

**MEDICAL FACILITIES AND MEDICAL EQUIPMENT**  
**SUPPLEMENTARY PAPER**



### 3. MEDICAL FACILITIES AND

#### MEDICAL EQUIPMENT SUPPLEMENTARY PAPER

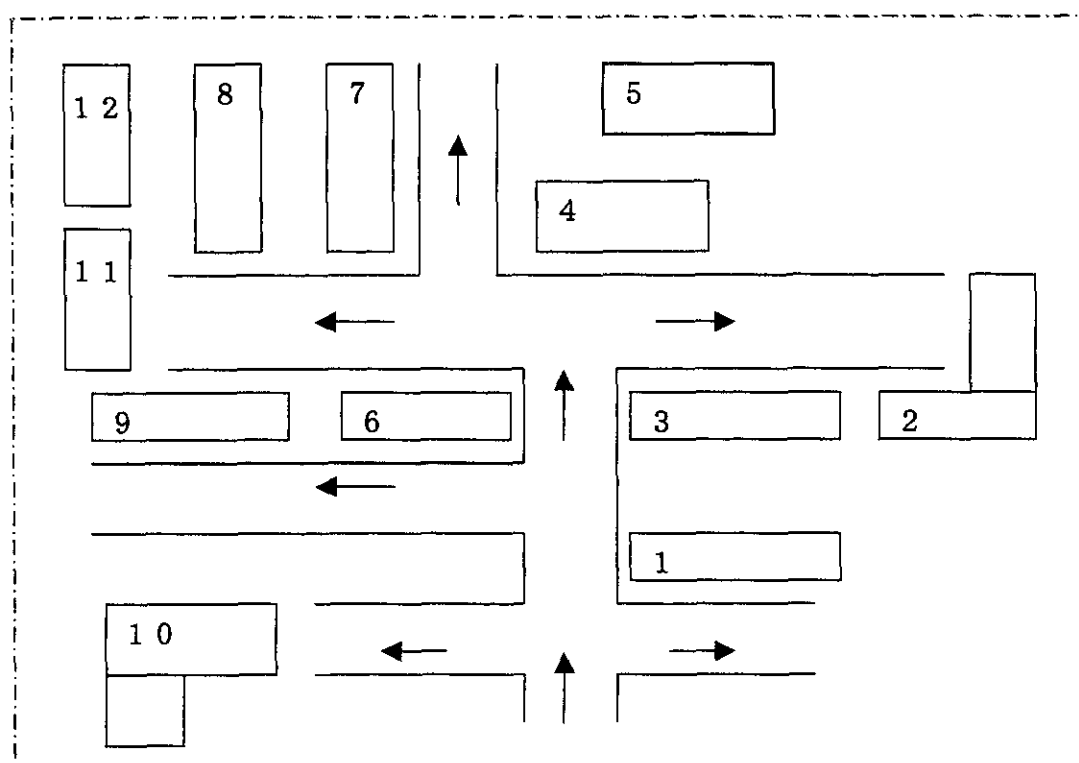
#### 3.1 Medical Facilities and Medical Equipment Problem

- (1) Owing to the influence of the former Soviet period, floor Plan for Oblast and Rayon hospital building are in “complex style”, and its scale and the number of buildings do not meet the actual situation of needs.

Most of the Rayon hospital and the Oblast hospital building are designed in “complex style, inheriting the style from the former Soviet Union age. Each department is located separately on the hospital site, not consolidated in on building.

This layout is creating inconvenience for patients. Moreover, the design of the hospital complex is not standardized, and differs in layout at every site.

As an example, the hospital layout Kiziltepa Central Rayon Hospital is shown below.



Name of Dept.

- |  |                                    |                   |
|--|------------------------------------|-------------------|
| 1. Reception, Laboratory, Administration | 2. Physiotherapy Dept.             | 3. Prenatal Dept. |
| 4. Pregnancy pathology Dept.             | 5. Therapeutic, Neurological Dept. | 6. Delivery Dept. |
| 7. Surgery, X-ray Dept.                  | 8. Drugstore, Autoclave Dept.      | Ambulance         |
| 9. Emergency medical aid Dept.           | 10. Pediatric, Gynecologic Dept.   | 11. Substation    |
| 12. Garage, yard                         |                                    |                   |

Figure 3.1 Building Plan of “Kiziltepa” Navoi Central Rayon Hospital

First, a patient goes to the examination or the treatment Department after finishing registration in building (No.1). Then, a patient needs to get out from building (No.1) and move to the next building by walk, because the buildings are not connected with corridor in the hospital.

A patient faces the greater inconvenience especially in the winter time when the outside temperature goes down to minus degrees and snow falls.

In addition, roads on the hospital sites are poorly maintained, which makes patients in wheelchair and patient stretcher difficult to move around. Environment at hospital for patient, in general, is severe.

- (2) The existing equipment was procured in the former Soviet Union period and they are 15~20 years old. The number and function of equipment are not always sufficient to provide adequate medical services.

The medical equipment was distributed during the former Soviet Union age in 1980's, and installed in each Oblast hospital and the Rayon hospital. Most of the equipment has been used for a long period of time and it looks worn out.

Most of the equipment made in the former Soviet Union is not well maintained, because manufacturing was discontinued. Owing to this, it is very difficult to procure the spare parts and consumable parts; the equipment does not function properly. As the level of equipment maintenance has declined, the quality of diagnosis and examination service for the patient has also dropped.

- (3) Tibitechnika provides maintenance and repair of the equipment at governmental medical facilities. They have a good skill for maintaining former Soviet style equipment, but have very little skill or technology for advanced western equipment.

Tibitechnika organized in the old Soviet age disposes the service station throughout the whole country of Uzbekistan. The service engineer resides in the hospital on a contract basis. But, Tibitechnika usually receives a call from the hospital when the medical equipment trouble occurs, and then service engineers are dispatched to the hospital for repairing. Tibitechnika has mainly repaired the equipment made in the former Soviet Union. Such equipment installed in the Oblast and Rayon hospital of Uzbekistan has become superannuated. After the collapse of the Soviet Union, some models were discontinued in manufacturing and it made the situation difficult to obtain spare parts and consumables.

Several years ago, the modern equipment of Europe was installed in the Oblast hospital,

however Tibitehnika is unable to correspond to the repair need and the maintenance work of the equipment.

- (4) Emergency medical care system is properly in place. It contributes to the improvement of health services, however the number of ambulance car and its equipment do not meet the needs of the existing situation.

By the Presidential Decree, emergency medical care hospitals were disposed in each city in the oblast, beginning with Tashkent City, and the emergency care system operates for 24 hours. Each Central Rayon hospital also has a branch of emergency care, and the emergency vehicle can be called from any regions by dialing the telephone number "03".

