respond to the new situation. In the case of the Division, there was a double challenge: to automate the process of filtering e-mail, so as to as to minimize the need for human intervention; and to redeploy human resources to handle substantively the added volume of mail representing queries that were worth a response. None of this being feasible in the short term, the only solution was for the Division to retreat and make itself less accessible. The moral of the story is therefore - *what may appear simply as an extra link in the web page can in fact have a profound impact on the organization of work in the institution.*

8. What can the Internet do for demographic research?

8.1 Part I. Presentation of relevant Internet based resources

by Mr. Peter Johnson

Why do we want to go on-line?

- To disseminate data and information to the public, government agencies, and other research institutes.
- To receive feedback from people. You take a risk exposing yourself on the Internet but by encouraging feedback, you are better able to improve your products and meet your target group's expectations.
- To achieve cost savings in terms of publication and mailing of documents since files are freely available for people to download. To the extent that it saves on cutting down trees to create paper, the Internet can be considered a more environmentally friendly medium for dissemination of information.
- To make time-sensitive data (e.g., statistical data) instantly available. People can get results from the Internet very quickly and simultaneously. Compared to the old FaxBack methods, where the volume of transactions depends on the number of telephone lines available, with the Internet, people can be viewing or downloading the same document at the same time.
- In the field of international population research, or anything that is of global interest, time is not important in terms of where the information is obtained (assuming servers are running 24 hours a day).

What do I need to do this?

- A computer to develop the web page, web page software, a server to present this to the world, web server software and Internet connection.

Where are these located?

- With the price of PCs going down, there are probably enough computers in our offices or computer to allow us to develop the web page locally. The web server may be our own located in our office, or maybe the university's where we are allocated some space. We may also choose a commercial site or an Internet Service Provider (ISP).
- One advantage about the Internet is it doesn't matter what type of server you have as long as you can make changes to your page and people can find your site.
- The Internet connection is made through an ISP. Everyone who wants to have a web presence needs an ISP to connect them to the network. Even the USCB, which is a huge organization and whose web site contains thousands of pages, has an ISP.

Who do I need?

- Developing a good web page requires a series of people. These are content specialists, web designers, database administrators and a webmaster. Content specialists are the researchers, or in terms of the participating groups in this workshop, demographers. Web designers are those who know html or whatever programs are used to design a web page. If you are developing an on-line database, you need a database administrator – someone who is in charge of the database, who understands how to design queries so that users can ask questions from the database. A webmaster is a term used broadly to designate the technical

person responsible for ensuring the Internet connection, setting up firewalls, user accounts and controlling access.

- The same person in the case of a very small operation can take these four different responsibilities. Or the same person can be in charge of any two areas of responsibility. The important point is the need for constant interaction if different persons handle these responsibilities. If the content specialists are not skilled in designing a web page, they have to make sure that they communicate well with web designers or database administrators so that when the page comes up on the Internet, another demographer can look at it and clearly understand the contents or find the data they are looking for.

How do I put information on the Internet?

- Some people put the document on the floppy disk and into the machine that puts it on the Internet.
- If you are part of a LAN, you can use the LAN to transmit your page to the web site.
- FTP – File Transfer Protocol. This piece of software allows you to transfer files from your local computer to the web server wherever it may be physically located (it could be halfway around the world).

What format should I use?

- If the document is in a Microsoft Word **.doc** file, some users may not have Microsoft Word. For alternatives, create the document either as a text file, an ASCII file, an HTML file or a pdf file.
- If a database is created, there are many ways to do this. The main approaches are, first, a web enabled data system using Oracle or Access software, second, using uses a conversion by CGI or Common Gateway Interface.
    - *Web enabled data base system.* The USCB web page has the American Fact Finder (http://factfinder.census.gov) which is an Oracle application. Most of the results of the US 2000 Census are basically going to be distributed through this database. Some of the web enabled systems may be much easier to design and use, depending on your server. The disadvantage of using Oracle is that it is expensive.
    - *CGI.* The original design program that delivers content or pages on the Internet. The USCB developed the international database in its web site (http://www.census.gov/ipc/www/idbnew.html) using this system. If money is an issue in your organization, depending on what your application, CGI might be a good alternative because it is one of the many free resources in the Internet. The downside in using CGI is having to find a computer programmer to develop CGI based applications that runs on the Internet.

When do I do this?

- Client connections – if your target group does not have computers with Internet access then going on-line would not make sense at that particular time. You have to make sure first that your customers are web enabled.
- Security Issues. This relates in some ways to the costs of buying firewalls or protective software for your server. Also, this relates to making sure that you have adequate resources to monitor your system, that it is working properly, and any hacking attempts on your system are immediately caught the moment it occurs.

- Confidentiality Issues. If you were a census office or a statistical office, confidentiality refers to making sure that individual responses to the census are not revealed. Another issue involves privacy issues such as when web sites track information about their visitors. Most web site software automatically captures some information about their users, and depending on how you set up your system, you can capture other pieces of information using cookie files to track users of your site. You have to determine whether that makes users uncomfortable and whether there are specific laws in your country that deal with this.

Demonstration

- When saving a document (with a graph) originally created as a Microsoft Word **.doc** file as a text file (**.txt**); the graph does not transfer properly when the text file is read from a browser. However, if the Word document is saved as a web page html file, the file opens up in the browser pretty much the same way as it looked in Word.
- If a fifty page report in Word is saved as an html file, this will appear in the browser as a very long page that you have to scroll down many times. Moreover, if it was printed the page breaks may not occur at convenient points. One alternative is to break the long page into shorter pieces. Another web page is created that serves as a table of contents and the individual chapters or sections are designed to be hyperlinks to corresponding pages. The other approach is to create a pdf file.
- PDF files. It is important to remember that while pdf files can be *read* using the freely available Acrobat *reader*, one has to purchase the Acrobat software that can create (*write*) pdf files. If your Institute puts out a lot of reports, buying the Acrobat software makes it worth the investment. (An on the spot survey revealed that only one out of the eight participating institutions at the workshop had the full version of Acrobat).
  - The conversion process in Acrobat involves converting the file to one that is sent to a virtual printer.
  - It is important to check your final pdf file to make sure that page breaks and cross references between pages translate properly.
  - If you are producing both hard copy versions and pdf file versions, it is strongly recommended to create the hard copy for publication from the pdf file to ensure the pagination remains the same in both versions.
  - Sometimes the colours and shading in the graphics (e.g., charts) do not transfer properly. PDF files with graphs that work well in solid colours when viewed on screen, oftentimes get enough contrast when printed in black and white to be able to distinguish among different colours or one set of bars from the other. But it is also possible that some hatch patterns do not translate into pdf file. The first time you make a conversion from whatever software package to pdf it is important to examine carefully that the results are translated faithfully. Furthermore, it is advisable to review it using the Acrobat reader to make sure the document appears satisfactory to people who are either just viewing it or downloading the file to print. Moreover, one needs to check how the actual printed version looks like.
- *FrontPage Express* software for creating a web page. It is basically a WYSIWYG (*what you see is what you get*) type of operation, similar to Microsoft Word. You type things in, make some words bold, move them around, insert graphs, and create links to other page.

- If the software used to create a web page can not do what you want (e.g. such as fitting all the lines of a page in one page), knowing some html codes can help you make some adjustments that will make it the page fit just the way you want it.

Demonstration of Application Programs using the U.S. Census Bureau web site

- Examples from the USCB web site were shown to illustrate the use of application programs to create databases. In the international database, a separate ASCII file for each country summarized demographic data, and then a PERL script language created the page that displays the data according to the country selected. PERL software is also freely available in the Internet. Recently, the script was updated to give the option of displaying the population pyramids.
  - In displaying information for on-line access, it is important to give users choices. This aspect is especially important for users who want to use the data. In the USCB example, this includes display options, output options and user configurable options.
  - For population pyramids (http://www.census.gov/ipc/www/idbpyr.html), the user can pick a country, a summary of graphs for selected years, or chose the dynamic version. The script to generate the graphics is also written in PERL. There is a choice of three different sizes, so that for those with a slow connection, users can select the small graph for faster download. Since the introduction of dynamic graphs, the web site averages 3,000 requests per pyramid per day or an average of about 30,000 individual pyramids (the dynamic pyramids consist of about 10 to 15 images). In October alone, the USCB web site generated about half a million pyramids. The lesson here is that if you are interested in attracting people to your site, you need to think in terms of what it is that you have that will attract people to your site. Once you get their interest, they start looking around for other things.
  - How does USCB handle inquires or requests? There are two approaches: first, send an e-mail reply recommending a particular site/s that may provide a lead for the answer to the particular question; second, for requests of particular types of data, or answers to particular questions that USCB doesn't have a web page yet to refer to, the Bureau has developed a series of canned responses (e.g., in reply to such questions as "how many people have ever lived in the world?").
- Thematic maps in the American FactFinder page (http://factfinder.census.gov/servlet/BasicFactsServlet) and population clocks (http://www.census.gov/main/www/popclock.html) were demonstrated. The emphasis in the demonstration of these applications is that there are many resources (e.g. CGI, PERL, Java) available free of charge in the web. However, they have a cost in terms of hiring a programmer who can write programs in different languages.

Discussion:

Mr. Hull asked about the value of having multiple versions of features like population clocks. In India for example, there may be fifteen population research centers. If each of them make fifteen different estimates of fertility rates for all the states in India, are they performing a useful service? Mr. Johnson replied that this is useful in terms of the dialogue and discussion that it generates. This helps in arriving at some form of convergence or agreement about the actual situation in these countries.

8.2 Part II. Presentation of relevant Internet based resources

by Ms. Diana Crow

What can the Internet do for Demographic Research?

- ***Provide easy access to searchable catalogues of resources.*** First category of catalogues are directories.
  - *Virtual Libraries*. Examples are Demography & Population Studies Virtual Library (http://demography.anu.edu.au/VirtualLibrary/), the Social Sciences Virtual Library (http://www.clas.ufl.edu/users/gthursby/socsci/), and the Asian Studies Virtual Library (http://coombs.anu.edu.au/WWWVL-AsianStudies.html). Each has the facility to send feedback and corrections. All the virtual libraries should have a link to the full list of virtual libraries so that you can find one that is most appropriate to your needs.
    - Top level coordination of all the virtual libraries is undertaken by a body called W3C – the World Wide Web Consortium at (http://www.w3.org). The W3C puts out a series of recommendations, guidelines and standards for running a virtual library. It is a very vocal and active community.
    - Note: At the Demography Virtual Library of the ANU, there is a section that contains the papers presented by demographers at ANU at various conferences around the world. This can be found at (http://demography.anu.edu.au/VirtualLibrary/Conferences.html). If any participating institution in the workshop plans to put up a page of similar papers, they can e-mail Diana Crow the top level address link and she will put up a link to that page.

