

**IDRC - Канадын Олон Улсын Судалгааны Төв**

**Report of research on ICT situation at state and  
government organizations**

**Project name:** Information and communications technology policy research

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**Period of research:** 2003-2004

Ulaanbaatar 2004

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### **Purpose of research**

The purpose of the current research is to analyse current situation of information and communications technology in state and governmental organizations.

### **Research objectives**

- To analyse policy framework of information and communications technology of state and governmental organizations, survey of legal and regulatory framework, structure and organization.
- To evaluate current situation of hardware and equipment used at state and governmental organizations.
- To review experiences of other countries implementing information and communications technology activities in state and governmental organizations and conduct comparative analysis with situation in Mongolia
- To provide suggestions and recommendations on projects to be implemented in state and governmental organizations in utilizing information and communications technology

### **Research framework**

The current research was conducted among state and governmental organizations.

### **Period**

The current research was conducted in years 2003-2004.

### **Research and other materials used in current research**

The following materials were utilized in conducting current research, such as:

- Survey of information and communications technology in governmental organizations, Mongolian Development Gateway, 2003
- [www.open-government.mn](http://www.open-government.mn)
- “Vision for year 2010 to implement information and communications technology in Mongolia” policy document
- Results of survey of information and communications technology policy
- Draft laws of information and communications technology: General law, law on e-governance, e-commerce and digital signatures.
- “Current situation of ICT in Mongolia”, 2003, Infocon Co.
- Results of survey on ICT Policy conducted under current project of the IDRC “ICT policy in Mongolia, which was processed by Mongolian Development Gateway, NGO.
- World Public Sector Report 2003: E-government at the crossroads, United Nations, New York, 2003
- Digital Review of Asia Pacific 2003/2004, Perpustakaan Negara Malaysia, 2003

### **Organizations, which participated in current research**

- Parliament of Mongolia
- Presidency
- Cabinet Secretariat

- Ministries
- Agencies
- Local governor's offices

### **Brief introduction on conducting research and analysis**

The current research was conducted for the period of 2003-2004 covering major ministries and governmental agencies as well as covering some of the local governor's offices, which have implemented ICT-related projects and activities. One of the components of the current research was conducting survey among governmental organizations on ICT situation.

The surveys and researches conducted by different institutions, such as Mongolian Development Gateway, NGO, Infocon Company, MIDAS NGO, Mongolian Foundation for Open Society (Soros Foundation) and others were used as one of the basis of information gathering, research analysis and review. Moreover, some of the data and information were compiled with support of the Cabinet Secretariat of the Government of Mongolia, as one of leading institutions coordinating activities of the state and government organizations.

Furthermore, during research work, the visits and meetings with representatives of state and governmental organizations were conducted to identify current situation with the ICT in state and governmental organizations, which included policy and regulatory framework, use of computers in daily work by government officers as well as availability and conditions of computers, hardware and necessary equipment in those institutions. The meetings were conducted both with senior management of state and governmental institutions and officers responsible for ICT related activities, such as maintenance, providing technical support for staff and conducting training for staff, etc.

Mongolia has 21 aimags (provinces) managed by local governor's offices. In order to identify current situation and future plans at the local governor's offices, the trips to Umnugovi, Bayankhongor and Khovd aimags were undertaken, during which the information was gathered, meeting with different stakeholders were conducted and analysis of the existing hardware, equipment, software and applications used as well as access to Internet and benefits of having this access were discussed. The Umnugovi, Bayankhongor and Khovd aimags were selected as aimags, which implemented Wide Area network projects of Mongolian Foundation for Open Society (Soros Foundation), during which each aimag had established wireless network of 5-6 organizations at aimag center and shared 64kbps bandwidth of Internet connection.

## **1 Current situation of information and communications technology in state and governmental organizations.**

According to the World Public Sector report 2003, published in New York, Mongolia is in 103<sup>th</sup> place<sup>1</sup> out of 173 countries on e-government readiness index, listed 124<sup>th</sup><sup>2</sup> out of

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<sup>1</sup> World Public Sector report 2003, New York, p. 186

191 countries on technological infrastructure and 57<sup>th</sup> out of 96 countries on human capital.