Emergency "03" vehicles use minivans without any medical equipment on board. Therefore, these vehicles are practically used for transporting patients and no emergency care is done.

The ambulance equipped with the medical treatment unit was only observed at the Research and Emergency hospital and MDS/private hospital in Tashkent.

- (5) The management of operation and maintenance for equipment in medical facilities is weak: no engineer specialized in equipment, no logbook record, no inventory management for stock of consumables and spare parts.

Tibitehnika provides the management of operation and maintenance for equipment in the contracted hospitals. There is no other special organization for these tasks; each hospital manages spare parts and consumables. When it is necessary, each hospital orders spare parts and consumables to the agent directly.

For managing the spare parts and consumables for medical equipment, hospitals need specialists who can calculate the annual budget.

- (6) Ministry of Health prepared a provision standard of equipment for each referral facility.

However, equipment grade and quantity are not enough to meet the situation of each referral level of facilities, the number of patients, components of medical services.

Patients first get the examination at primary level, usually at SVP/rural area or Polyclinic/Tashkent. If further treatment becomes necessary, patients are sent to upper level facilities (Rayon hospital and Oblast hospital).

However, the specialized hospitals of the same scale exist in the city areas (Oblast level) individually, and departments with the same function are often overlapping.

Consolidation and restructuring of these specialized hospitals in the city areas are necessary for saving the running cost.

(7) *The sanitary condition of medical facilities such as lavatory is poorly maintained.*

Lavatories in hospitals and any public spaces are unclean and filthy; some lavatories have no water for washing hands. Hospital lavatories should always be clean and tidy so that they can set a good example of public health model.

In large part, lavatory users are responsible; therefore they need to become more aware of keeping the lavatory in a sanitary condition by regularly cleaning it.

In addition, lavatories in some hospitals are located outside. For patient's convenience, lavatories are better located inside of the building.

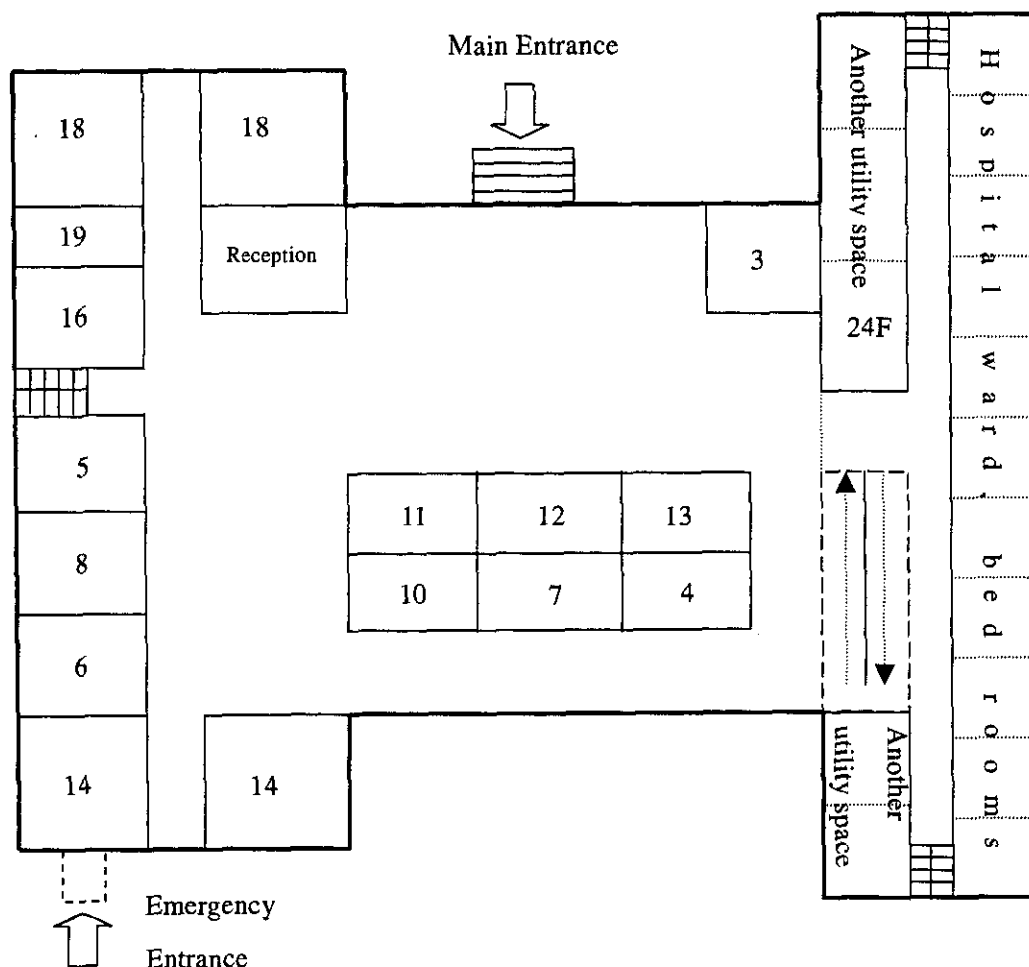
### **3.2 Medical Facilities and Medical Equipment Programme**

Appropriate resources should be prepared for each level of medical facilities to provide equal, adequate and effective health care services. Operation and management also needs to be strengthened. To meet the actual situation of needs, the scale and number of buildings require some changes.

With paying attention to the above described issues of Central Rayon Hospital, the Health Project by the World Bank and Asian Development Bank has implemented the programs for strengthening of medical equipment and facilities in SVP at primary level.

The recommendations to be included in the Master Plan are listed below.