  - *Search Engines*. There are plenty of commercial sites that search for information and catalogue them in their databases. By and large these sites do not maintain their own staff of specialists in different areas but they have facilities to update information regularly on particular topics. Examples: Yahoo- (http://www.yahoo.com), Lycos – (http://www.lycos.com), AltaVista – (http://www.altavista.com), and Google (http://www.google.com). In order to improve your web site's visibility you can do so by registering your site to a number of these search engines.
    - Webcrawlers – search engines that go through the databases of several commercial search engines sites. Examples: Go2Net- (http://www.go2net.com/), Highway 61 – (http://www.highway61.com/), and Inference Find – (http://www.inferencefind.com/).
    - Custom Built Search Engines. You can write your own search engines specific to particular field, like demography using a program called HTDIG. This is a free product available in the web. HTDIG is a complete world wide web indexing and searching system for a domain or intranet. It is meant to cover the search needs for a single company, campus, or even a particular sub section of a web site. This software is available at (http://www.htdig.org/).

  - *Other Sites*. There are also plenty of other sites that function as catalogues of resources although they are not virtual libraries. They may be a subset of a web page as in DEMONETA (http://demoneta.multimania.com/linklink.htm) which contains lists of various useful links. The links page of DEMONETA for example has a link to NIDI - the Netherlands Interdisciplinary Demographic Institute (http://www.nidi.nl/links/nidi6000.html) which has over 500 links.

- ***Provide access to data and papers in standardized formats***. Standardization makes it easier for everybody. However, it is important to remember that standards in the Internet are still evolving. For this reason feedback is very important. Informing web sites about your specific data needs will enable them to come up with better all around standards for various types of users.
  - *Bibliographic databases*. Examples of searchable bibliographic databases are POPLINE, MEDLINE, JSTOR, etc.). However, some like JSTOR work only in an intranet basis if your institution has a subscription.
  - *Statistical databases*. Examples are: Social Science Data Archives (http://ssda.anu.edu.au/) – it even offers to post your database, USCB (http://www.census.gov), ABS – the Australian Bureau of Statistics (http://www.abs.gov.au).

- ***Facilitate professional contact between individuals/organizations***. The Internet provides a very useful facility to bring academic colleagues closer together. This can be done both at the individual or organizational level.
  - *Address lists*. For example the IUSSP - International Union for the Scientific Study of Population (http://www.iussp.org) and PAA - Population Association of America (http://www.popassoc.org/) have address lists which are found on their web sites. However, IUSSP membership is searchable by members only.
  - *Individual contact page*. Most web sites have a contact page. This is necessary especially for organizations in order that they can be contacted for information about conferences, submissions of papers, publications, etc. It is generally advisable to have a generic contact e-mail address particularly if the organization has a high turnover of staff. People behind them can change but the web page does not have to catch up changing the e-mail addresses every time there is a change of staff.
  - *Discussion forums*
    - *Mailing Lists* help you collaborate with your colleagues in other countries. The ANU for example has organized the Demographic-list (demographic-list@coombs.anu.edu.au), there is also a census analysis mailing list based in the UK, and H-DEMOG, the history of demographic mailing list (http://www2.h-net.msu.edu/~demog/). You need to subscribe first before you can participate in these mailing lists.
    - *Chat Rooms* - Yahoo, and IRQ. From the point of view of collaborating with your colleagues, one can actually set a private chat room that only activates when people you want to talk (through a prior registration) log-in to it. However, the mailing list gets much more used than chat rooms because of different time zones.
    - *Videoconferencing via the Internet*. This can be done but such means of communicating requires expensive high end equipment, not 486 machines.
- ***Makes it easier to acquire old style reference material***, such as purchasing books on-line from sites such as Amazon – (www.amazon.com) and Barnes and Noble - (www.barnesandnoble.com). Mr. Miranda informed the participants that if their web site promotes Amazon by providing links to Amazon in the web page, they can get a commission for purchases made through the link in their site. (You must first register your site with Amazon as an agent). Also, if the Institute has publications with an ISBN number, these can be added to the titles in Amazon's index. These are a few small ways for Institutes to earn additional income.

- ***Cautionary Notes:***
  - *Viruses*. Mr. Miranda remarked that one is not *normally* at risk just by reading an e-mail. A virus is usually a program that needs to be executed before your computer is affected. The risk normally occurs when you open an attachment, because the program may be sent in that attachment. These attachments usually have names that entice you to open them. If you receive suspiciously named attachments like "my cv" "your bill" "me nude", these files may be a vehicle for a virus. The rule is: ***never open an attachment if you don't know the person sending you that attachment or if you don't understand the context of the message***. Even if you know the person, you have to make some judgements as to why someone would send a suspiciously named attachment. The best response is to go to Internet anti-virus web sites to find information, such as the Symantec Virus Encyclopedia site (http://www.symantec.com/avcenter/vinfodb.html) to check whether the name of the file attachment is indeed a virus that has already been identified. In addition, the anti-virus software should be set to scan attachments on incoming mail.
  - *Virus Hoaxes* These are messages that usually perpetuate a false virus alarm. You can check if the virus alarm is real or imagined by consulting web sites specializing in virus hoaxes such as, for example: http://www.symantec.com/avcenter/hoax.html. If you receive a message alerting you about a virus – particularly a message that asks you to inform all your friends - do not forward it to anybody without first making sure that it is not a hoax.
  - *Anti-virus software*. Make sure you switch on the options to scan ***all*** files when you do periodic scans of your hard drive and, automatically, any time a file is opened. Most importantly, your anti-virus program will not be effective unless you update regularly the virus list file. Updates of the virus file can be downloaded normally free of charge from the anti-virus software company's web site.
  - *Spam*. Usually in the form of advertising material sent out to as large an audience as possible. Best dealt with by server software.
  - *Hacking*. Once you are connected to the Internet, your web site is at the mercy of a good hacker. Make a password to your system or account that is difficult to guess by a password hacker program, and change it often. Moreover, make regular backups of your files, in case it is hacked and modified, or the system crashes.
  - *Security watchdog advisories*. Make sure your webmaster keeps track of advisories and stays in touch with Internet organizations that focus on security issues. These are for example AUSCERT – Australian Computer Emergency Response Team (http://www.auscert.org.au/) and CERT (http://www.cert.org/) (US). These organizations help the Internet community to deal with computer security incidents and their prevention, provide incident response services to sites that have been the victims of attack, publish a variety of security alerts and information, and training to help improve security at your web site.

9. Cutting Edge Applications: The experience of Statistics Singapore in using the Internet in the context of a population census

by Mr. Kenneth Goh

Background

Singapore had been conducting a full-scale census up to 1990. However, in the 1990s there were two major trends that made the prospect of conducting a full-scale census in 2000 an increasingly prohibitive undertaking. These were the growing databases in various government ministries and the escalating costs of labour. Given these conditions, Statistics Singapore (SINGSTAT) decided to set up a large database of every citizen and foreign resident in the city-state using information from various databases. This database is called the Household Registration Database (HRD).

The planning for the 2000 Census began in 1998. At that time SINGSTAT expected to utilise the HRD and do away with a full-scale census. Singapore would then be the first country outside of Northern Europe to conduct a register-based census (RBC). The plan was submitted to Cabinet and subsequently approved. However, the Census would collect information on detailed characteristics of the population such as mode of transport, occupation, religion, etc., which are not found in any database. In collaboration with academics from universities, SINGSTAT decided that a twenty percent (20%) sample census enumeration would be sufficient. This translated to around 200,000 households or at four persons per household, 800,000 people.

How to collect information from this sample of 200,000 households in a very quick manner presented the biggest challenge. Given the shortage in manpower, SINGSTAT decided to conduct the census using a multi-mode (tri-modal) approach. SINGSTAT decided to be at the forefront of the digital revolution by including the Internet as a viable option. It had already built up some experience when it developed an Internet data collection system in 1998 for the business expectations survey (BES). At that time the environment was already suitable for Internet data collection not only because of widespread use of the technology but also of Singapore's world class telecommunications network. Other modes were the computer assisted telephone interviewing (CATI) and fieldwork interviews for those who did not want to use the Internet or call in to the CATI center.

Although the census reference date was on June 30, 2000, the collection and processing of information spanned the months from April to September 2000. The speed at which the census was conducted and processed can be attested by the completion of the quick count of population at the end of August and the actual release of several reports on Literacy and Language, Religion and Education profiles.

In launching the first generation electronic transmission of returns (the ETR) SINGSTAT obtained both tangible as well as intangible benefits. This included improved operational efficiency and effectiveness as well as reduced manpower requirements. Much experience was gained in developing the first generation ETR especially with regard to system design and integration, and respondent behaviour. In the 3rd quarter of 1999 SINGSTAT developed the survey answering guide expert (SAGE), a second-generation system. In April 2000 SINGSTAT launched the census Internet data collection system called the ESS or *electronic submission*

system. This is essentially a multi-mode data collection approach that necessitates proper integration with other systems.

Considerations in designing the ESS

- *Centralised versus Decentralised design.* The census had a wide coverage and there were fifty-five (55) data items to ask, many of which were interrelated. Thus, a very conscious decision was made to develop a dedicated (centralised) system for Census 2000.
- *The web server and the kind of security measures to be taken.* The web server is the heart of the Internet data collection system. When the public access the server through their login name and password, the individual household is already able to extract some of its information (from the HRD) such as name, identification number, date of birth, etc. It is very important that the right household extracted the right information otherwise the agency will be penalised under the Census Act. Given the potentially high risk posed by hackers, the web server security had been enhanced to protect the confidentiality and integrity of the data. The server was "hardened" by installing all new security patches from the vendor. Moreover, third party security tools were utilised to provide additional security over and above the standard features.
- *The firewall.* The purpose of firewalls is to control network traffic. Should there be one, multiple firewalls or none? Data storage, coding and verification were done on a backend database located in a separate internal server. This feature was designed to prevent hackers from reaching it in the event the web server was compromised. The internal server is protected by multiple firewalls.
- *The need for encryption.* The Internet is an open network and is therefore vulnerable to "sniffing." Sniffer programs are used to eavesdrop on all traffic into the web server. To thwart this, data is therefore encrypted and submitted directly to a back end database.
- *Other considerations*:
  - *Speed versus Features.* It is attractive to have many features but the more features built in the slower is the speed.
  - *To have a "save as" draft function.* This is important because the respondent is unlikely to complete the whole enumeration in one session if there are many members in the household.
  - *Cater to Internet traffic patterns.* The system must be able to scale up or scale down easily.
  - *Verification checks.* For example, when the submit button is clicked, a screen appears with URL links to part of the census forms that are still incomplete or where inconsistent entries were made. There are built-in simple checks, for example, if age is under 10 there should be no fertility questions, if the respondent enters in some numbers, the system will give an error warning. However, there is a limitation to the amount of verification checks put in place because it slows down the system.
  - *Application must be able to handle drop carrier situation.* This means that if anything happens while the user is entering data such as losing server connection or power outage, the system must be robust enough so that the last page submitted is saved. This saves the respondent the trouble of entering everything all over again.
  - *Compatibility.* This means making sure that the ESS is compatible with as many hardware configurations as possible. However, there are again limitations on this based on costs. To address this, the 80-20 rule was

applied, that is, cater to the majority (eighty percent) of the users since catering to the remaining twenty percent (the power users and niche software users for example) will make the project no longer economically viable. Thus, the ESS was designed to work only with PCs running Windows with either Internet Explorer or Netscape. Niche systems like Mac and Linux are not supported.