## **1.1. Policy framework of information and communications technology**

### **1.1.1. Legal and regulatory framework**

The information and communications technology development has undergone major challenges since the transition of Mongolia from centrally planned to market economy. The introduction of Internet services to Mongolia in 1994 changed traditional telecommunications service-dominated sector to information and communications technology, when new services and products were introduced in Mongolia.

The legal and regulatory framework of information and communications sector has undergone three stages:

- First stage is when there were no laws and regulations at all for new information and communications technology sector. There was a law on telecommunications, however it was mostly supporting analogue type of communication.
- Second stage is when there were some laws developed, but those were not directly related to Internet or its services. These include laws on telecommunications, law on radio waves, law on patent, Civil law and technology transfer laws.
- Third stage is when there were initiatives to introduce new laws and regulations, but still not success of doing it. The draft laws on information and communications technology were developed by the Information and communications technology department of the Ministry of Infrastructure, working group from representatives of the governmental and non-governmental organizations and private sector was set up, international and national consultants were involved in reviewing and improving draft laws. As a result of these activities, the draft law was revised to consist of general law and laws on e-governance, e-commerce and digital signatures. They were presented to the Cabinet meeting, but were not approved for submission to Parliament.

The ICT department of the Ministry of Infrastructure has developed a draft of IT law, which was first introduced at the meeting of representatives of government, private sector and civil society. Considering importance of this law, the working group of representatives of government, private sector, civil society and international organizations was established at that meeting, which spent over 3 months revising and making changes to draft law. The draft laws were introduced among government, private sector, civil society and media organizations and inputs of each of these meetings were integrated into the final draft of IT laws. Over 150 people were participating in these meetings and shared their opinions, suggestions and inputs to draft law. Moreover, the draft law was placed at [www.open-government.mn](http://www.open-government.mn) and [www.ict.mn/midas](http://www.ict.mn/midas) websites and citizens were contributing to draft laws on-line. As a result of this effort, the draft law consisting of one common law, laws on e-commerce, e-government and digital signature

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<sup>2</sup> World Public Sector report 2003, New York, p. 219

<sup>3</sup> World Public Sector report 2003, New York, p. 223

has been developed and made ready to present to submit for Government session and later on to Parliament session if approved by Government.

The IDRC “ICT policy research” team has conducted survey on ICT policy, which stated that the majority of state and governmental organizations have ICT person, who apart of doing regular maintenance and repair works is also responsible for development of the ICT related strategic planning and vision for his/her organizational. Moreover, the state and governmental organizations mostly have some types of policy documents on implementation of ICT related activities in their organizations. Those documents are mostly preferred to be developed internally and cover only their organization. Although this documents are related to ICT activities, the distribution of this documents to its staff is in paper, rather electronically. In most cases, those documents include establishment of local area networks, development or procurement of software applications and databases, procurement of necessary hardware and equipment, etc.

### **1.1.2. Structure and organization of information and communications technology of state and governmental organizations**

#### 1.1.2.1. The government ICT structure and organization

The ICT committee established under Prime Minister of Mongolia has advisory function and responsible for overall guidance of ICT related activities of Government of Mongolia. It has representatives of government, private sector and educational institutions and have 15 members.

The ICT department of Ministry of Infrastructure is responsible for policy, legal and regulatory framework of the ICT in the Government of Mongolia.

There is Communications Regulatory Committee, established as independent institution and is responsible for issuing licenses and certificates to Internet service providers, mobile and telecommunications operators and companies working on voice over Internet. Moreover, it is responsible for regulation of tariffs, radio waves and exchanges as well as resolving disbutes between different parties.

#### 1.1.2.2. The structure and organization of state and organizational organizations

The Ministry of Infrastructure had an officer responsible for information and communications technology related policy and coordination in 1998. Considering the rapid development of information and communications sector in Mongolia, the department for information and communications technology was established at the Ministry of Infrastructure, which had 10 staff-members, responsible for policy regulation, coordination of ICT-related projects, programs and activities as well as cooperation with international organizations. The department was coordinating its activities with private sector, government and non-governmental organizations. Moverover, the majority of ministries hired ICT officers, who were responsible for managing local area networks at their ministries, providing support for maintenance and repairs of hardware used at ministries as well as working on coordination of ICT-related projects, activities and policy related matters with other ministries and agencies.