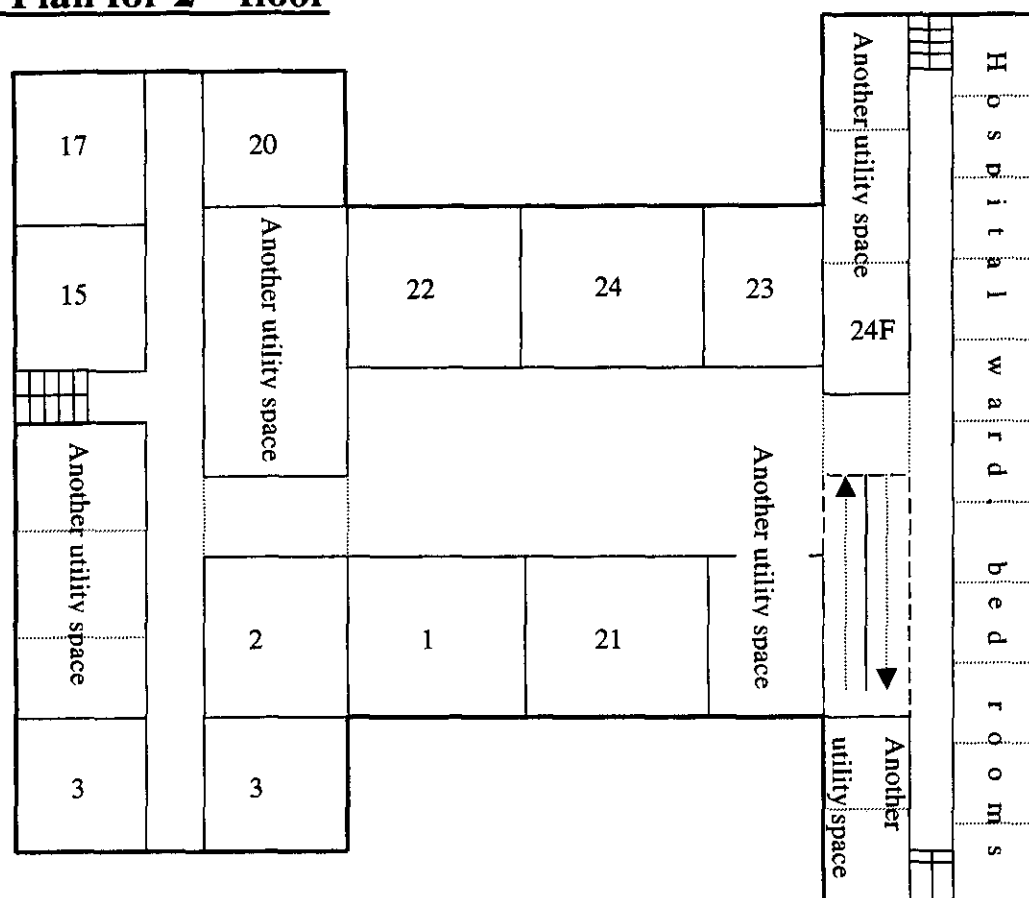
### **Floor Plan for 1<sup>st</sup> floor**



### **Name of Department (1<sup>ST</sup> floor)**

- |                              |                                |
|------------------------------|--------------------------------|
| - 3. Pharmacy                | - 10. Dermatology              |
| - 4. Internal Medicine       | - 11. Ear, Nose & Throat       |
| - 5. Pediatrics              | - 12. Ophthalmology            |
| - 6. Surgery                 | - 13. Dentistry                |
| - 7. Orthopedics             | - 14. Emergency Treatment Room |
| - 8. Obstetrics & Gynecology | - 16. Endoscopy                |
| - 9. Urology                 | - 18. X-ray & - 19. Others     |

## Floor Plan for 2<sup>nd</sup> floor



## Name of Department (2<sup>ND</sup> floor)

- |                                     |  |
|-------------------------------------|--|
| - 1. Operation Theatre              | - 20. Physiotherapy Room                 |
| - 2. Central Sterilize Supply Dept. | - 21. ICU                                |
| - 3. Pharmacy Compounding           | - 22. Delivery Room & Manufacturing Room |
| - 15. Function Test Room            | - 23. Preparation (Labor) Room           |
| - 17. Clinical Laboratory           | - 24. New Born Nursery Room              |

### **(1) Consolidation of Hospital Facilities and Internal Functions (Complex Building Exclusion)**

The building floor plan in the above 2 figures are made by referring to the present function of Rayon hospital. The outpatient examination and the treatment sections are mainly situated on the first floor, and an operating room, ICU and the function diagnosis section are on the second floor.

The hospital building is functionally divided into a right and left wing. The patient wards are set up on the right side of the building. As the present Rayon Hospital has 200-250 patient beds, the number of beds are planned in the same scale, 240 beds. The number of



patient beds of each ward (outline) is listed below.

- |                                   |                                  |
|-----------------------------------|----------------------------------|
| - Internal Medicine/20 beds       | - Dermatology/20 beds            |
| - Pediatrics/20beds               | - Ear, Nose & Throat/20 beds     |
| - Surgery/20 beds                 | - Ophthalmology/20 beds          |
| - Orthopedics/20 beds             | - ICU/20 beds                    |
| - Obstetrics & Gynecology/40 beds | - New Born Nursery Room /20 beds |
| - Urology/20 beds                 |                                  |

## **(2) Consolidation of Hospital Organization**

The structure of medical aid service is planned as follows.

Patients receive the examination and treatment at primary level (SVP, FAP etc.). Then, patients with further treatment required are sent to the second level hospital (Rayon Hospital), finally the patient can receive treatment with high degree at the tertiary level hospital.

At the present time in Uzbekistan, patients can choose any hospital to receive treatment. However, the hospitals at the third level are divided into various specialties in different regions; patients are burdened with commuting to these hospitals.

To improve patients' accessibility to hospitals, it is desirable that tertiary level hospitals with different specialties in Oblast are disposed at the same location. This will also improve efficiency in hospital organization.

## **(3) Examination Policy of Equipment List**

### **1) Equipment list of Rayon Hospital:**

The Master Plan for the hospital facility and the equipment list was considered through examining the hospital equipment list from the Ministry of Health, current condition of Rayon hospitals, and the results of the questionnaires. The facility and equipment were planned in accordance with the functions of general hospitals and Central Rayon hospitals. The hospital departments are shown below. (See attached equipment list.)

- 1. Operation Theatre
- 2. Central Sterilize Supply Dept.
- 3. Pharmacy Compounding  
& Manufacturing Room
- 4. Internal Medicine
- 5. Pediatrics
- 6. Surgery
- 7. Orthopedics
- 8. Obstetrics & Gynecology
- 9. Urology
- 10. Dermatology
- 11. Ear, Nose & Throat
- 12. Ophthalmology
- 13. Dentistry
- 14. Emergency Treatment Room
- 15. Function Test Room
- 16. Endoscopy
- 17. Clinical Laboratory
- 18. X-ray & - 19. Others
- 20. Physiotherapy Room
- 21. ICU
- 22. Delivery Room
- 23. Preparation (Labor) Room
- 24. New Born Nursery Room

At present, each Oblast has the following specialized hospitals (the third level hospital). The next step will be to consolidate these specialized hospitals. Moreover, it is preferable that in the future, blood is to be tested at the central laboratory in each Oblast.

- Oblast Branch of RSCEMA
- Oblast Clinical Hospital
- Oblast Pediatric Hospital
- Oblast Maternity Hospital
- Oblast Psychiatric Hospital
- Oblast TB Dispensary
- Oblast Ophthalmology Hospital
- Oblast Dermatology-and-Venerology Dispensary
- Oblast Endocrinology Dispensary
- Oblast Oncology Dispensary

## 2) Operation and Maintenance

Tibitechnika provides the management of operation and maintenance for equipment in the contracted hospitals. No other special organization manages the spare parts and consumables for medical equipment, thus, each hospital manages the spare parts and consumables on its own.