- *Hotline to handle questions.* A hotline desk was made available from 9 a.m. to 10 p.m. everyday including Sundays and public holidays. In addition to the normal hotline staff, senior staff were also on standby to explain to power users why their niche systems were not supported. These types of questions were beyond the ability of normal technical help. The senior staff also advised and encouraged these users to submit via other modes such as through CATI or via Windows based PCs.
- *Integration.* Since there were three modes of data collection for Census 2000, SINGSTAT was fully aware that the ESS (through the Internet) could not completely replace traditional modes such as CATI and fieldwork. SINGSTAT had previous experience from trying out CATI during the mini census of 1995. It was therefore necessary that the ESS was fully integrated with other modes to avoid duplication in returns and other logistical problems. Overall, it was found that when given the option of different modes to complete the questionnaire, a significant number of respondents actually opted for multiple modes. CATI provided most of the information. For the remaining data items, the respondent could complete using the Internet rather than wait for the CATI operator to call back. For Census 2000 the method of submission is broken down as follows: 15 percent for pure Internet submission, 60 percent via telephone interviews, 10 percent for fieldwork, and the remaining 10 percent for multi-mode data submission. The integrated system set up to bring about fast and seamless data flow from one mode to another was the Census Management System (CMS). To prevent a breakdown in any part that would affect the entire system, a design principle based on *no single point of failure* backed up with full redundancy was chosen to ensure that the CMS is available at all times.
- *Incentives for respondents to use the Internet.* Since time-based charges are shouldered by respondents, Statistics Singapore devised a raffle of prizes from the IT vendor as incentives to encourage people to use the Internet. The notification letter to households included a brochure informing them of the more than two thousand prizes available. After completion of a successful submission via ESS, a number was generated and entered into the raffle. These incentives applied only for ESS submissions because of the costs.
- *Hackers*. Elite versus "Lusers". The elite group consist of professional level hackers based mostly in North America and Eastern Europe. This group is difficult to stop. "Lusers" on the other hand are amateurs of those who hack for the first time. This second groups is not too worrisome. The IT vendors had advised SINGSTAT of several kinds of attacks.

- *ESS Security Features*
  - *128 bit encryption.* After considering at length the various design alternatives of the ESS it was decided to use a 128 bit encryption.
  - *Privylink challenge, multiple firewalls, etc.* The design of the security system was grounded on a pragmatic approach that basically assumed that all online systems would be attacked. This translated into an emphasis on taking precautionary measures rather than building a so-called impenetrable system.

This required putting in place both an early detection system and a rapid response to all attacks. The ESS is protected by a comprehensive intrusion detection system and an emergency response team is available on a twenty-four hour basis. The team is made up of technical and senior management equipped with pagers and portable phones that were not switched off throughout the whole census enumeration. Procedures for responding to different security level intrusions were in place.

- *System clearance by IT Authority for compliance of security guidelines.* To tighten security SINGSTAT have availed of the services of the government agency responsible for IT in Singapore for consultation and assistance such as conducting scans and simulated attacks before the start of the system. All the findings from the simulations were used to plug security loopholes in the system. When the ESS went on-line from April until it was closed down in September, there were over 100 attempts by hackers. None of these attempts was successful.
- *Progressive removal of completed returns.* Data from completed returns were sent to a backend server that was protected by multiple firewalls.

- *Advantages of the ESS*
  - *More convenience for respondents.* The Internet is available twenty-four hours, seven days a week.
  - *Respondents have greater privacy.* Many respondents chose Internet submission because they found the process less intrusive. This is especially with regard to sensitive questions, like income, occupation and qualifications. Moreover, there is a greater tendency for better quality and more complete data since respondents enter their own data.
  - *Better consistency checks.* ESS is better and more thorough than CATI. ESS data quality exceeds that from CATI because the latter employs part-timers as well as students on vacation, who tend to be in a hurry to enter information. The CATI operator is also not qualified to probe further the linkages of some answers to other questions, something that can be done with the validation checks in the ESS.
  - *It takes 30-45 minutes to complete for a four person household.*
  - *High quality data - 30% completely clean.* Thirty percent of all cases submitted by Internet were completely clean. These submissions passed through the detailed data verification system that consisted of around 500 rules without any need for further human intervention or follow up. While a 30% rate may seem rather low, it is in fact quite high compared to CATI, which had only a fifteen percent rate. For fieldwork where SINGSTAT has used OCR, OMR, and intelligent character recognition, the completely clean cases were only around ten percent.

Another Internet Data Collection System: E-Survey

- The E-Survey is the Internet module of the Survey Answering Guide Expert (SAGE).
- It is a second-generation system that makes use of artificial intelligence. The SAGE is a complete system for survey but it was not used for the Census 2000 because the system was developed late. SAGE has a dynamic form design module that allows users to create web ready forms which can then be uploaded to the Internet for immediate use. Thus, the manpower and

turnaround time to launch a survey with Internet data collection are therefore significantly reduced.

- It has integrated multi-mode data capture capabilities. For example, it would have returns from taxes and other responses integrated in.
- The first system of electronic transfer of returns (ETR) was decommissioned and replaced with SAGE. The limitation of the ETR was that it was not integrated with the traditional modes of data collection. The returns had to be manually integrated. This was manageable for small-scale surveys like the BES (Business Expectation Survey) with a coverage of about 1,250 establishments, but was not practical to do so for a large-scale survey or the Population Census. However, the ETR provided fertile ground for learning and experience for developing SAGE, which was adopted in late 1999 for survey of business and services. SAGE is being used to survey about fifteen thousand firms.
- Advantages of the SAGE: it integrates the Internet, fax and paper form submissions. It is significantly faster and more user friendly than the first generation ETR.

What is the future direction of Internet data collection?

A promising new technology that could be used for fieldwork is WAP or *wireless access protocol* technology. This new technology could solve the logistical fieldwork gap encountered in Census 2000. It could especially be deployed in cases where households have not submitted their returns. In the case of Census 2000, these household forms were printed weekly for fieldwork. Fieldworkers then collect the forms but may not visit the household until two to three days later in which at this intervening period the household might have gone into the Internet to update the information. When the fieldworker goes to the household the household gets very upset over the duplication. With this device, a field worker would have instantaneous updates to the latest information provided by the respondents thereby closing the logistical gap. However, at present the WAP technology is not yet ready for deployment. This is not only because being of the high costs for this new technology but also the speed of access is still very slow (9.6 or 14.4 Kbps), small display screens, limited memory and low processing power for the current first generation of WAP enabled cell phones. However, in the next five years, the technology is going to improve and mature. By that time, SINGSTAT hopes to deploy WAP technology in the 2005 mini-Census (General Household Survey).

Conclusion

- The dawn of the new economy that is increasingly knowledge-based has brought about the need for SINGSTAT to look at new ways of data collection.
- SINGSTAT has learned much from the Internet data collection system that it developed. Overall, it was a positive experience.
- SINGSTAT sees the continued advancement of Internet technology as a great potential for developing more efficient Internet data collection systems.
- With increased Internet penetration, this will ease the burden of respondents. It is likely that the response rate for Internet data submission will continue to grow, as well as data quality and timeliness of data.
- With rapid increases in PC ownership and Internet penetration in Singapore, in the future, Internet submission might overtake traditional modes and

become the main mode of data collection for household and population surveys.

Discussion

- The efficiency of the ESS was underscored by comparing the quick count results. Census 2000 quick count came up two months after the census date. In contrast, the 1990 Census was conducted on a full-scale basis utilizing 4,500 fieldworkers, and the quick count data could not come out until around nine months after the census.
- The quick count came not so much from the twenty percent sample for the detailed characteristics but came from the HRD. In response to the a comment that the speed of the quick count was not really due to the ESS, Mr. Goh said that it was in a way related, although not directly, because they had to wait for the data processing for the twenty percent to be completed to check whether their characteristics were consistent with the entire population. Moreover, the education profile based on the twenty percent sample was released 10th November, or around four months from census date.
- The IT department had projected that sixty percent of the households would be enumerated through the Internet for the 2000 Census. They settled for a more realistic twenty percent enumeration, but in fact accomplished only fifteen percent for pure Internet submissions. However, this is considered good given the fifty-five items asked per individual, exclusion of niche system users, and other complaints. Overall, it provided a good learning experience. With increasing Internet penetration to be expected to reach three quarters of households by 2005 from the present fifty percent, it is likely that the use of ESS will grow in the next census.
- With regards to the question of the procedure for selection of households for the ESS, Mr. Goh explained that they selected one in five households using systematic stratified sampling. Then they load all the information from the HRD for the 200,000 households into the enumeration databases. For this reason, it was very critical to protect this sensitive information from hackers and sniffers that extract information. Thus the system was designed in such a way that the moment the household got enumerated and were successful in every data items, that household record automatically gets fished out and moved into the census database which is protected by multiple firewalls.
- In response to a question about how the households obtained their user name and password to log on to the ESS, Mr. Goh explained that this was through a notification letter. This notification letter is in four languages, English Chinese, Malay, and Tamil and the web site address was only given to the selected households. There was no link from SINGSTAT's web page to this address. The user identification name and password were generated through encryption and *Privylink* method in the sense that even people in the computer center will not be able to see the information. When the household types their user name and password, this is encrypted during sending and decrypted at the web server end. If the household information matches then the household user can see their own record itself with some of the preloaded data. This preloaded data consist of basic information such as name, sex, etc. Key data items cannot be changed.
- One participant inquired if there had been a post enumeration check. Mr. Goh responded that during the planning stage they intended to have a one percent PES but it was not carried out. This was not wrong because in the 1990 census (a full scale census) the PES was also not done for the enumeration. It was considered

acceptable in the 2000 census because the census did not rely on the twenty percent sample for basic characteristics but on the hundred percent from the HRD.

- The 1990 census and 2000 census are similar in the sense that before they started there was already a complete and accurate count of the population. There is a need to depart from a *de facto* to a *de jure* count because in a register based census, the count is not based on where people are (*de facto*) but where they belong to (*de jure*). Citizens of Singapore living abroad who were in the sample were therefore enumerated for the census via the Internet.
- One participant inquired whether the migrant population in Singapore were included in the ESS selection. Mr. Goh explained that the HRD is updated every quarter. In fact it could be updated everyday through merging of databases from various government agencies. SINGSTAT obtains this information of the population from their national registration office. This registration system is totally complete for every citizen or permanent resident no matter where he or she is around the world as long as that person is still alive, since they are required to submit a certificate of death and return back an identification card. Only then will that person's information be erased. Foreigners coming to Singapore are registered either at the Ministry of Manpower, to obtain a work permit or employment pass, and the Ministry of Home Affairs, for their dependents. SINGSTAT obtains these data regularly under the Statistics Act so that at any point in time SINGSTAT has a complete count of the population with the basic characteristics. SINGSTAT even merges information from the local universities as well as the large database of the Ministry of Education. However, SINGSTAT did not include this information in the preloaded data for the enumeration form in the ESS because SINGSTAT wanted the respondent to enter the answers themselves.
- One participant inquired into the details of the household selection. Mr. Goh explained that Singapore has the National Database of Dwellings (NDD) which has the complete record of addresses. The sampling method, of one in five was based on house type. The NDD is a very powerful one because it has information on electricity, gas usage, water consumption, land use, annual assessed value, etc.
- Regarding a comment about the high rate of compliance of the selected households, Mr. Goh attributed this to the Singaporean ethic. Less than five of the 200,000 households complained about their being selected.
- One participant inquired about the cost of the ESS compared to the traditional method. Mr. Goh related that the international tender went out in 1998 and eleven firms bid competitively. Three of these firms were shortlisted, two foreign and one local company. Ultimately, the local company won not in terms of cost but because the Singapore government could not accept the terms and conditions laid down by the foreign vendor - who had a lower bid but insisted on their own terms and conditions. The total cost for setting up the census including the ESS, the CATI portion, the field work system including the imaging system, and purchase of PCs was S$ 13 million. By comparison, a traditional census that would require 4,500 enumerators to comb the whole island in two to three months and an army of coders and verifiers, would have cost around S$ 70 million. The S$ 13 million to set up IT infrastructure does not include personnel costs. That would add another S$ 11 million or a total of only S$24 million, about one-third the cost of a traditional census.
- One participant inquired whether ESS had been applied in other countries. Mr. Hartke indicated that in the US, even though there was mention about

submissions via the Internet, the USCB was not ready to implement it. Internet submission was mentioned in the first letter to the household, but in the actual form there was no more mention of the Internet site. There are inherent limitations applying the ESS to a populous country. Mr. Hartke noted that even if India were wired for the Internet, an ESS approach would require a very huge help desk staff to answer questions from users.