According to the “Survey on ICT policy”,<sup>4</sup> the majority of staff working at the government organizations were ICT professionals, who were responsible for development of organizational business and strategic plans, vision for organization, contracting with ISPs in Internet service provision and other matters.

Some examples of organization of ICT units in state and governmental organizations:

#### Parliament of Mongolia

The internal ICT-related issues of the Parliament of Mongolia are handled by the Technical support department, which provides support for 1)over 270 computers, hardware (250 printers, copy mashines, scanners, etc.) and equipment used at the Parliament office; support and maintenance over 300 computers at the Parliament office, 2)local area network, 3)Parliament voting system, 4)website of Parliament [www.parl.gov.mn](http://www.parl.gov.mn) ; 5)broadcasting of Parliament sessions through separate channel, 6) recording of Parliament sessions and its preservation and 7) publishing unit of the Parliament of Mongolia. The technical support department has a staff of 17 people, but only 3 are responsible for ICT related matters, others are operators, mechanics, copy-machine operators, etc.

#### Presidency

The President’s office has offices for chancellory, monitoring, advisors support staff, press office and public relations. The ICT related matters at the Presidency are handled by IT officer, who provides support, maintenance of computer networks, updates of the websites, etc. The Presidency office has over 30 computers, connected to local area network and further to Internet.

#### Cabinet Secretariat

The ICT related matters of the Cabinet secretariat are handled by IT unit under the organizational department. The IT unit of the Cabinet Secretariat provides support for 1) over 100 computers, hardware and equipment used at the Cabinet Secretariat, 2) local area network of Cabinet secretariat, 3) wide area network of the government organizations, which are connected to [www.pmis.gov.mn](http://www.pmis.gov.mn) 4) [www.pmis.gov.mn](http://www.pmis.gov.mn) website of the government organizations, maintenance of its content and linkages to organizations, 5) direct communication with 6 aimags and soums 6) recording of proceedings of Government. It has a staff of 5 persons, responsible for IT related matters.

#### Governor’s office of Umnugovi aimag

The governor’s office of Umnugovi aimag has 40 computers, connected to local area network and further to Internet through Wide Area network of the Umnugovi aimag, which connects library, 3 secondary schools, judge department, FM radio stations and others. The <http://gate1.pmis.gov.mn/umnugobi/> website has been developed and located at the server of the Cabinet secretariat. There is one person at the local governor’s office, who is in charge of the ICT matters and provides 1)support and maintenance of

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<sup>4</sup> Survey on ICT policy, MIDAS NGO, 2003

computers, hardware and network, 2) coordination with other organizations on Internet connectivity matters and 3) updates websites of the local governor's office.

### **1.1.3. Information and communications technology projects and programs**

There are a number of projects implemented in governmental organizations related to information and communications technology. Within the framework of the "Medium strategy to develop information and communications technology in Mongolia", special attention was paid to the introduction of the information and communications technology in state and governmental organizations. The current research looked up at some of the big projects implemented in state and governmental organizations.

#### 1.1.3.1. Information and communications technology for Sustainable Human Development project of Cabinet Secretariat and UNDP.

One of the first projects implemented at the state and governmental organizations on introduction of the ICT related initiatives and project was a joint project of Cabinet Secretariat and UNDP – "Information and communications technology for sustainable human development". The project was implemented in 1997-1999, during which the computers were supplied, local area networks established and connected to wide area network at the Cabinet Secretariat office. Moreover, the computers were supplied and local area networks were established at the governor's offices of Uvurkhangaï, Tuv, Sukhbaatar, Khvusugul, Khovd and Dundgovi aimags, thus providing opportunities for communications between governor's offices and central government organizations using dial-up connection. As a result of this effort, the public management information system network was established, access to Internet was provided to state and government organizations, as well as first websites of the government organizations were developed and made available to wider public on-line. At the time of the completion of the project, the Cabinet Secretariat office has a network connecting over 70 computers and having Internet access for 64 kbps.