For managing the spare parts and consumables, and maintaining the medical

equipment, it is important to budget the necessary expenditure annually.

Engineers at Tibitechnica are not skilled in maintaining several kinds of advanced western equipment. As it is indispensable to maintain medical equipment in hospitals, a regular training program by foreign manufacturers needs to take place on government budget so that skill of engineers will be improved. Alternatively, the equipment training program by JICA in Japan may be an option.



***4***  
***SURVEY OF EDUCATION SYSTEM***  
***SUPPLEMENTARY PAPER***



## **4. SURVEY OF EDUCATION SYSTEM SUPPLEMENTARY PAPER**

### **4.1 Introduction**

The current survey was prepared in the frameworks of the project on “The survey of reforming of healthcare and medical system of the Republic of Uzbekistan” to prepare primary informational and methodological base for further analysis.

It contains description of main education development tendencies in the world and most famous and influential education systems of foreign countries.

### **4.2 Universalization and Integration of Education Systems**

Nowadays, the processes of education system reformation cover most of countries. Creation of united economic and social zones is a part of integration processes of education and development of general legislative education level requirements.

From the end of 60s and especially for the last ten years, there was passed a number of significant agreements in educational sector, which the process of universalization and integration.

Hence, UNESCO in 1997 approved International Standard Classification of Education, according to which the following general education levels were determined:

- Pre-school education
- Primary education -1 level of basic education
- Secondary education – 2nd level of basic education
- Post secondary, not higher education
- Higher education
- Higher education, which leads to making scientific degree

In 1999 they approved Bollonian declaration on development of united education space among European Union countries. 29 European countries began synchronous education reforms, planned to be finished till 2010. In the frameworks of these reforms, they provide transition of national education systems to relative or similar education levels, programs and qualifications.

Bolonian declaration provides the following steps in creation of United European system of higher education and its expansion:

- Create more convenient, for comparison, system of education levels (grades), to help in job placement of European citizens, including competitive ability of European higher education system on the world market;
- Establish a system based on two education levels. The first level, approved by European labor market and higher education system as satisfied qualification level, must be continued at least for three years;
- Create credit training system, which means development of European system of credit training, and also create credit training system for providing of experimental training and pre-institution training, on conditions that credit training would be adopted by university system as a instrument which will effect students' mobility.
- Break down barriers in students' access to all services, connected with education.
- The work-time of teachers, scientific personnel and administration staff (scientific-and-research works, training, probation etc.) in Europe, must be considered without any violations of their rights in pension accounting, providing them public insurance payments; development of criteria and methodology of teaching quality examination.
- Implement such kind of term like "European higher education space", which includes training course content, cooperation among education institutions, mobility schemes, integrated education programs, training and providing of scientific researches.
- Bachelor's degree proposes from three to four years training on the base of credit training system (ECTS);
- Master's degree – about five years on the base of credit training system (ECTS);
- Doctors' degree – from seven to eight years.

In 2001, on the Conference of Ministers of education from member states of Commonwealth of Independent States, there was made a resolve to "Create united classification table of education levels and degrees for member states of CIS"

At the same time, the current comparative researches, provided by European education Fund, World Bank, UNESCO, other international and national organizations, show that today, there are no effective national education systems as models. Each country



determines its own model of education reforming and developing based on current international standards.

Hence, Russia in contrast to Uzbekistan, during reforming, in fact refused to restructure education system. The main goal was to modernize existing types of education institutions, diversify education content, and develop new educational technologies, institutional innovative scientific-and-research programs and centers. In particular, lyceum forms with thorough subjects' study are established on the base of current secondary schools with 11 years education course. In 2001-2002, 67% of pupils of 9-year basic course school continued their education in senior forms. Along with new types of education institutions (lyceums, gymnasiums, military schools, colleges etc), such institutions like vocational schools with the former status of primary specialized education, higher education institutions with five-year education course, which can give master's degree, are still functioning.

This policy helped Russia to save education system stability, its potential and level, which is still considered to be one of the best in the world.

#### **4.3 Standardization of Education**

Standardization of education is one of the key problems in process of education systems' reformation. Standardization means a process of working out of state standards for basic education content, compulsory for all pupils. In many countries, it is becoming very popular to including assessment into the structure of standard, which makes possible to provide monitoring of quality and effectiveness of education.

The content of standardization process depends on specifics of national education systems. For instance, in Anglo-Saxon countries – USA, England, Canada, Australia – education, especially secondary, is more utilitarian. In France, Italy, Japan, Russia education, according to specialists' opinion, is mostly academic. Besides this, the problem of standardization directly connected with the formed state education management system.

Hence, in USA, taking into consideration high level of each state and region autonomy, Education Department decided that standards are not compulsory. The Higher School

has no education plans and programs, suggested for all education institutions of the same type. School education in USA suffers of a great difference in quality of teachers' training and qualification, absence of standardized education planes and programs, great difference between levels of school training and institutes' requirements to an entrant. For instance, in 2001, Baltimore government spent about 12,8 mil. \$ to establish summer schools for children with special needs, as the level of knowledge of the third part of all pupils in the city did not response to the standards of education system.

In Great Britain great decentralization of education, when schools are very independent and work out education planes and programs themselves, is extremely criticized, mostly by industrial enterprises. It is said that the content of English education system is worse then those of Germany, French and Japan. The higher education sector of England is also specific. In comparison with many other countries, the education planes and programs of Britain universities contain different specters of subjects according to the students' interests, potential of this institute and society to keep a good quality of education. According to mentioned demands there were worked out standards for engineering education, which contain: fundamental knowledge, universal professional skills, ability to foresee and react obvious changes in technologies, methods of work, on the market, in labor sector. The main idea of reforming both in USA and Great Britain is nationwide examination of pupils' progress to find out the scope of knowledge that they could learn of the whole scope they were taught.

Countries with centralized education management system, like Japan, French, China, former USSR, where standard always had a form of education planes, programs approved by government, textbooks, recently reconsidered former standards.

Hence, the government of Japan decided that their education system is not flexible, not enough opened for ideas of other countries, the priority of central idea of standardization was to pay more attention to individual abilities, and bringing up a feeling of patriotism together with understanding of other cultures to the pupils. And the content of standard was minimized as much as possible.

Reconsideration of state education standards in French was provided because of refusing of encyclopedic learning principle and marking out of the following points: main part – is a scope of knowledge needed for every student; additional part, which makes possible

to take individual abilities of students into consideration; and optional part, which means self education under teacher's control.

In Russia, new conception of general secondary education structure and content was approved in 2000.