- One participant raised a question related to our concept of a census, suggesting that Singapore was getting into an elaborate registration census that is verified periodically. The main question is thus, is this really a census when you already have the information and sending it back for verification? In Singapore's case it appears to find itself trapped in the *de jure* definition because of the needs of this Internet system. It is not so much the computer that is the issue but the fact that the identification number is linked to the birth, marriage and death registries. In many ways it appears that the activity that is called a census is misnamed because it is really an elaboration of the registration system. In that participant's view, if we wanted to ask about a real census in the traditional sense then we'll be looking at the use of this technology for the non-resident population which is growing almost ten percent per year. Mr. Goh responded that information on foreigners is obtained from two ministries, which keep this information current. Thus, all foreigners are recorded and when in the ESS is run, their basic information (such as name, foreign ID number, etc.) will be there. Singapore is adopting the model of Scandinavian countries. Denmark and Finland are presently doing a register-based census while Sweden is planning to get into this approach. Mr. Goh further elaborated that in terms of complete count, every person is counted regardless of whether the person is a foreigner or not, unless that person has been removed from the database. Before the last census, a problem had been identified with persons who perhaps had retired and left the country without notifying the national registration office and therefore were shown in the registry as unbelievably old persons. To check the accuracy of this database, SINGSTAT in 1999 conducted a complete census of the elderly. Mail-out/mail-back forms were used, and less than one hundred field workers were also employed. They progressively went down from the oldest cohorts to 90–99, 80-89, then 70-79. The group gets larger and larger. SINGSTAT is confident that its present enumeration methodology provides an accurate snapshot of the population.

10. Establishing a web presence: Best practices in demographic research institutions

10.1 Part I. Standards for web site design

by Ms. Diana Crow

- ***What are you going to name your web site?*** That is, what name do you want users to enter in the search form? A convenient way of locating information and reaching others on the Internet is through domain names.
  - If you want a top-level web site name, you can apply to accredited registrars for Internet domain names. One of these original registration site is Internic at http://www.internic.net . You can apply in that site for an Internet domain name registration. You have to pay the registration of about US$ 72 per two years and can continue to keep this name if the registration fees are paid. That name that you purchase has no relation to where you post your web site. There are other web sites that offer registration services for domain names. For example a listing of these sites is provided at http:www.internic.net/regist.html

- ***Visibility***
  - Submit your address to search engines so that it will be in their database. You submit your top level name to the search engine, which in theory will not change. If you change the lower level names for the other pages, that's fine - your web site is a living, growing thing.
    - Note: Mr. Peter Johnson explained that the search engines will send out their "robot" software to search your site from the top level, find other pages in your site and index it. If you are searching on a search engine for a page that is several clicks from the main page, hopefully, the robots have found and indexed it and it will pop up in the results. A selection of search engines in the Internet can be found at (http://www.luth.se/depts/lib/sokverk.html.en).
  - Include key words in your metadata, so that the web site will be easier to find by the search engines. Metadata is the information that goes on top in the header section of your web page.
  - Dublin Core has put together standards for the metadata with keywords alone. The Learning Technology Standards Committee Learning Objects Metadata (LTSC-LOM) Working Group of the IEEE (Institute of Electrical and Electronics Engineers) and the Dublin Core Metadata Initiative (DCMI) announced on December 6, 2000 their joint commitment to develop interoperable metadata for learning, education and training. The Dublin Core Metadata Template can be found at (http://www.lub.lu.se/cgi-bin/nmdc.pl). Following the metadata template, its term lists and recommendations will help create HTML documents with high quality metadata. If you are going to change some of the keywords later, you will have to fill in the form again in the metadata template site.

- ***Sites should be easy to navigate.*** Site should be visual and appealing in appearance.
  - Need to have top-level site map.

- It is a good idea that users browsing your site take no more than a maximum of three clicks to return to the top level from any depth of the web site.
- It is even better to have a top level return button on every page. If your web site is too cumbersome to navigate, people tend to stop using it. This is a particularly important issue when you are trying to put out information. There is a lot of competition among top-level sites to raise their visibility in the web.
  - One participant inquired whether the return button should be on top or the bottom of the page. If the return button is on top, people tend to click on it fairly easily when they get bored and do not bother anymore to browse the rest of the page. This is especially relevant in web sites where the graphics take a long time to load. Ms. Crow explained that organizing the page in a hierarchical manner so that it will be easier to load at the users end could solve this problem.
- Consider a search facility for multilevel sites. This will help improve the speed of access.

- ***Make your web page as independent of browser type and level, and screen format as possible.*** This refers to cases where web pages can be viewed on the Netscape but not on the Explorer, or vice-versa.
  - Use centred page design, that is, the contents remain centered even if the resolution varies.
  - Use core standard HTML/XML/XHTML so that, for example, borders do not shift around. Bear in mind that you are trying to reach an audience using a wide range of software and hardware.
  - Adhere to W3 Consortium standards (http://www.w3.org). The W3C is a recognized authority in interpreting standards for HTML coding. Nowadays, many of these HTML or XML coding, Java, Java Script, etc. are actually generated by open third party products such as *Dream Weaver* which has made the task of writing web pages more user friendly.

- ***Make your web page quick and easy to load.***
  - Use low overhead graphics and audio. It is true that interesting graphics make your site come alive and look interesting. However, heavy-duty graphics are not recommended. Instead, it is better to use lower resolution images from scanned photos so that it will load faster. It is important to bear in mind that the image you put up on the web page will download at the same resolution as it was created regardless of the size the browser ends up displaying. Audio and video are not recommended because of the slow download times.
  - Concerning the question whether graphics are better off hyperlinked, Ms. Crow responded that there is no hard and fast rule for this.
  - Pages should be short and visually appealing. The nature of the web is that you have to make your web page short and nice looking, otherwise you quickly lose the interest of your users.
  - If you have a lot of information to publish, make more pages rather than putting all the information on one long page. You can also offer detailed and complex information as downloads in PDF file.
  - Acrobat PDF files is now becoming the standard. It is possible to convert Word files directly to Acrobat PDF files but you can also use a scanner to scan the page of any printed document. However, when you scan the page,

you must translate it into characters (Optical Character Recognition or OCR), otherwise the resulting image will be a graphic file that takes up a lot of space and requires longer download times.
- No splash screens. This slows loading of pages and will worsen the situation for those with already slow connections.
- NO FRAMES. It is a nice way for web sites to provide navigation bars and information (frames) that appear on every page. However, the drawback in using this technique is that not all browsers are frames-capable and some people who do not like a frames-enabled site will leave. There is also less space to display information. As an alternative, use a clickable table of contents format.

- ***Data.***
  - Remember your target audience especially when you are providing data. Offer a range of data formats to suit their needs. For example, the Demographic and Health Surveys (DHS) web site (http://www.measuredhs.com/) site offers three data formats for downloads.

- ***Regular maintenance.***
  - Check links regularly for currency. Some of these links to other sites may have changed, i.e. "broken."
  - Checking can be done automatically. There are a number of free checking services available in the web such as Web site Garage at (http://web sitegarage.netscape.com/). Mr. Miranda indicated that the current version of Microsoft *FrontPage* can check links in a fairly automated way and it "audits" your web site by giving statistics on the number of links that are broken, how many pages have problems, and others. In the US, the street price of *FrontPage* is around US$ 150; some versions of the Microsoft Office software suite include *FrontPage.*
  - As to the question raised about providing information for different target audiences, for example, between policy makers and academics, Ms. Crow recommended to direct them to specially built web pages.
  - Leave redirections at old page addresses. This requires only a small overhead to trap historic bookmarks.

- ***Additional Niceties.***
  - Provide text only option for low-end users who use older types of computers and have slow connection to the Internet.
  - Provide GIS pages for dataset selection.
  - Disability access add ons (e.g. sounds for the blind). Mr. Johnson commented that it is not so much about the adding of sounds for blind users because they have special screen readers. What is important is to know the requirements for the pages in your web site to be correctly handled by such special screen readers.

- ***Security Considerations.***
  - Make sure that your web pages on the server are protected by adequate user identification and password settings. Furthermore, it is important to change these passwords regularly.
  - Firewalls may be needed for particularly sensitive sites. A good example of this is the case of Statistics Singapore presented in the workshop.
  - If you offer files for download on your web site, you can set additional password access. This is particularly relevant in case you are charging for those files (to make sure they are paid first) or that only the people you want to access your files are the ones who do so.

- ***In summary***, your web site must have the following characteristics to be considered a high ranking site:
  - High quality content
  - Often updated
  - Minimal download time
  - Ease of use

Demonstrations:
One example of a high quality site shown was the web site of the Center for Disease Control and Prevention at (http://www.cdc.gov). Incidentally, Mr. Miranda called the attention of those interested in GIS software (which is typically very expensive) to a free GIS software called **Epi Map** that is available at the CDC site. This software displays data using geographic maps and is available at http://www.cdc.gov/epiinfo/index.htm. Although this GIS product was developed for epidemiologists, it is also very useful to demographers.

Mr. Miranda further explained that at the minimum, every Institute should have a list of publications and the abstract of each publication. By including the abstracts on-line, it is easier for users to get more information if they want to place an order. If your web site has plenty of space and you want to make your publications available to users, you can put the reports on your web site as downloadable pdf files. The advantages of pdf files were again emphasized: if created by direct conversion, pdf files occupy smaller space than say, the original Microsoft Word file; secondly, it does not require the person on the other end to have the same software (or version) that created the original document; finally, it prints exactly as the author intended, regardless of the printer model and printer settings at the other end.

Mr. Miranda illustrated the interactive potential of the Internet to enhance the usefulness of a demographic publication. The particular document, available at http://sauvy.ined.fr/popafsi/english/tab-fig-ch3e.html was written by a French demographer working on the demographic aspects and consequences of the AIDS epidemic in Africa. The author provided an English version of the article in order to reach a wider audience as possible. The most attractive feature of the article is its interactive design that allows users to change the parameters of the assumptions in the model and therefore obtain different scenarios. The program used to make this article interactive was an interface written in PERL language.