#### 1.1.3.2. Review and improvement of information and communications technology laws

The information and communications technology department of the Ministry of Infrastructure has initiated and developed the information and communications technology laws in July, 2003. Based on initial introduction of draft laws among representatives of government, non-governmental and private sectors and following recommendations to refine draft laws further, the working group was established, which improved draft law. The second version of draft laws were discussed among representatives of information and communications technology sector, governmental organizations, businesses, media and non-governmental organizations, whose inputs and suggestions were integrated in the third version of draft laws. Moreover, during this process, the international consultants through World Bank and Mongolian Foundation for Open Society provided their feedbacks and recommendations for their improvements. As a result of extensive efforts of different stakeholders, the draft laws were presented to Cabinet meeting and recommended for further refinement.

#### 1.1.3.3. Financial management information system project

The financial management information system project has been implemented at the State foundation office of the Ministry of Finance and Economics to enable real-time communication between state foundation offices at local and central levels. The project is supported by World Bank and implemented by IBM company in cooperation with MCS Electronics company. The state foundation office is itself is equipped with computers, local area network and connected to Internet. The state foundation offices at local levels are also have computers, local area networks and are connected with central state foundation office through VSATs.

#### 1.1.3.4. Provide support for network at the Parliament of Mongolia to enable provision of information to citizens of Mongolia

The Mongolian Foundation for Open Society (Soros Foundation) provided support to the Parliament of Mongolia with upgrading their existing network of computers and enabling Parliament office to provide information to citizens, so that the Parliament office would become more open and transparent in their activities.

As a result of the project, the network of the Parliament has connected over 350 computers, use fiber optic in local area network connections and newly designed website has been launched to provide information to citizens and organizations. The address of the website is [www.parl.gov.mn](http://www.parl.gov.mn).

#### 1.1.3.5. Project to support Wide area network at Bayankhongor, Umnugovi and Dornod aimags.

As part of the support provided to Bayankhongor, Umnugovi and Dornod aimags, the local area networks at the local governors' offices of these aimags were established and connected to Wide area network, sharing VSAT connections with 3 aimag center's secondary schools, library, judge department and FM radio stations in some cases.

The networks of the local governor's offices are connecting over 50-70 computers to local area network, thus sharing resources (such as printers, files, etc.) and having opportunities to connect to wide area networks of the aimags. Through this connection, the governor's offices were able to develop websites and provide information to citizens using this network.

#### 1.1.3.6. Open-government website

The [www.open-government.mn](http://www.open-government.mn) website was initiated by the Prime Minister and developed with support of USAID as a one of the ways of communications of citizens with government and Prime Minister.

The open government website was initiated and developed under the direct guidance and support by Prime Minister of Mongolia in 2002. The project was supported by USAID<sup>5</sup> initially and by The Asia Foundation from 2004. The main purposes of the website are to strengthen linkage between private sector and government and to facilitate reflection of public opinions in state policies and laws. The website have four major sections:

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<sup>5</sup> USAID – United State of America International Development

legislation (draft laws, Parliament agenda and links with laws); discussion (forum, online conference, questions and answers); links and search engine.

Currently, there are over 110,000 visitors to this website, which counts over 100 visitors per day. The feedbacks, comments, suggestions, recommendations, discussions and other points raised by the citizens were introduced to the Cabinet meeting every week and the ministries and agencies were urged with taking necessary actions as well as outcomes were informed back at the site.

The [www.open-government.mn](http://www.open-government.mn) website was quoted at the “World Public Sector report 2003 along with similar initiatives of Armenia and Sweden. It was said that “Mongolia has created a model on-line consultation facility – a model not only for developing countries but also for every country.”. The website was seen as successful and showed that the country “don’t have to be big, or rich, or a fully industrialized country to effectively implement e-government for the benefit of citizens.”<sup>6</sup>

## **1.2. Current situation of hardware and technology**

### **1.2.1. Automatization and software**

There are different software and applications used at the state and governmental organizations.

#### Operating systems:

There are different operating systems used at the state and governmental organizations. There was a survey conducted back in 1998 as an attempt to identify use of information and communications technology in state and governmental organizations. According to that survey, most of the state and governmental organizations were using Windows operating systems, such as NT, '98, etc. There were almost no organization, which was using Linux as operating system.