It contained the following points: to simplify curriculum; knowledge's fundamentalization in general basic education (5-10 forms) – transfer complicated parts of physics, chemistry etc. from basic general education school to senior forms; orient school programs on getting applied, practical knowledge; keep high level of mathematic and natural-science education in secondary school, establish senior profiled schools where the thorough study of chosen subject will be provided free of charge; one state exam after graduating school and entering the institute, instead of present double level system of providing the exams at school after graduation and entrance exams at Higher School. Hence, the state decided to reorganize the general education school. In the frameworks of Russian education reforms, there was created a state education quality management system on the base of state education standards.

Education standards in Russia consist of federal and regional components. Federal component determines compulsory minimum content of basic education programs, maximum scope of curriculum and students' knowledge requirements. The Federal component is formed for each specialty according to specifics of specialty. The Regional component contains socio-economic specifics of workers' and specialists' qualification in concrete region.

There were worked out standards for 292 integrated specialties and professions, including 50 new professions and specialties. Each specialty belongs to some fixed qualification level. In 2000/01 new state education standards for higher professional education were implemented.

In Uzbekistan, there are only national education standards which have no regional components. Basic standard documents are approved by the government of the Republic of Uzbekistan. Training and profession standards are approved in the Ministry of Higher and Specialized Secondary Education and must be implemented in all republican education institutions. The basic regulation determined a period of

education standard validity – 3-5 years depending on sector where this standard is to be implemented. In special cases changes may be made before this period.

Nowadays 70 standards (for professional colleges) and 4 (for academic lyceums) are approved by decree of the Ministry of higher and specialized secondary education in 2001 and 2002. The standards, for colleges, for only 145 of 291 specialties are worked out and approbated. Only one integrated standard was worked out and approved.

Specific methods of different countries in creation or reconsideration of state education standards shows their aspiration to create optimal education standard, which means that it must contain accurate description of state education content requirements.

#### **4.4 Continuity of Education and Affordability**

In modern world, covered by process of globalization and intensive processes of integration and high dynamic economics, continuous education during whole life is taking on special significance, conditioned with transition into society based on literacy.

Continuous education through whole life means “any purposeful education, carried out routinely with the aim to improve the knowledge, capability and competence”. Particular goals of education through the life are bringing up socially active people, imparting skills to people, necessary for their employment and improvement of professional skills.

Thus, countries of European Union have accepted a program on “Main directions of employment development, 2001”, where education through whole life is observed as horizontal aspect of the strategy in employment issue. This document puts following two objectives before EU countries: development of complex and comprehensive strategies of continuous education through the life, which includes systems of “education and training” existing in those countries, also increase the investments in human resources.

Since the beginning of 2000, new programs in the field of education, and increasing the activeness of youth oriented to local communities being implemented within the countries of EU. Providing joint events by the strength of practical workers of various sectors of education or in the sphere of formal and informal education for the

development of education innovation methods is one of the missions of the programs; inter-relations between various structures, who work in the field of career-guidance and etc. In particular within the framework of these programs the undertaking of the joined events is foreseen by the practical workers of the various sectors of education and training or in sphere of formal and non-formal training to work out innovative methods of training; cooperation between various agencies, implementing profession oriented activities, etc. Thus, continuous education through the life means continuous improvement of qualification and education of adult population.

In Uzbekistan we traditionally suppose under continuous education continuity and succession of the educational programs of different level. In particular in the National program of the personnel training that continual education includes such kinds of education as preschool, secondary general, secondary vocational, professional, higher educational, postgraduate education, improvement of professional skills and personnel retraining, out of school (extra-school) education.

According to the opinion of experts of Asian Development Bank and European Education Fund concept of continuous education through the life is still not highlighted in the strategy of Uzbekistan education system reform and require increased attention of corresponding State and Public institutions.

The Problem of access to higher education for low income groups of the population, and national, language minorities, refugees and disabled people raised as the results of socio-economic reforms and education reform.

According to the General Declaration on Human Rights, right for higher education is one of the basic rights of the mankind, which must be defined by capabilities, possibilities, efforts, persistence and insistency of those who want to obtain that kind of education. For upper-mentioned groups of the population, inaccessibility to higher education must be solved owing to special material and pedagogic aid.

On the other hand, the problem of inaccessibility to education is related to absence of flexibility of formal education and its inaccessibility for many individuals of vulnerable groups of the population and with misfit of continuous education to a modern concept. Current problems' mission is to solve development of informal education system and distance education.

The programs of distance education are supported by all leading western universities. Transnational projects are developing widely, such as SES-NET. (Education and training network in south-eastern Scotland). The aim of the project is creating the network of educational centers in off-center places, also in companies, providing informational services, career-guidance and training according to the choice of students, including opportunities of IT opportunities in education.

There is Institute of distance education created in Russian Federation and purposeful policy of investments on involvement of distance courses in the system of human resources retraining is implemented. The first pilot project on distance education financed by Asian Development Bank is being implemented in Uzbekistan since 2002.

#### **4.5 Education Financing**

One of the most important problems for all countries of world community is modernization of national education system financing.

Under the variety of educational systems in the world one of the common types of its effective performance is the sufficiency of financing. World Bank studies show that such a norm is the allocation of not less than 5-7% of GNP to satisfy educational system needs. At the same time, investment policy effectiveness evaluation in the sphere of education seems to be a complicated task. The problem is in determination of such quantitative indicators that could correspond to the quality of received education as a result of education investments and type of relations between education expenditures and its quality.

The issue of what proportions and degree the payment for education can be determined is the acute subject for discussions in world community. In solving of this issue Governments of several European countries and USA continue remaining on conservative positions proposing to include educational credits into the high education system financing. Such credit extension is accompanied by financial expenditures transfer and responsibility to population as far as its introduction usually occurs in government financing decumulation. Presently, credit system is in practice in USA,

Canada, Swiss, Holland, South Africa, etc. Government plays critical role in high education financing in majority of world countries.

Legislation of all the developed countries of the world guarantees getting obligatory free-of-charge secondary education. All the stages and levels of educational systems have government facilities, financed from the budget as well as private facilities providing for payment by citizens for educational services.

In the middle of 90-s government financing of higher education formed approximately 90% in Germany, Austria and Italy, approximately 80% in Great Britain, Portugal and Finland, around 70% in Denmark, Swiss and Ireland (in USA this indicator was greatly less - 50%). It is necessary to note, that up to the year 1980 education in higher education facilities of western-European countries, with rare exception, was free.

To the end of 90-s it remained the same only in Germany, Austria, Denmark, Finland, Greece, Norway and Swiss. In USA more than majority of institutes of higher education are private, though, 79% of all students study in government institutes of higher education.

The common tendency of national educational systems reform process is the increase of off-budget shares. Thus, World Declaration on higher Education for XXI century highlights, that higher education system financing requires the intake of government so as private funds. However, government higher education financing retains its importance and is determined as critical indicator of its accessibility and stability.