Discussion
One participant asked how such a page with the link to the English version interactive article could have been found by a search engine when the information listed in this page is in French. If someone for example were using a search engine

to search for "population pyramids", he, or she would not be able to find the site because the page would have to have the actual word appearing on it. How would one have found this paper if coming from a non-French background? The larger issue here relates to how we can open our web sites to the broad audience using English while at the same time make it relevant to the local audience that uses only the native language.

Mr. Miranda explained that one approach would be to lead say, French speaking users to English resources or lead English users to French resources. If you want your site to be found by people searching for words in their own language in spite of your site being in English (or French), then you should include key words in those languages that you want to attract people in the metadata of your home page. In this way, the search engines will be able to pick it up.

Mr. Hull suggested that it might be useful if in the home page of the different population centers represented in the workshop, the links to English language sites are written in the local language. By expressing those titles (or links) in, say, Indonesian, the Demographic Institute (DI) (University of Indonesia) will serve the needs of Indonesian users who are looking for example, for references on population projections. When they enter the specific Indonesian term in the search engines the DI page will come up and they go to that page. There, they would find a list in Indonesian of the Population Reference Bureau, USCB, etc. and in brackets indicating in Indonesian, that these sites are in English. By clicking on these links, users will be sent to these English only web sites. If the users do not know English they most likely will not click on the links to these English-only web sites. The important lesson here that web page designers must remember is that if mainly local audiences will visit their Institute's site, the pages must be set up in the local language. However, links (written in the local language) are provided to other facilities and resources that may be in other languages. This will then provide a valuable service to your local users who do not speak English. On the other hand, if you also want to attract visitors to your site who are English speakers (or other languages), it may be worthwhile to consider multiple language options for your web pages.

Mr. Miranda reinforced Mr. Hull's point by adding that each Institute may decide the appropriate language to use for each page in your web site. Links page should be in your local language for local users. Obviously, international users would not be coming to your site to look for links to American or European sites. Furthermore, institutional information on rules and procedures that concern only local users - such as institute pay scales, procedures for application of home leave, and enrolment of students, etc. should be in the local language. However, if there is information that you want to make available to other researchers, donor agencies, and other international organizations, that information should certainly be in English.

10.2 Part II. Summary

by Mr. Larry Hartke

Prefatory theme:

- In order to maximize our ability to use the new powerful Internet technology to disseminate information, we need to approach it from both a technological and organizational points of view. There is a need to create a balance between these two important aspects.

Nice tiger or evil twin?

- An apt metaphor for the Internet.

Our calendars are turning into clocks.

- A new era of fast response is here. We experience "time compression" – in such manifestations as less time available to accomplish something, and less free time.
- People's expectation times are shorter. They think that you can have everything instantly. Part of this comes from the widespread use of faster and more powerful computers.
- Connectivity. When you plug into the Internet now your impatience levels goes up because you expect fast loading of pages. That is something that we should think about if we operate a web site.
- Adaptability. There's an old phrase which says "adapt or die." That's almost one of our laws now. We are now in the information world, and we participate in it as professionals in the production of information. We need to take this role seriously and prepare to be adaptable.
- Data-user and data-producer partnerships. As professional analysts, we must remember in preparing our reports that we have a wider audience out there. We need to have a careful and close relationship with that audience now. This audience does not have much time. They want answers faster; more analysis but also more summarised information. This puts a lot of demand on people writing reports. How do you do that and get your detailed complex analysis across at the same time?
- Inflexible systems are really obsolete. If you continue to do the same things in traditional ways you will be quickly left behind.

New Technology: Both an opportunity and a threat

- There are many positive and negative aspects about the new technology. For example computer chips in automobiles.
  - Positive: These computers mean more power, better fuel economy, less pollution, safer operation.
  - Negative: These computers can also record your auto's speed, braking, turns, much like an airplane's blackbox that records important data of your driving in a given time period. When you have an accident and the insurance company wants to know if you are telling the truth, they can just download the information from your auto computer. So in a sense that technology could be good for operating the automobile but bad for the user (i.e., in terms of privacy) at some point. More and more cars in the West are having these on-board computers.

- From our point of view as information professionals:
  - Positive: We can obtain information faster and present our analysis more effectively to a much wider audience than we have ever had before.
  - Negative: We may fail to adapt to the new technology or let it distract us from meeting the needs of our target audience. Part of that requires skills such as making sure our site can be located by search engines. There are many reasons for failing to adapt to the new technology that is difficult to control. For example, there is not enough money to purchase the technology. However, we cannot let this distract us from the human factor and human issues either. This is important for reaching our audience rather than just waiting for them to find your site. It is easier to get funding for hardware and software than it is for hiring two people to staff the telephones to answer inquiries from the public about your web site. It is especially difficult to hire someone to actually go out and promote your web site in talks around the country. These things are usually not taken to be a serious part of the information world such that much more spending is devoted to hardware and software than on human relationships to get us connected people to people. There is a danger that this could lead us to concentrate our business of disseminating information by relying primarily on impersonal technology.

The Internet and the World Wide Web.

- Positive: We can find anything in the Internet. The finest accomplishments of people can be found there.
- Negative: We can also find there the worst traits of people – how to make bombs, viruses, hacking, pornography, crime, subterfuge, etc. The important thing to remember is that the Internet is just a tool that can be used for good and evil purposes by people.
- Positive: The volume of what is available makes it the most complete resource of human knowledge in history. There has been nothing like this resource available to anyone before.
- Negative: The volume and disorganization of the WWW makes finding things a daunting task.

Statistics: 24 hours of growth on the Internet.

- There are almost **two million web pages added everyday**. By contrast, world population grows only by slightly over 200,000 people each day. It is impossible to try to keep up with it.
- 150,000 per WWW users are added per day! It is not just computers that can access the web nowadays; there are also mobile phones and specialized devices, e.g. WAP.
- Host machines, 80,000 are added every day.
- Domain names, nearly 13,000.
  - ***Thus, the Internet, as reflected by the number of web sites, is expanding nine times faster, in numerical terms, and has a growth rate thirty-six times faster than the growth of population.***
  - This is made possible because the Internet is using existing technology and infrastructure (i.e. telephone lines) to build itself up.
  - Internet usage in the Asia-Pacific region (February 2000 figures) indicates a huge disparity among countries. However, these countries are poised to encounter explosive growth in Internet usage within the next two to three years.

Our Mission has Changed.

- Our mission is to offer our target audience (our customers), ***connectivity*** to useful information.
- It is no longer just simply producing quality data or reports in a timely manner, which is the traditional objective of research institutes. More importantly, our mission is to connect people with useful information.
- We sometimes have a product, sometimes have a service, and sometimes both. What we post on the Internet can both be a service and product. As an example, the interactive article of the French demographer demonstrated by Mr. Miranda's, is that a service or a product? Those things used to be distinct but now they can be the same thing.

Fundamental question to ask ourselves: Why does your organization exist?

- **To meet the needs of your target audience** – our customers, data users. Organizational resources and activities should support the goal of meeting their needs.
- The comfort zone: Don't be afraid to leave your comfort zone, to break free from routine ways of doing things. Those who remain comfortable will be left behind and marginalized.
- Although improving the quality of our research is still important, ***connecting people to useful information should now be our most important goal.***
- Plan to change plans. We cannot afford to just talk about change - we have to actually change. As information professionals, we are in the kind of work where we cannot afford to remain sitting idle.
- Quotation from Peter Drucker: *"you have no information, basically, unless you are sharing it."* What you have are records, archives. Unless someone uses these in some way to make a decision or understand something, it is not information yet. In the visual information age, that means ***sharing on the Internet.***
- Most specialists produce things that are not user friendly. It is astounding how seldom they produce a user-friendly report. Mostly they produce things that take a professional to use. We like to have user friendly hardware, why do we not give our audience user friendly reports and analysis?
    - We should ask ourselves whether our web pages provide a solution or a problem? If it is going to give the users a problem trying to figure it out, he or she is liable to leave.

Why do we call it the visual information age?

- Because images are now dominating the written word in all of daily life – TV, movies, books, signs, etc. If you want to disseminate effectively then you have to consider how to reach the customers with images that communicate. Pages full of numbers are no longer acceptable!
- This does not imply that you do it in the extreme. It does not mean that you reduce the text or tables in your reports since after all, most of our target audiences are professionals who can deal with complex data. However, it is important to consider how you might enhance the graphics, charts, tables – or the overall visual presentation of your information. Increase it or offer an additional product that summarizes your detailed professional report with charts and graphs in highly visual terms. This is especially important when you want to communicate your results to policy makers. The main reason for this is that while text is low impact, high content, images have low content, but embody high impact communication symbols. Charts, tables and graphs

communicate faster! Symbols are more likely to communicate similar meanings across culture. We need therefore to think about more ways to develop a visual presentation of our data and statistics.

- Mr. Prakasam inquired whether this approach might cause a problem with the download times of these images. Mr. Johnson responded that if we avoid using three-dimensional graphs, there will be no significant increase in downloading time at the users' end. Mr. Hartke supported this by explaining that there are ways of doing this without filling a page with a lot of heavy downloads. For example, do not put splash screens.

However, technology alone is not enough.

- We need to bring partnerships into this equation - build strong links with real people to share our knowledge and experience.
- It is important to meet people face to face. Tons of money are spent on technology but one has to struggle to obtain a budget that would enable people to meet together.
- People make choices based on their perceptions. It's the users' perception that matters. They are the ones who alone can decide whether what you are doing has quality or not.
- Quality is not solely determined by scientific accuracy or objective criteria. Products (i.e, reports, analysis, web page) may not have quality from the users' point of view although we, the producers think that they are of high quality. It's a subjective evaluation of your product by your intended recipient.

There is also the "Human Factor."

- The story of Hermann Kahn's boyhood was told to illustrate the irrelevance of scientific approaches in certain situations. This relates to his grandmother giving out large paper bags to customers even though their purchases were few. Although his statistical observations indicated an inefficient use of resources, the grandmother reasoned that this practice encouraged people to shop in her stall because they can use the large paper bags for their trash. If she had given smaller paper bags, her "advantage" would have been lost to the next seller.
- Another example are the worn out grass lines in the lawns of US campuses because the students do not follow the well laid out walkways designed by architects that look only nice in drawings.

How do you know what they want?

- ***You have to ask them***. That is why ***you have to get into a partnership with them*** - talk to them, meet with them. You might be able to do this with the computer but you have occasionally to meet with them.
- Don't get desk bound and forget your perspective. Be there and size up the situation personally, don't rely primarily on numbers and models. If you do that, you are likely to miss other perspectives.
- Quotation from John le Carre: *"A desk is a dangerous place from which to view the world."* This is part of your comfort zone and it is a trap.

Respect and Recognition in this Partnership.

- This partnership conveys respect and recognition of the people you want to receive your study and reports.
- ***The best way to do that is to ask them if you are meeting their needs***. And mean it.
- You don't have to say yes to everything that is asked but you must respond with a change or an explanation when you say no. What is not permissible is no response at all, because that's disrespect and will be perceived as such.
- Seek out users and ask them to give you ideas to improve your products and services. People almost always are glad to respond honestly if they sense that you are serious.
- ***The only way to get respect and recognition is to give it out. No other way. True respect can't be bought, stolen or faked. It must be earned.***
  - Their involvement brings with it commitment. It turns your potential critics to partners who want you to succeed.
  - The most damaging complaints are the ones you are not hearing because people will continue to tell each other. The best thing you can do is open up a way for people to make complaints and criticize.