Since then, in 2003, the MDG conducted survey on the use of the information and communications technology at the governmental organizations. According to this survey, all of the governmental organizations had Windows NT operating system in their networks.

#### Softwares used

Considering that Windows NT is used as operating system, the Microsoft office package suites are used at the state and governmental organizations, which includes Word, Excel, Power Point, Internet Explorer, Microsoft Outlook, etc. Still, along with Microsoft product, the softwares of Adobe, Netscape and other companies are widely used as well. Moreover, the state and governmental organizations use softwares and applications developed specifically to meet their needs and requirements. In most cases, the financial and accounting software were widely used at governmental organizations and in addition to that the graphic design, storage registration, engineer construction, distance education and other software and applications were used at governmental organizations and they had at least 2 of these kinds of applications.<sup>7</sup>

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<sup>6</sup> World Public Sector report 2003, New York, p. 174

<sup>7</sup> Survey on ICT in governmental organizations, 2003, Mongolian Development Gateway,

### **1.2.2. Computer networks, hardware and equipment**

The government organizations were first organizations, which were started to be equipped with computers, networks and necessary equipment in Mongolia.

The Cabinet Secretariat and UNDP joint project “Information and communications technology for sustainable human development” was initiated in 1997 to equip governmental organizations with computers, networks, printers and necessary equipment so that public management information system was established and governmental organizations were able to communicate with each other through computer networks. As a result of successful implementation of the project, the computers were supplied, networks were established and public management information system was installed in Cabinet Secretariat, Ministry of Finance, Ministry of Education, Ministry of Environment, Ministry of Agriculture, Ministry of Infrastructure, Ministry of Labour, Parliament of Mongolia, Presidency, and at some agencies. The pilot projects were implemented in governor’s offices of the Uvurkhangai, Khovd, Sukhbaatar, Dundgobi, Khuvsgul and Tuv aimags, when limited amounts of computers were provided and first connections through emails between central and local government organizations were successfully carried out.<sup>8</sup>

Since then, a number of initiatives and project were successfully implemented at governmental organizations, enabling furnishing offices with computers, equipment and networks as well as providing opportunities for government organizations to install new software and applications.

#### Hardware

The situation with information and communications technology hardware and equipment at state and governmental organizations is different at national and local levels.

- At national level, all of the state and governmental organizations at national level are equipped with computers, networks and necessary equipment. These networks connected to Internet in most case and all ministries, agencies and state organizations have websites, but the information there in most cases are rarely updated and contain static information.
- The situation at local level is a bit different - the governor’s offices have computers, but few of them have networks and even fewer are connected to Internet. Although most of the governor’s offices have websites and host them at the server of the Cabinet Secretariat, most of them are static and have information of years old. According to visits to Bayankhongor, Umnugovi and Dornod aimags, the local governor’s offices of these aimags have local area networks of around 30-40 computers, which are connected to aimag wide area network (WAN) and further to Internet. The situation with aimags connection was of difficult nature, since no budgets were included at the aimag budget for Internet connection expenses.

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<sup>8</sup> Public management information system, 1998, presentation at Khovd aimag

According to survey conducted by Mongolian Development Gateway, NGO in 2003<sup>9</sup>, among 42 organizations interviewed, there were 2,106 computers for 4,490 of staff. This is roughly 1 computer for 2 persons. The majority of computers are of Pentium – III and IV types, but still there were organizations with Pentium- I and II types. Moreover, the most of the organizations had black and white printers, scanners, colour printers, HUBs, CD-writers and other equipment.

### **1.2.3. Databases, information and electronic contents**

Each of governmental organizations has some kind of database of resources, materials and information, which are specific to their needs. For example, the National Statistical office has an extensive databases used for statistical information gathering throughout country. The initial information received from governor’s offices of 350 soums, which is integrated into 21 aimag’s statistical information department and transferred to National Statistical office.