#### **4.6 Education in the Republic of Uzbekistan**

The system of education controlling in the Republic of Uzbekistan is provided by government. The private sectors, public organizations and funds are mostly not included into the process of educational institutes controlling.

According to the Law on Education, the Cabinet of Ministers is responsible for providing of state policy in education sector, working out and implementation of measures on providing of State on specialists' training Program. The Cabinet of Ministers has following functions: guide education controlling departments; fix procedure of creation

and accreditation of education institutions, educational and scientific specialists' attestation; approve standards, enactment of decrees on realization.

In 1997 there was created Republican committee on providing of State specialists' training Program, which functions were to reconsider legislative and normative bases of specialists' training system, provide conditions for working out, approving and implementing state education standards; make suggestions on improving the system of academic lyceums and specialized colleges; provide conditions for attracting and effective usage of donors' funds; monitor and elucidate Program providing in mass media service.

The level of state expenditures on education is 7.5% of GDP, it is approximately two times more then the same level of other countries with transition economics. Education institutions are financed mostly by Republican and local budgets on the base of state standards. Almost third part of state budget expenditures (28%) is spent on these goals. The financing of 98% of state educational institutions and organizations is provided by local budget.

According to the legislation, other sources for educational institutions' financing may also be used.

- Funds of enterprises and organizations, for specialists' training, on the base of contract;
- individuals payments for short-term courses training;
- funds, which were received as a result of education-industrial and commercial activities;
- monetary and material fees of institutions, constitutors and sponsors;
- bank credits;
- monetary funds of enterprises and organizations, mission invested;
- Incomes from securities;
- Investments of public and charitable organizations;
- Other sources of financing, not prohibited by the government;

The education system contains the following levels:

- Preschool education.
- General secondary education.



- Specialized secondary education
- Higher education
- Post graduate education
- Raising the level of qualification and retraining of specialists
- Non-school education

There are 6 865 state non-school education institutions which cover 642 thousand children at the age of 1,5 to 3 years, it is 19,4 % of total number. Taking into consideration all kinds of preschool institutions, the total coverage of children in 2002 was 27,4%.

According to the Law of the Republic of Uzbekistan on "Education" 12 year secondary education was established. 10-11 forms, forms of general education schools, vocational education colleges and technical schools are consolidated in three-year course of compulsory education, which will be provided in two new types of educational institutions: "specialized college" and "academic lyceum". All pupils of general education schools, after graduating from the 9<sup>th</sup> form, at the age of 15-16 years old, will have to continue their education in colleges or lyceums. The major function of lyceums is to accomplish general secondary education and thorough study of science to train them for further entering the institutes.

The system of general secondary education contains 9 692 schools, 79,3% of them are rural schools. The study in general education schools is provided on 7 languages. The prevalent is state language - Uzbek.

The number of pupils during years of reforming increased for 15,5% and by 2002 was 6 287,7 thousand people. 40,1% or 2 511, 9 thousand pupils of the total number are from primary schools, 50,0% or 3 131,5 thousand pupils of the total number are from general education schools. Because of secondary education restructuring, the number of pupils of 10-11 forms decreases every year, as a result, in 2002 this number was 9,9% or 623,0 thousand pupils. According to the National program on specialists' training, it is suggested that 90% of 9<sup>th</sup> form pupils will enter colleges, and only its tenth part will continue their study in lyceums.

The process of new state educational standards' implementation in the system of general secondary education is coming to an end. There were implemented new curriculums and education standards for 23 subjects.

During the period of education reforming, there were established 416 specialized secondary institutions for 275,3 thousand places, including 48 academic lyceums for 27,6 thousand places, and 368 vocational colleges. 194 technical schools and 313 vocational-and-technical schools are to be reorganized into new types of educational institutions.

Since the year 1998 they began to work out state standards for specialized secondary education. There were worked out state branch standards for 80 trends on training specialists in vocational colleges, 4 trends on thorough general educational training in academic lyceums, 275 branch standards and curriculums, 3341 curriculums on general educational and special disciplines for professional colleges.

The main types of educational institutions in higher education system of Uzbekistan are institutes, universities and academies. The total number of higher education institutions is - 63.

Since the year 1998, there was implemented two-level system of specialists' training with higher education by giving "bachelor" and "master's" degrees in institutions of Uzbekistan. According to the legislation, study on the first level of higher education must be at least 4 years, and on the second level – at least 2 years. The exception - is medical education, which may continue 12 years.

Students' admission to institutions is provided on the basis of state grants and contracts, which are paid by students themselves or by enterprises or organizations. In 2001 they began to credit higher education. In the year 2002, 2 646 students received education credits from banks, it is 2,5% of total number of students, which study on chargeable contract base. In the year 2002/2003 higher education institutions admitted 222 thousand students.

Table 4.1 Comparison of Pre-school Education Systems of Different Countries

Level of education			
Country	Pre-school education		
	Continues	Main types of facilities	Kinds
Russia	5 years	Day nursery Kindergarten	State Private
USA	3 years	Day nursery kindergartens primary school	State Private
Great Britain	From 3 to 4 yeas - State From 3 to 7 – private	Kindergarten	State Private
Japan		Kindergarten	
Uzbekistan	1 level 1,5 – 3 2 level 4 – 7	Day nursery Kindergarten	State (1 - 2) Private

Table 4.2 Comparison of Secondary Education System of Different Countries

Level of education	Secondary education			
Country	continuance of compulsory education	The main types of facilities	Kinds	System of estimation
Russia	9 years – by federal legislation 11 years – by regional from 6,5 to 17 years	Secondary school	State	On the basis of state standards General state examination
USA	12 лет (1-8 forms), children and adults at the age of 5-6-7-13 years; (9-12 forms) 14-17 years	Primary school Secondary school	state private public facilities'	<u>"National analysis of education progress" (NAEP), study ability test (SAT), "American college tests" (ACT) program.</u>
Great Britain	12 years state 5-16 years and private 7-18	Primary school Secondary school	State Private	<u>General education certificate examination on the basis of state standards (GCE, "AS-levels")</u> <u>Examinations on general national professional qualification certificate (GNVO).</u>
Japan	12 years 15 – 18 years (3) 12 – 15 years (3) 6 – 12 years (6)	Senior secondary school Junior secondary school Primary school	State	Institutional system (credit) of knowledge estimation.
Uzbekistan	12 years – according to law 9 years – in fact 5 years 4 years	General secondary school Primary school	State	Testing on the basis of state education standards.