Build the Strongest Security in Your System.

- As we get on-line, we also become more vulnerable.
- Make utmost efforts to protect your site from viruses and crashes. The USCB has a staff of eight to ten people to manage the technical aspects of their web site that gets an average of one million "hits" per day. One professional is devoted solely to monitoring hacker attempts.

Steps for Effective Internet Presence:

- Develop a plan to find out what people want and how to give it to them. Ensure the human and financial resources are there. Organizationally, you have to gear up to this.
- Establish an Internet policy based on openness and continuous change. However, there might be resistance inside the organisation when you need to obtain resources. This is because it usually requires the shifting of resources from other parts of the organisation into your unit if you want to expand some part in your own area.
- Connect with your target audience and build an ongoing partnership with them.
- Build Internet knowledge and awareness throughout your organisation. It is preferable if this were organisation wide, that is, not just concentrated in one or a few staff that works on the Internet. It has to include everyone to the extent possible that they become aware of it, what it means and how the organisation can benefit from it. Here, you have to be careful to anticipate the "immune system" in your organization – which will have an allergic reaction to the change.
- Based on feedback from audience make changes. Don't be afraid to change things based on what people ask or tell you. Where appropriate make those changes in both printed and automated products.
- Offer easily obtained, timely and ***user friendly*** reports and analysis that meet the ***expressed*** needs of your target audience.
- Enjoy your status as a key, visible and connected member of the visual information age.

Don't forget the people who are not connected and never will be.

- Make sure we don't forget to communicate with those who presently cannot participate in the electronic revolution. However, this is a difficult task.

Discussion

Mr. Hull referred to the statement "inflexible systems being obsolete" that seemed to contradict earlier discussions about the need to conform to standards. Standards are in many ways inflexible.

- Mr. Hartke explained that standards indeed evolve and change, as new technology is introduced. Technology in itself is flexible in the sense that it changes rapidly. We need standards in the Internet and professional standards, but these are mainly tools in the system. Standards in this context refer more to the structure of organizations; for example, the way money, activity, personnel and resources are used in a flexible manner. Very often organizational structures are highly inflexible. If you want to establish an Internet presence for the organization, staff should not only be composed of data specialists. In addition to the technical part, there should also be subject matter staff. Both have to work cooperatively together. So in essence, the idea is to make your organization flexible so that things happen in a new way. Avoid your organization in a static way, such as producing reports like a factory.
- Ms. Crow reinforced the notion of standards being "flexible" by using the analogy of the virus list in your anti-virus software. In order to be effective it cannot afford to remain the same. It has to be updated regularly as new viruses are introduced in the Internet.
- In conclusion, Mr. Hartke remarked that everything appears to be a "moving target" because of rapid changes. These changes encroach in our daily lives because it takes time to deal and cope with these changes.

11. Setting up the Asian Network of demographic research institutes: objectives and modalities.

11.1 Part I. Setting up the DemoNetAsia web page: Hands-on exercise

by Mr. Armindo Miranda

Free or low-cost software

Many institutions that want to get started in web page design face the challenge of limited budgets to obtain relatively expensive software (such as *FrontPage* or *Dreamweaver*). Fortunately, there are free or low-cost alternatives (i.e., "freeware" and "shareware") that can be obtained from various web sites. One would normally be reluctant to pick up software indiscriminately on the Internet, because of the danger of viruses and the risks that poor quality software may mess up one's system. However, some websites that specialize in the distribution of freeware and shareware test these products and ensure that they are clean. One such web site is Tucows (http://www.tucows.com); it not only contains a huge collection of freeware and shareware but also checks and rates the software. One attractive feature of Tucows is a rating system using cow symbols, with five cows being the best. To facilitate access, the main Tucows site has numerous mirror sites around the world; the best bet for Asia may be the mirror site in Thailand (http://tucows.ksc.co.th).

Software on Tucows is organised primarily by operating system and then by function. Under Windows 95/98, which is the operating system that most of the Institutes use, there are for instance various "HTML editor" programs that are used to write web pages. These are found under "HTML tools" further subdivided into two subgroups: advanced and beginners. Going to either one of these shows various programs, each program being given a short description, an indication of the kind of license - whether shareware (usually a nominal fee) or freeware (no fee), date of last update and the program's file size. Size is an important consideration depending on your connection. If you have dial-up connection, downloading a very large file may be out of question. It is also advisable to choose software that is relatively recent, has gone through different versions or updates, and is rated many cows.

Although the software may be free, getting to know how to use a particular program has its costs in terms of time and effort. Different HTML editor programs may do the same things but they do it in different ways. Difficulties are compounded by the fact that documentation and support may be skimpy. An alternative solution is to use Microsoft Word, with which most people are acquainted. Word is well integrated with Internet Explorer and Word documents can be saved as HTML documents to be read on a browser. If you know Word and want to create relatively simple web pages, Word is the ideal solution. For more complex jobs, particularly if web site maintenance is involved, a specialised editor such as *FrontPage* would be required. In any case people interested in learning about HTML can find plenty of HTML editors and other internet-related tools from Tucows.

Creating the web site for DemoNetAsia

About eighty to ninety percent of the effort that goes into the creation of web site should be devoted to architecture and design: getting a clear idea of how the site will be structured, the logical relations among pages and page layout. Having lots of information is not sufficient: it needs to be structured in a logical way and

attractively presented. After this initial conceptualization comes implementation. However, it is rarely a one step process. As the site emerges, it may become necessary to revise certain structural decisions and add embellishments. All that takes time and effort. In the beginning, it might take several days before one comes up with something good enough to be put on-line.

Using the experience of DEMONETA in Africa, Mr. Miranda gave some suggestions about the contents of the DemoNetAsia home page. These were:

- A short description of the network.
- Since one of the functions of the home page of this network is to give access to the web sites of each institution, there should be links to the web pages of the eight member institutions and perhaps also those of the partner institutions as well.
- Activities of the network. In the beginning, this would include the report of the Bangkok workshop, announcements, and links to the activities of the network.
- Links to the electronic discussion group (http://groups.yahoo.com/group/demonetasia). Since this group has an archive of messages that have been exchanged there will be a link to the archives

It is important to have a balance between speed of access and content, to the extent possible. Therefore, there is a need to avoid embellishments for the sake of embellishments. If we want to attract attention to a specific region of a page, it must be well thought out, to avoid user distraction and confusion.

Everyone had a hands-on experience creating the web page using MS Word, using table functions, centering, fonts, and colors to embellish the appearance of the page. After the file was saved as an HTML document, Mr. Miranda demonstrated the procedure for sending it to the multimania.com server using ftp (File Transfer Protocol) software, WS-FTP Pro. (Alternative FTP software is available at the www.tucows.com web site.) The server could be anywhere in the world, location is not really an issue. The URL of the site is http://demonetasia.multimania.com.

Demonstration of electronic discussion group:

The discussion group for DemoNetAsia http://groups.yahoo.com/group/demonetasia is classified under **Social Sciences: Demography and Population Studies: Asia.** The moderator of the discussion group, Mr. Miranda, has set the following options. The group could decide to change these later as the need arises:

- Membership open. Anyone can become a member.
- Unmoderated. After a persons joins the group he or she can send messages without the moderator intervening to clear the message first. If the discussion group starts to get inappropriate messages, this option can be changed to "moderated" so that any message that is sent to the site will have to be cleared first by the moderator.
- All members may post.
- Primary language in English
- Archives for members only.
- E-mail attachments are permitted.

The moderator enrolled participants from the workshop. They subsequently received an invitation from yahoogroups.com to register with the DemoNetAsia. There will be a link from the DemoNetAsia web site to the archives of this e-group.

11.2 Part II – Setting Up Sustainability in the Agenda

Chaired by Mr. Jerrold W. Huguet

Distribution of evaluation form to the participants.

- Participants were invited to fill out an evaluation form on the workshop. It was emphasized that comments from participants were important and useful for any follow-up workshops of DemoNetAsia and also if similar workshops were offered in Latin America and other places.

Discussion on how DemoNetAsia can be useful to its members.

- The web page represents the network, which provides links to individual Institute's web pages and the discussion group.
- It is necessary to get sustainability high on the agenda because it is easy to forget the workshop once participants go home to their respective countries. The participants were therefore encouraged to think about how membership in DemoNetAsia will help them individually and their Institutes. In this way, they might be more motivated to carry out follow up activities after their return home.

Issues raised:

1. The problem of unlicensed software and its alternatives.

- It is well known that unlicensed software is prevalent in most Asian countries. This problem also applies to most research institutions in Asia. What can DemoNetAsia do to help with this problem? Usually, academic institutions could get away using unlicensed software. However, this is becoming more difficult and risky because of increasing pressure by software companies to governments to enforce the laws on intellectual property. To counter software piracy, some software companies have also designed their software to work only for a limited period unless the renewable subscription fees are paid. Many of the Institutes cannot afford to purchase the expensive licensed software because of their budget limitations
- The use of unlicensed software creates a problem because you cannot acknowledge the software used in the research since it is unlicensed.
- One approach is for DemoNetAsia to share information on available freeware or shareware that can do the job without the cost. Although such software may not be as packed with features as leading commercial packages, it might help you to do most of what you need. So for example, if there is software developed by a university free of charge, this information can be shared in the network. One of these free programs is the USCB IMPS which can be used for data entry, tabulation, editing, etc. Mr. Hartke indicated that in addition to IMPS that is DOS based, USCB was now offering CSPRO, which is Windows based, equally free of charge. Although it is not a program for statistical analysis, it has features that can carry out table production, retrieval, etc. These programs can be downloaded from the USCB website. USCB organises training sessions on how to use this software. However, interested persons must find funds to pay for the trip to Washington, DC.
- There is a problem with IMPS according to one participant because it is difficult to convert the tables generated from this program into a file format that is readable by other programs like SPSS. That would require a software programmer to write a special conversion program.
- One resource person reported that it is possible to do analysis of infant child mortality from DHS data using a Visual Basic program in Excel.

- One suggestion was to build in the cost of licensed software in your proposal to the donor.
- If it is a networked lab, chances are you can get a cheaper 50-user license for MS Office that runs on a server. Instead of getting 50 boxes of CDs, you get one box. Some packages can recognize the number of loadings and stop you from loading beyond the authorized number of times.
- For SPSS, one could buy the cheaper UNIX license and run *Excursion* software in your PC to have a windows interface with the program on your server.
- An alternative to Microsoft Office is the free StarOffice. Some reviewers rate it better than Microsoft Office. StarOffice version 5.2 can be downloaded free from the Sun Microsystems web site at http://www.sun.com. There are versions for both Windows and Linux operating systems. Files generated by StarOffice programs are compatible with Microsoft Office software.
- The Carolina Population Center and IPSR are developing CSPRO to use in a big survey with a long questionnaire and very detailed questions. It is now being tested in a project. If successful, the software will be made available in the public domain. Originally, CSPRO was a product from the merging of IMPS, which is oriented to the census and ISSA that was developed by Macro for processing DHS data. The result is a product that can process a big census with a few questions or fewer cases with many questions.
- One participant argued that the discussion on unlicensed software was not completely relevant considering that many Institutes still have older computers that do not have the minimum requirements to operate these software packages. The minimum requirement now is at least a Pentium III; SPSS will not work on Pentium (I) computers. The more important issue is how to modernize the computer facilities of the Institute. If you do not have the requisite computers there is no point talking about software packages.
- In consideration of this point, the use of alternative software that uses fewer resources will ease the urgency to upgrade computer facilities. Much of this alternative software was developed at universities for their own use and resulted from the need to do more with less resources.
- Furthermore, as far as funding for hardware upgrades is concerned, there are still many funding opportunities in the population field and even some competition among donors to fund good projects. Sometimes, the problem is not so much lack of money but rather the inability to write project proposals that target specific donors. Essentially, what applies for your web site also applies to your project proposals. The institutions need to maintain a dialogue with donors to find out about their changing priorities, their procedures and their requirements. There are skills to be learned in this highly technical matter. This is not easy, but if you learn these skills, there is a good chance that you can obtain money for your Institute's specific needs.
- One problem with hardware donations is that one donor country may provide hardware that is not necessarily compatible with hardware coming from other donor countries. This is something you have to deal with.
- The exercise showed that there are many issues in these topics that could be the object of discussion in the DemoNetAsia e-group.