The Civil Registration and Information Agency of Mongolia also maintains huge database of registry of over 2.5 million citizens of Mongolia. The Ministry of Education, Culture and Sciences has also big databases, which contain information on number of schools, teachers, students and staff working at schools. The Ministry of Health also has a database of hospitals, doctors and nurses working in hospitals. The Ministry of Agriculture has extensive databases of pasture lands, grasslands and plantations as well as people leading nomadic lifestyle. The Ministry of Justice and Parliament of Mongolia maintains extensive databases of laws, regulations and policy documents approved by Government and Parliament of Mongolia. The Mineral Authority of Mongolia also has databases of licenses issued to companies doing explorations of lands, which also contains map of Mongolia with locations of specific mineral resources.

Although each organization has its own databases, but almost none of these are connected with each other and no data and information exchange is possible between different databases.

Considering that most of the government organizations have computers, networks and necessary equipment to that, the important part of the research was to find out what all these hardware and equipment are used for.

Apparently, most of the governmental organizations use these computers, equipments and networks for doing their everyday work, for accessing to Internet, for developing documents and materials, for doing some necessary calculations and accountings as well as for making designs.

The state and governmental organizations use [www.pmis.gov.mn](http://www.pmis.gov.mn) website as a main portal for websites of state and governmental organizations. The website would link to website of the Parliament of Mongolia, Government of Mongolia, Presidency and Supreme Court.

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<sup>9</sup> “ICT situation in government organizations”, 2003, Ulaanbaatar

At the website of the Parliament of Mongolia, it has links to the websites of the state organizations, such as Parliament of Mongolia, National Auditing office, National Statistical office, Bank of Mongolia, National Human rights commission of Mongolia, General election commission of Mongolia and Constitutional court of Mongolia.

The website of the Presidency has linkages to the websites of state organizations, directly supervised by President of Mongolia, such as the President office, National Security council of Mongolia, State committee on management and organizational rehabilitation and Political repression.

The website of the Government of Mongolia has linkages to websites of Ministries, government agencies and websites of the 21 aimags.

Besides [www.pmis.gov.mn](http://www.pmis.gov.mn) website, the [www.open-government.mn](http://www.open-government.mn) website also provides linkages to state and governmental organizations.

Most of the websites of the state and governmental organizations use extensive graphics and multimedia applications, such as sounds, audio and videos. Although extensive works and efforts were spent to the developments of websites, but few websites are regularly update the contents of the website.

According to the survey of MDG, about 95% of all organizations participating in this survey stated that they have email addresses. However, only 68% stated that they have web sites. Out of these organizations, most of the websites (42%) were made within last one year and 34% had websites for last 2 years. In terms of the regularly updating contents of the websites, out of all organizations only 29% stated that they update their website if there is a need of it and others stated that they have not updated content of the websites since its development or do it once in a quarter.

Considering that all governmental organizations have access to Internet, the question on what is this access used for has been raised. According to MDG survey, the Internet access mostly was used for information receiving and dissemination, e-mail usage, web site development, learning/training, commerce/payments, downloading programs, using Internet telephone, facsimile and other services.

In most cases, the governmental organizations have access to Internet through Micom, ISP and daughter company of Mongolian Telecom Company and majority of organizations use dial-up connections with access to Internet for over 2 years being as a typical years of Internet access.

#### **1.2.4. Human resources**

The human resource situation of information and communications technology professionals in state and governmental organizations is one of the important areas for consideration. Currently, almost all central state and governmental organizations have information and communications technology department, consisting of 3-7 people, which are responsible for information and communications technology matters related to

specific sectors. The situation in local levels is a bit different than of central level. Considering that not all governors offices are equipped with the networks and lacking computers and necessary equipment, there are only few governors offices which has a staff responsible for information and communications technology matters. In most cases, those staff-members are responsible for other jobs as well. During visits to Bayankhongor, Umnugovi and Dornod aimags, it was found that each of governors offices had a person in charge of the maintenance and repairs of the computers, hardware and equipment used at the governors office.

There are a number of problems with information and communications technology human resources in state and governmental organizations, which current research has identified as ones requiring special attention.