Table 4.3 Comparison of the Higher Education Systems of Different Systems

Level of education Country	Higher education			
	continuance	Main types of facilities	kinds	National degree
Russia	3 years 5 years (complete higher education) 2 years 3-4 years	Academies, universities, institutes, conservatory, higher schools.	State	Doctor of science Candidate of science Master's degree Bachelor's degree
USA	4 years 1 years 2-3 years	4 years study college and university, specialized institutes and schools.	state private	<i>Postgraduate (Postdoctoral) Level - «настоящая» докторантура. PhD или профессиональная квалификация продвинутого уровня (Doctoral Level)</i> <i>Master's Degree - аспирантура</i> <i>Bachelor's Degree - степень бакалавра.</i>
Great Britain	2-3 years 1-2 years 4 years	University	State Private	Doctor Master Bachelor
Japan	3 years 2 years 4 years 5 years	Universities with full circle of study Universities with accelerated circle of study Professional colleges Technical institutes	State Private	Doctor Master Bachelor
Uzbekistan	From 3 From 3 2 years 4 years	Universities, academies, institutes, conservatories	State private	Doctor of science Candidate of science Master Bachelor



**5**  
**HEALTH INFORMATION SYSTEM**  
**SUPPLEMENTARY PAPER**





## 5. HEALTH INFORMATION SYSTEM SUPPLEMENTARY REPORT

### 5.1 Republican Information Analytical Center (RIAC): A Detailed Description

NAME	ACTIVITY	STAFF	REPORTS	COMMENTS
1. Department of receiving, control and analyses medical reports	Except for forms 47 and 30, they deal with all other forms.	8 people	(Reports other than 47 & 30)	
2. Department of Medical Statistical Information	This department collects the reports for forms 47 and 30	8 people	Reports for forms 47 and 30	
3. Department for Curative and Preventive Establishments	All the oblast- level, specialized hospitals submit their reports to the respective republican-level apex centers like (endocrinology, cardiology, TB, oncology, pediatrics, and others). This dept. receives the reports from these republican-level institutes in un-aggregated form for all the oblasts.	8 people	Form nos. 7, 8, 9, 10, 11, 12	Most of these forms are compiled by the respective apex institutions
4. Department for Sanitary and Epidemiological Survey	This department collects data on the main infectious diseases from each oblast every day. The information is collected on the telephone through a set of standard questions . This department has a long standing software running in FORTRAN for imputing and compiling infectious diseases data.	8 people	A weekly report is submitted on every Wednesday to the Dy. Minister of the Sanitary and Epidemiology Dept. A daily report is submitted to the republican SES. A monthly report on 64 infectious diseases is also submitted	This department became a part of RIAC as they had the teleprinter services earlier and it was easy for them to collect the data. With the republican SES equipping itself to collect data through a computerized network, this department's role may have to be redefined.
5. Human Resources Department	Maintains information related to the doctors in a simple FoxPro program	One head economist and three programmers	Answers the ad hoc queries from the Ministry usually 5 to 6 times a year	No service records are available. The database updation is done annually.
6. Programming Department	Supports the existing software and hardware and develops new programs, organizes trainings, etc	One person in charge and three programmers		Not much training support is given to the programmers. Again, they do not have the requisite program development tools.

7. Data entry Department	Mainly engaged in the data entry of the various reporting forms using the MEDSTAT software. The dept. has a sever and a local area network.	Regular staff of 15 (four engineers, and the remaining are operators)		
7. Administrative department	Administration support and book keeping			

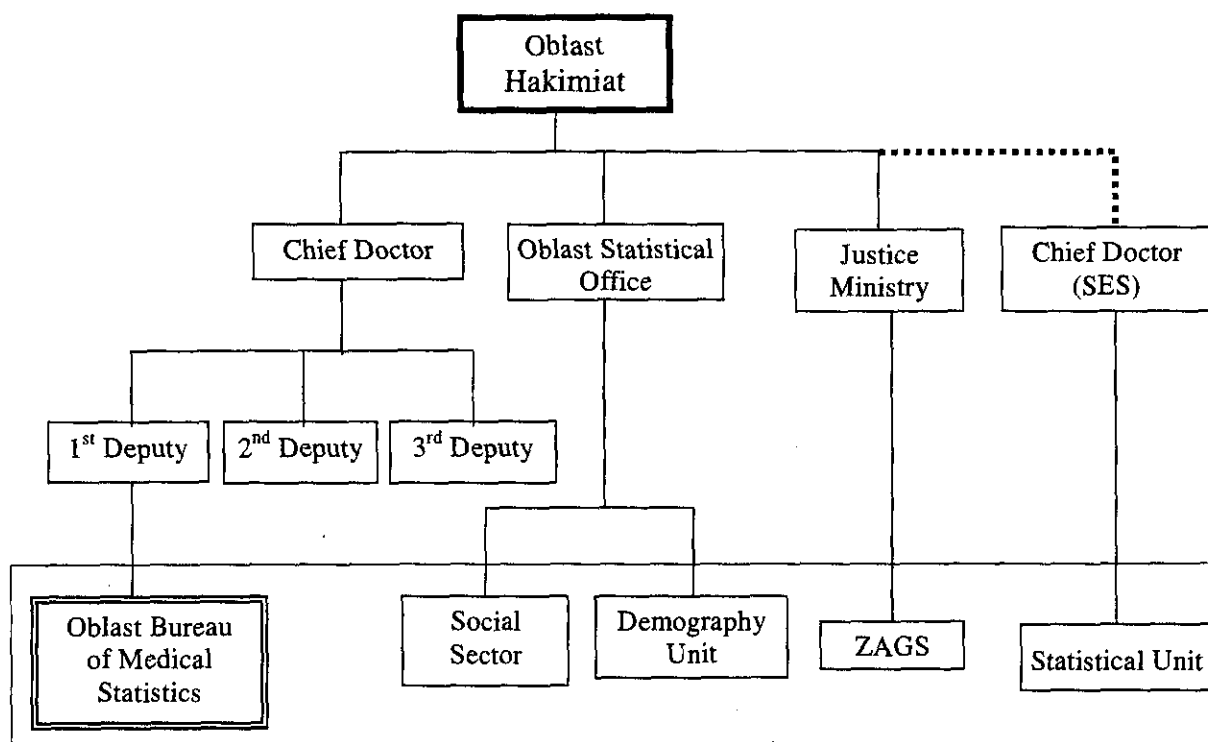
### Description of the computer software developed/in use in RIAC