2. The need to share information on training activities.

- Since many do not search the Internet everyday, there should be sharing of information on training offered around the world. If for example, IUSSP is organizing a workshop or a conference and you received this information from

somewhere else, share it with your colleagues so that they can apply to in-country donors for money to attend.

- The USCB often conducts IMPS and CSPRO workshops, but they need to find an institution to host it. Sometimes there is a budget with different arrangements for cost sharing. Holding it in Asia will definitely cost much less than having it in Washington, DC.
- The DemoNetAsia web site can include PowerPoint presentations. Institutes that offer training courses can share training materials (if they are in electronic form) because most of them are involved in undergraduate, graduate, or short course training funded by donors, such as UNFPA. However, sometimes there may be rivalry among institutions to obtain funding from the same donor sources to offer similar regional training programs. In those cases, they may be reluctant to share their training materials on the web site. Nevertheless, for most courses, Institutes are not rivals. Therefore, Institutes can derive many benefits from sharing some of their training modules. There should be more thinking on how to go about this.

3. The network as a means to find information on specialists and experts in different countries.

- The Population and Rural and Urban Development Division of ESCAP has funds to hire a certain number of consultants every year to conduct research or project evaluation. For various reasons, including cost-effectiveness, preference is to look for people within the region. The network will be very useful in finding consultants with specific kinds of experience and specialization, especially those that ESCAP has not been aware of before.

4. The possibility of sharing resources with other Institutes.

- How can more developed institutions help less developed ones? This depends on many aspects. The web site is part of it. Some institutions in this group have accumulated more skills in the creation and maintenance of web sites. Some of them may have more resources and capabilities in terms of the number and types of PhD specializations in the faculty, the kind of training courses offered, etc. that others do not have. One Institute could be branching out to offer a new course such as Population and Gender for example. This Institute could ask other Institutes what reading list they are using, or suggestions on how to structure the course. There are many ways one can ask questions and get help.
- Since all of the participants are involved in running population research institutes that are mostly in located in universities, it would help if there were an exchange about organizational structures. For example, how many professors in the faculty, staff who work purely in administration, data processing, the kind of organizational arrangements for different projects? As Mr. Hartke pointed out in his presentation, standards now constantly change. The structure you had five years ago may no longer be quite appropriate for the work demands that are now placed on a population research institute.
- The advantage of this network is that you find other Institutes who are confronting the same organizational issues as you are.

5. What participants should commit themselves to do in terms of network activities in the coming week.

In this kind of workshop, it is very helpful for sustaining the momentum of interest among participants if there is a specific activity to accomplish in the following week.

Otherwise, participants may easily forget the workshop when they return to work. What can everyone commit to do by next week?

- First, open the web site of DemoNetAsia. More than that, everyone should open the other seven Institutes' web sites. Open the different pages and see what's in there. It does not mean you have to read everything.
- Second, send a "critique" of others' web sites. Send your comments to the DemoNetAsia e-group so that everyone can read your comments. Identify what you liked and what you disliked in the web site but be diplomatic.
    - The resource persons have emphasized how important the web site is for the image of the Institute. In the past, a nice brochure or annual report was sufficient. That is no longer applicable: in the age of the Internet, most people first expect to find out about your Institute through your web site. That is now the main source for projecting your image and it touches an audience many times larger than hardcopy reports. Therefore, it is important to help each other and exchange ideas in order to improve each other's web sites.
- Third, raise anything else that comes to your mind. Ask or share information in the discussion group. For example, if you know of other software packages that may be of interest to people, pass the information along.

6. How to deal with updates in member institutes web sites?

- In the African web site (DEMONETA), they have a "What's New" section. If in six months time there are changes or additions to the member institute's web site, information should be sent to whoever is responsible for updating the DemoNetAsia site (IIPS – which volunteered to be the first coordinator). Notices of new features will be included in the DemoNetAsia web site to invite others to revisit the Institute's site and give comments about the new features added. Another alternative is to send a message via the DemoNetAsia e-group to invite everyone to revisit your site.

12. Closing Session:

Chaired by Mr. Jerrold W. Huguet

Discussion of recommendations by the working group.

Accommodating new members to the DemoNetAsia web page.

- There could be around two hundred population institutes in the region. How are new member Institutes added to the home page of DemoNetAsia while keeping the web page easy to use? It is easy to have eight boxes on the front page but as more Institutes join, the web page becomes unwieldy and difficult to navigate. There is a need to anticipate how to adapt the web page to these new demands.
- Following the African model (DEMONETA), the web page may be structured in such a way to keep the eight founding member Institutes constant. Each of these founding Institutes will have the responsibility for ensuring that any new members from that country will have a hyperlink on that Institute's web page. For example, CPS of Chulalongkorn University would have a hyperlink in their home page for all the other institutions in Thailand that wants to be part of DemoNetAsia, e.g., the National Statistics Office.
    - The drawback of that model is that it does not deal with the issue of how to join, in a flexible way. If there is no possibility of getting into the entire membership directly through the DemoNetAsia home page, what does membership in the network mean?
    - There is also the issue of a potential large number of institutions in the same country who want to join the network. The long list may end up filling the home page of the founding member Institute of that country. It is not clear whether the eight founding member Institutes want their home page to be essentially a portal to other institutions.
    - Is there a possibility of designing the home page of DemoNetAsia in such a way that all members will be there without necessarily cluttering the page?
        - One possibility is to create a separate column that lists the country names, then another, which gives prominence to the eight founding member Institutes who know each other and feel comfortable working with each other. If you click on Thailand in the country column, it will take you to another page on the multimania.com site that will contain hyperlinks to all the other Thai population centers.

Managing the DemoNetAsia e-group as membership expands.

- Not only the number of institutions may increase but also the membership in the e-group. In principle, all professional staff members of the eight institutions should subscribe to the e-group. The workshop participants have a responsibility to explain the concept of the e-group to other faculty members in these eight institutions and invite them to join the discussion group. If successful, this e-group will grow very quickly to around 300 to 400 members.
- Is there a danger that the discussion might be hijacked by a small group of people who would be interested in a specific topic that may not interest other people? This may lead to the generation of many messages that are not welcomed by others.
    - There are technological solutions to get around that. One approach is to apply a model used in other e-groups which makes available two distribution versions as options for receiving messages. One is the unmoderated broadcast version and another, a moderated version where a moderator takes the cream of the broadcast version and sends out to people who just want the

top layer or some subset. Another way is to chop off different topical areas. At an individual level, one can also set options in one's e-mail client to filter certain kinds of messages.

How will the eight founding Institutes mobilize participation by others?

- The eight founding Institutes have the additional task to contact potential members to invite them to be either institutional or individual members of the network. They should inform them of the procedures to follow in the registration. They can give out the URL of the DemoNetAsia e-group, so that other institutes in their respective countries can subscribe to it. Another way is to send the e-mail addresses of these potential members to IIPS (the network coordinator) so that it can send the information directly to them.
- New members can register either through the e-group or through the web site of DemoNetAsia.
- ESCAP will play an important role in promoting DemoNetAsia by getting the word out in POPIN Asia. It should also put a reference to DemoNetAsia in their bulletins and other communication channels to which it has access. The same goes for the Population Division.
- A note on the number of founding institutional members by Mr. Miranda: the fact that the network started with eight institutions is purely circumstantial. There is no fixed principle attached to the chartered eight. The more institutions, the better, but it would also be more difficult to bring everyone to an event. However, it is to the benefit of the network to have more institutional members, more activities, and more visibility. The founding members should use all the channels available to them to make their colleagues in other institutions aware that the network exists and that they may benefit from joining it.
- Each of the founding institutional members' web sites should put a link to the DemoNetAsia home page.

Other comments on the recommendations.

- About the recommendation of "promoting research and discussion on the new technologies of information and communication on demographic research and training activities" - examining the resources available on the web will show that demographers are not at the forefront in developing resources for their discipline, compared to economists, statisticians, health professionals and other groups. Somebody has to take the lead to raise awareness in the demographic profession about the value of new technologies of information for research purposes. DemoNetAsia can be an entry point and act as a catalyst for demographers in this region. In this context, Mr. Miranda informed the participants that he was planning to organize a session on the impact of the Internet on demography in the next meeting of the IUSSP, to be held in Salvador, Brazil in August 2001. An outline of the session was distributed to the group. The workshop participants were invited to consider contributing papers and were requested to help promote this proposed session to others.
- Regarding the future development of DemoNetAsia, the network can either be proactive by recruiting other institutes or wait until they apply. It depends on how proactive the founding members want to be. The difficulty lies in formulating specific criteria to select which institutions to invite or accept in the network. Mr. Miranda explained that at present the technical cooperation activities of the Population Division focused capacity-building in developing countries for population research, rather than non-research activities such as population advocacy, population information, activities of population planning

units, etc. This focus shaped initial profile of the network. If we get expressions of interests from other types of organizations, should they be welcome to join the network? Would that be helpful both to us and to them? How do we handle that?

- These are difficult questions to answer. The principle is: the more the better. However, if the institutions are not of the same nature, not like minded, do not share the same objectives, it might create issues that are difficult to sort out. Keeping an academic profile will be helpful in sending a signal regarding the ambitions of the network, and thus the type of institutions would benefit the most from the collaboration. However, it is up to the group to decide what to make of its network and the composition of its membership.

Approval of recommendations as amended.

- The participants of the workshop unanimously approved the recommendations of the working group with the following amendments:
  - That Institutions put a link in their individual web sites to DemoNetAsia.
  - That participants promote DemoNetAsia among institutions in their home countries and regions and inform them of procedures to follow in the registration.

13. Closing Remarks

Mr. Armindo Miranda

- DemoNetAsia web site and e-group successfully put on line!
- Mr. Miranda summarized the workshop activities as a hands-on learning experience wherein participants managed to demystify the complexity of creating a website. No hired consultant can ever give the sense of empowerment to do these things. The hands-on exercise leads to a realization that creating a web page does not require that much technical expertise. With a little bit of guidance in the beginning and enthusiasm, one learns to do these things very well. The assistance needed is primarily to ensure sustainability and continuity rather than to have somebody from outside do these tasks for the institution.
- Mr. Miranda expressed appreciation to the participants, to the resource persons, and to Mr. Nibhon Debavalya and his colleagues of ESCAP for the facilities, the team spirit and wholehearted cooperation of the support staff.