*First of all*, there is a need of the unified policy of requirements of information and communications technology professionals, such as level of education, experience, job descriptions, etc. Currently, at the state and governmental organizations, most of the ICT specialists do not undertake entry exams to start working at state and governmental organizations. There is no specific terms of reference of what these specialists should be doing. There are cases, when the ICT professionals are doing everything: maintenance and repair of computers, networks, training staff, develop and maintain websites, involved in the ICT police issues, etc. Considering that each of these jobs are of different natures, which requires different skills, there is a need of general guidelines for state and governmental organizations on what resources are required by them. For example, the webmaster can do only website related issues and does not handle computer repairs and maintenance, etc.

*Secondly*, there is a need of government policy for government officials on requirements and knowledge of using computers and necessary equipment. Currently, government officials are tested in knowledge of policy and regulatory frameworks and no tests and entry exams on their use of computers, software applications, etc.

*Thirdly*, there is a need of unified policy for regular training of governmental officials on the use of different applications, softwares, etc.

## **2. International experiences of information and communications technology of governmental organizations.**

### **2.1. World-wide and regional experiences**

According to resources at the international organizations, such as UN, Tacis, European Union, World Bank, ADB and others, an extensive number of the ICT projects are implemented at the state and governmental organizations world-wide. Most of the projects are targeted for making state and governmental organizations being open, transparent and accountable, providing up-to-date information to citizens, private sector, NGOs and other interested parties. The budget of the state and governmental organizations has been steadily increasing for last 3 years to include budget for ICT-related projects.

## 2.2. Experiences of developing countries

A number of surveys, studies and researchers were conducted by different organizations on the situation of the ICT in state and governmental organizations. The majority of these are related to the delivering of government information and services to citizens and few which defines the number of computers, operating systems and applications used, networks established at the state and governmental organizations. Thus, the experiences of the developing countries section of the current research will cover only the part related to the delivering information and services to citizens, services which make government to become more open transparent and accountable.

The Asia Pacific Information Development Program (APDIP) of UNDP in cooperation with the IDRC and Orbicom has published Digital review of Asia Pacific, which covers around 30 countries of Asia and Pacific region, developments of ICT in their countries. According to this document, a number of the countries in Asia and Pacific introduced e-government initiatives. For example, there is on-line application for the “renewal of passports and register births, marriages and deaths over the Internet”<sup>10</sup> in Philippines; the property valuation can be done online in Indian state of Andhra Pradesh<sup>11</sup>. The Australian and Hong Kong governments deliver over 1,300 on-line services to their citizens.<sup>12</sup> The main message from this is that when government information and services delivered on-line to ease the processing of citizens’ required documents, then the e-government project is successful.

The Department of Economic and Social Affairs of United Nations, released World Public Sector Report 2003: E-government at the crossroads, identified two major reasons for the government to use ICT in its operation and to go on-line, such as 1) priority development needs that require government involvement and 2) efficiency and effectiveness as key success criteria of government involvement. In order to use ICT in its operation and to go on and stay on line, the report states the need of the following:

1. availability of (initial) funding
2. skills and culture of the civil service
3. co-ordination
4. legal framework
5. ICT infrastructure
6. political leadership and long-term political commitment
7. public engagement
8. plans for development of human capital and technical infrastructure
9. partnerships
10. monitoring and evaluation.<sup>13</sup>

## 3. Conclusion

As it can be seen from this research, a number of progressive changes are occurring at the state and governmental organizations to introduce ICT in their work. There is no state and government organization without computers, all of them are connected to networks,

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<sup>10</sup> Digital review of Asia Pacific 2003/2004, Malaysia, p.221

<sup>11</sup> Digital review of Asia Pacific 2003/2004, Malaysia, p.115

<sup>12</sup> Digital review of Asia Pacific 2003/2004, Malaysia, p.35

<sup>13</sup> World public sector report 2003, New York, p. 8-9

some specific software and applications are used there. However, there are many things can be done in this area.

#### **4. Suggestions and recommendations**

The information and communications technology sector is developing rapidly, which requires extensive efforts from governmental organizations to be in-line with its development. This includes the policy and regulatory framework, computers, hardware, software, human resources and most importantly understanding of senior management of governmental organizations on importance of the ICT.