Mr. Nibhon Debavalya

- Extended apologies for not having been able to attend the workshop. As a demographer and former director of a population institute in a university, he would have very much wanted to join the workshop. Unfortunately, he had a full schedule of meetings to attend.
- Expressed profound appreciation to the Population Division at Headquarters for its efforts and the opportunity to collaborate, and to the resource persons, for their contributions.
- Acknowledged old friends among the participants.
- Congratulated the participants for the successful conclusion of the workshop and the setting up of DemoNetAsia on line.
- Expressed hope to increase future collaboration between the Population and Rural and Urban Development Division of ESCAP and the participating institutions.

14. Recommendations Adopted by the Participants

The participants at the Training Workshop, considering that

- the application of new technologies of information and communication to research and training is progressing fast internationally and that population research and training centres and professionals in developing countries need to be part of that development in order to avoid marginalisation;
- the Workshop had demonstrated the usefulness of a network approach to facilitate collaboration among population research and training institutions of the region and between them and their international partners;
- important first steps have been taken with the creation of a web site of the Network (http://demonetasia.multimania.com) and an electronic discussion group (http://groups.yahoo.com/group/demonetasia);
- the population research and training centres of the region wish to intensify their efforts to speed up the adoption and effective institutionalisation of new technologies of information and communication in their research and training activities;

therefore recommend that

- participants inform all the faculty and the professionals of the member institutions of the launching of the network and the existence of the Network's web site and discussion forum;
- participant institutions promote DemoNetAsia among institutions in their countries/regions and inform them of procedures to join the Network;
- participant institutions add a link to DemoNetAsia on their web site;
- all faculty and professionals from the member centres be invited to join and contribute actively to the Web site and the discussion group;
- upon their return to their home institutions, participants initiate a process of discussion about the specific challenges faced by their institution with regard to the effective integration of new technologies of information and communication in their research and training activities;
- responsibility for the management of the web site (webmaster) and the electronic discussion group (moderator) be assumed by the members institutions, according to a transparent process and on a volunteer basis;
- member institutions and their partners collaborate in the development of best practices and standards in the area of utilisation of the Internet for demographic research and training, such as presentation of demographic and socio-economic indicators;
- training activities related to the use of Internet and other technologies of information and communication be organised in the context of the Network, if necessary and appropriate with the support of international partners;
- the member institutions take an active role in promoting research and discussion in the professional community about the impact of new technologies of information and communication on demographic research and training activities;
- the United Nations and other international partners step up their efforts in the area of capacity building and technical cooperation to assist population research and training centres in developing countries in the sustainable adoption of new information and communication technologies;
- modalities for periodic review of the progress accomplished by the institutions in this area be studied.

15. ANNEXES

15.1 ANNEX 1 - Suggested guidelines for the presentations by the centres at the roundtable on "Institutionalisation of the Internet by demographic research centres in Asia: A benchmark review"

Institutionalisation of the Internet refers to the process by which the centres ensure that the Internet is integrated in the operations of the institution in a timely and sustainable manner, and is adequately provided for in terms of technical skills and earmarked resources. This segment of the workshop will serve various purposes: it will enable the participants to get a clear view of the state of Internet-readiness in the selected demographic research centres; it will help identify successes as well as obstacles; it will give an indication of the technical and other resources already available in the participating centers and their additional needs. Ideally, presentations for each centre should last 15-20 minutes, so that the eight centres can be covered within the total time frame (3 hours), and leave a few minutes for discussion/summing-up.

1) IT infrastructure

(a) Have all researchers been allocated a computer to which they have access at all times? If not, what is the proportion who lacks a computer?
(b) What kind of connection does your centre have to the Internet (nature and speed if dial-up connection)?
(c) Do all the researchers' computers have access to the Internet through a local area network? If not, what is the proportion of computers that are connected?
(d) What is the proportion of researchers having an individual e-mail account provided by your centre?

2) Web site

(a) Does your centre have a web site?
(b) If not, are you planning to create one? When?
(c) If your centre has a web site, who designed it? A regular staff member? A consultant?
(d) Did the creation of the web site entail significant expenses? If yes, how were they provided for (absorbed by regular budget or covered by specific grant?)
(e) Do you have a "web site committee" or similar structure ensuring staff participation and quality control of the web site?
(f) Does your centre have full control of the appearance and content of the web site, or do you have to report to a higher authority?
(g) What arrangements have been made to update the web site – who does it, periodicity, costs?

3) Skills

(a) Has your centre given itself goals in terms of desirable Internet skills among the research staff? If yes, what are such goals?
(b) What is your estimate of the proportion of researchers in your centre who know how to use e-mail?
(c) What is your estimate of the proportion of researchers in your centre who know how to search for information on the Internet?

(d) What is your estimate of the proportion of researchers in your centre who know how to write a web page?
(e) Is there a training programme to impart and upgrade Internet skills among the researchers in your centre? If yes, what does it consist of?

3) Impact

(a) Has the Internet had noticeable impact in the operations of your centre? Describe in what way.
(b) Does your institution receive much e-mail of a general nature (i.e., not addressed to a specific individual) – if yes, how is it handled?

4) Specific obstacles

Has your centre identified specific obstacles regarding the institutionalisation of the Internet in terms of:
(a) infrastructure
(b) equipment (hardware)
(c) software
(d) skills
(e) administrative issues
(f) political issues

15.2 ANNEX 2 - Directory

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15.3 ANNEX 3 - Evaluation Form

Please evaluate the quality and usefulness of the following aspects of the Training Workshop

	Excellent	Very good	Satisfactory	Fair	Poor
1. Institute presentations					
2. Presentations on Internet-based Resources					
3. Statistics Singapore					
4. Presentations on best practices					
5. Setting up of DemoNetAsia					
6. Workshop structure and content					
7. Hands-on exercise					
8. Duration					
9. Daily schedule					
10. Workshop facilities					

11. What part of the Workshop was most useful to you?

12. What part of the Workshop was least useful to you?

13. Please give any other comments or recommendations that you wish?

15.4 ANNEX 4 - Evaluation of the workshop

At the conclusion of the workshop, the 16 trainee participants were invited to fill out an evaluation questionnaire (see ANNEX 3). 15 completed questionnaires were collected.

	Ratings				
Segment	**Excellent**	**Very good**	**Satisfactory**	**Fair**	**Poor**
1. Institute presentations	1	10	3	1	-

Opinions regarding the presentations by the institutes of the state of their Internet-readiness ranged from excellent to fair, with two thirds of the participants rating it very good.

	Ratings				
Segment	**Excellent**	**Very good**	**Satisfactory**	**Fair**	**Poor**
2. Internet-based resources	5	8	1	-	-

Most participants rated the demonstration of Internet-based resources either very good or excellent. One participant did not reply to this question.

	Ratings				
Segment	**Excellent**	**Very good**	**Satisfactory**	**Fair**	**Poor**
3. Statistics Singapore	5	9	1	-	-

The presentation of the experience of Statistics Singapore in the use of the Internet for data collection in the context of the Singapore Population Census 2000 was rated "very good" or "excellent" by all but one participant, who found it merely "satisfactory".

	Ratings				
Segment	**Excellent**	**Very good**	**Satisfactory**	**Fair**	**Poor**
4. Presentations on best practices	3	8	4	-	-

While most participants found these presentations very good, the consensus on this segment was not clear; people who found it "satisfactory" outnumbered those who found it "excellent".

	Ratings				
Segment	**Excellent**	**Very good**	**Satisfactory**	**Fair**	**Poor**
5. Setting-up of DemoNetAsia	6	8	1	-	-

Participants were highly appreciative of the way the setting up of the network was handled at the workshop, with a large minority rating it "excellent" and all others but one rating it "very good".

Segment	Ratings				
	Excellent	Very good	Satisfactory	Fair	Poor
7. Hands-on exercise	5	3	6	-	1

The hands-on exercise was the least appreciated of the workshop segments; while a slight majority of the participants rated it "excellent" or "very good", the predominant rating was merely "satisfactory" and one participant deemed it "poor".

Workshop features	Ratings				
	Excellent	Very good	Satisfactory	Fair	Poor
6. Structure and content	5	7	3	-	-
8. Duration	2	6	6	1	-
9. Daily Schedule	3	7	4		1
10. Workshop facilities	4	9	2		

Most participants rated the structure and content of the workshop "very good" and a relatively large number rated it "excellent"; only one fifth of the participants thought that it was only "satisfactory" and none rated it lower than that. Few participants were clearly enthusiastic about the 3-day duration of the workshop: most opinions were either "very good" or "satisfactory", with one participant finding it only "fair". Opinions were also split on the daily schedule of the workshop and ranged from "excellent" to "poor"; while two-thirds of the participants rated it either "very good" or "excellent", those who found it "satisfactory" slightly outnumbered those who found it excellent. The consensus on the ESCAP facilities was clear: only two participants found them somewhat less than "very good."

Participants were asked what part of the workshop had been most useful to them. All participants but one had something good to say about the usefulness of at least one segment - several participants even gave multiple answers. The one exception was one participant who found the workshop valuable in terms of providing good opportunities to learn, but did not single out any specific segment for praise. Two segments were deemed most helpful, with six "votes" each: the hands-on exercise and the setting-up of DemoNetAsia. The discussion of best practices/standards was mentioned five times and the presentation of Internet resources four times.

Participants were also asked what part of the workshop that had found least useful – but the vast majority of them (thirteen out of fifteen) shied away from answering. The only two negative opinions that were expressed concerned the institute presentations and the hands-on exercise. This latter therefore appears at both ends of the range of opinions – although the six participants rating it the "most useful" part of the workshop clearly outnumber the lone participant who deemed it the "least useful."

Finally, participants were invited to offer other comments and recommendations and the vast majority did indeed respond. A common theme among the recommendations was that there should be a follow-up – some participants highlighting the need to assess the impact of the workshop on the progress of the institutions and others pointing at the need for additional training. One participant expressed the wish that there had more emphasis on applications to population studies; another would have liked to see some preparatory consultations with the demographers on the contents of the DemoNetAsia web site. Only one participant

expressed the opinion that there should have been separate programmes for the leaders/senior researchers and for the IT specialists.

On the whole, the evaluation of the workshop by the participants was clearly positive and the desire expressed by many to have some sort of follow up indicates that the DemoNetAsia strategy meets a need and is well received by its intended beneficiaries. The resources that have been already created, namely the web site and particularly the electronic discussion forum should be helpful to address some of the follow-up concerns and ensure a wider participation of all interested parties in the preparation of future training workshops and other activities.

http://demonetasia.multimania.com

DemoNetAsia

DemoNetAsia is a collaborative network of population research institutes in Asia. It was set up at a training workshop on "Advanced Use of Internet for Population Research" organised by the United Nations at ESCAP in Bangkok in December 2000.

The purpose of the Network is to promote collaboration among institutions in the region, to facilitate their task of addressing the common challenges that they face regarding the adoption of new technologies of information and communication for their research and training activities.

This website offers a convenient entry point to the websites of the members and partners of the network, reports of Network activities, and links to useful resources.

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