##### Policy and regulatory framework

- Considering that the draft laws on information and communications technology were developed, there is important to ensure that those draft laws were approved and necessary regulatory framework for development of ICT in state and governmental organizations will be established.
- There is a need of coordination of ICT policy related issues between state and governmental organizations.

##### Hardware

Considering that there are different computers and equipment in the state and governmental organizations, it is apparent that there should be policy for standards of hardware and equipment used at the state and governmental organizations. This should cover the type of computers, network related equipments such as HUBs, switches, printers, etc.

##### Software

There are many different software and applications used at the state and governmental organizations and most of these software applications are developed by different companies and use different platforms. There is a need of ensuring that each of these software and applications are interconnected with each other, so that the enterprise restructuring approach has been introduced at the state and governmental organizations. Moreover, it is important that the software applications, operating systems, office packages and Mongolian fonts will be standardized, so that the staff of state and governmental organizations were not looking for fonts to convert files received from different organizations or that the documents developed in one organizations needed to be upgraded in other format, etc.

##### Content development

Since, there is no problem with access to Internet of state and governmental organizations, special attention should be paid to the services of state and governmental organizations through Internet to citizens, business entities and other interested parties. This should include regular updates of the websites by state and governmental organizations, development of internal document filing system, etc.

## 5. Suggestions of projects to be implemented

The following are suggestions and projects to be implemented at the state and governmental organizations to promote development of ICT.

- Establishment of the agency, which will be responsible for coordination of the ICT related projects within state and governmental organizations. The major role of this agency would be ICT policy regulation, coordination and cooperation with different stakeholders.
- There is a need for development of human resource policy strategy document for state and governmental organizations, which could outline policy and regulatory framework, institutional capacity building and human resource policy for state and governmental organizations. Moreover, a number of projects can be developed and implemented with support from international organizations, such as World Bank, ADB, UNDP and others as well as within framework of inter-governmental agreements with countries, such as South Korea, Japan, Singapore and others for providing training, courses, participation in workshops, seminars and conferences for officers of state and governmental organizations. Considering that Australia is leading process of the public administration capacity building program, it is possible to cooperate with AusAid to include training of ICT professionals as part of their program
- There is a need of the policy for the unification of the hardware, equipment, software and applications used at the state and governmental organizations. The major role here can be played by the National office of standartization and measurement. The project can be developed and implemented in standartization of the document processing, acknowledgement of the emails as official documents and other matters.
- There is a need of the ICT policy, laws and regulations targeted for the support of the development of information and communications technology sector, promoting open and transparent competition as well as promoting state and government organizations to provide information and services to citizens, businesses, NGOs and other interested parties. Considering that the draft law has been already developed and the ICT sector is developing fast, there is a need of reviewing draft laws again in order to make necessary adjustments and changes to it.
- Moreover, the draft laws had proposals for changes in other laws and regulations of Mongolia, such as Civil code, law on telecommunications, etc. Thus, there is a need of reviewing those proposals and making necessary adjustments according to the recent changes.
- There is a need of the development of Action plans to implement ICT related activities and ensure that budgets for these activities are included in the state budget. At present, there is mid-term strategy to develop ICT in Mongolia and Action plan to it, which was approved by the Ministry of Infrastructure. The activities can be implemented to receive support on it from the Government of Mongolia, so that the activities are budgeted and included in the state budget.

- There is a need for development of e-government project such as that it is linked with currently implementing public administration reform project. The e-government is a nice buzz word, however, it requires extensive coordination and cooperateion not only between different organizations, but also between different departments within one organizations.
- There is a need of standartization of operating system, office packages used at state and governmental organizations
- There is a need of introducing enterprise restructuring approach in any software development projects to be implemented at state and governmental organizations, so that software applications were able to exchange data and information.
- The databases are required to be able to exchange data and information with each other, to ensure that government organizations were referring to one overall database of records and specific requests for information and data is not duplicated.

## **LIST OF ABBREVIATIONS**

MDG – Mongolian Development Gateway,

NGO – non-governmental organizations

ISP – Internet Service Provider

ICT – information and communications technology

IDRC – International Development and Research Center

USAID – Agency for International Development of United States of America

UNDP – United Nations Development Program

UN – United Nations

VSAT – Very Small Aperture Terminal