Item	MEDSTAT	Cadre Information System	Infectious Disease Information System
Description	Comprehensive software recently developed by the RIAC programming department for the data entry of all reporting forms, storage and data analysis.	Very old software that maintains the minimum data related to the doctors, with 73,000 records.	Data entry and summarization software for the infectious diseases, developed some 20 years ago.
Used by	Data entry Center of RIAC. Now being installed in some experimental oblasts	Used by the Cadre Department. Is in use in some oblasts.	Used by the Department for Sanitary and Epidemiological Survey for data entry of information related to infectious diseases, which is collected daily. Similar programs are in place in some oblasts like Sirdoria etc.
Capability	Excellent comprehensive software developed by the in-house team.	Can supply cadre information related to doctors and satisfy the regular information requirements on the health personnel.	Summarization. This program has built-in alerts/alarms to warn the management, based on the average and permitted level of infections.
Issues	At present, supports only access database, which has limitations on the data that can be safely handled. Needs linkages to RDBMS. Other modules on performance and feedback systems are to be developed. A set of validation rules need to be developed to maintain the data quality.	Only information related to the doctors, with limited data. Very old, and developed in FOXPRO environment. Supports limited fields of information. Does not have any built-in queries and quite a bit of the work has to be done manually off the program.	Very old software with limited capability to query and build databases.  Developed in proprietary format in FORTRAN.
Future application	Can be extended to all oblasts so that basic data entry is done for all the forms at the oblast itself and only automatic consolidation take place at RIAC. Can be installed in rayons so that basic data entry is done at the rayons and automatic consolidations at the oblast and RIAC levels.	Needs to be ported a windows platform with more fields of information. Once this is done, the program can be installed in oblasts so that cadre management becomes easier at the oblast level.  Need to include other cadre of staff also in the database.	Needs to be ported to a windows based database system, which can be installed at the oblast level and rayon level in the future.  SES has plans, with the help of the UNICEF, to develop its own software; already hardware is in place in the oblasts and most of the rayons.

## 5.2 HIS at the Oblast Level: A Detailed Description of the Organizations

The Republic of Uzbekistan is divided into 13 oblasts and one independent republic of Karakalpakstan. Each oblast is headed by a Hakimiat and helped by a host of officers for each function. The Table below displays the health institutions in one sample oblast (small one).

Sirdorio oblast health facilities profile	
Population	6,50,000
Rayons	9
Hospitals	32
SVP	118
Dispensaries	12

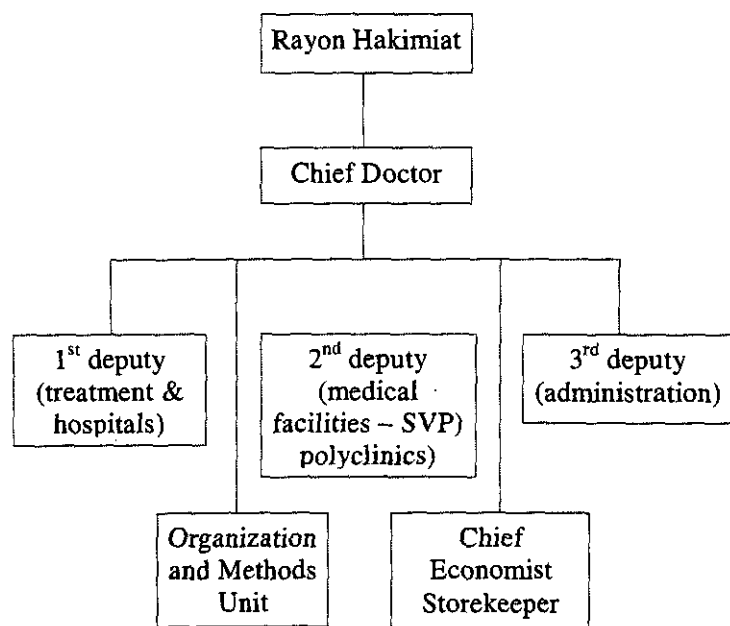


Health statistics agencies in the shaded region

### 5.3 HIS at the Rayon level: A Detailed Description of the Organizations

The rayon health organization is headed by a chief doctor and assisted by three deputies. They manage the health services through the central rayon hospital and a host of other primary health care facilities.

At the rayon level, the organization and methods unit (ROMU) in the central rayon hospital



is the main agency responsible for health information. It coordinates and exchanges information with other agencies like the rayon SES, ZAGS, Statistics Department and others.

The sanitary and epidemiology station has a small section for health statistics at the rayon level. But the in-charge of each laboratory prepares his/her own report.

The general State Statistics Department works under the rayon Hakimiat. It does not have any dedicated staff for health statistics, and a general statistician deals with the medical statistics after receiving it from ROMU.

The ZAGS system (a detailed explanation has been provided in the chapter on birth and death registration system) functions under the Hakimiat and exchanges data with the ROMU.

### 5.4 ZDRAV Plus Project: Pilot Experiments in HIS

(A description of the ZDRAV Plus experiments has been obtained from the project internal reports, and the observations are supplemented by this consultant's field visits and discussions with the project managers)

The ZDRAV Plus project has been supported by USAID as part of its objective to improve

These pilot interventions were developed parallel to the government routine health information system (GRHIS), one of them in clinical information systems, which is explained in detail in the following pages. The other reforms dealt with the financial information system and the population database, which have also been explained in the following pages.

The pilot clinical information system, based on the model used in Kyrgyzstan, was initiated in 1999 with the purpose of starting a health insurance system. Initially, it consisted of individual Clinical Information Forms (CIF), which would be processed at the rayon level to permit research on service utilization patterns. Later, having abandoned the health insurance plans, this experiment was geared towards simplification of the internal SVP data collection system.

Referring physician's copy - Referral #		Referred from: Fac. code	
Date of issue / / day/month/year		Phys. code Phys. name & initials	
Patient / / day/month/year		Date of issue / / day/month/year	
Ref. #		Fac. code	
Patient's name & initials		Ref. #	
D.O.B. / / day/month/year		Fac. code	
Benefits category		Benefits categ.	
Diagnosis		Fam. name	
		Gr. name	
		Patronymic	
		Diagnosis	
Purpose of referral:		Purpose of referral:	
		Recommendations:	
Referred to:		Referred to:	
Facility		Performed at: Fac. code	
Dept.		Dept. code	
Recommendations:		Services provided/recommended	
Ames		Code	
		prior	
		rec.	
Signature		Date / /	

SVP doctors have been testing, since July 2002 a modified and simplified CIF combined with a unique attendance register for all care providers. Both the CIFs and the attendance registers are sent to the rayon computer center for data entry.

5-5

In two of the Tashkent polyclinics, another variant of the CIF system was tested, where CIFs are not used, but all clinical information is recorded in a unique attendance register for all care providers.

### **Detailed Notes on the CIF Experiments in 45 and 19 City Polyclinics and the Tashkent Central Rayon Hospital.**

This experiment started on the 1 July 2002, and data collection was discontinued from 31 December 2002.

The CIS implemented in these polyclinics is a manual system. The ZDRAV Plus project team has designed a unified doctor and nurse register, which has columns for recording comprehensive patient information, covering both hospital and home visits. At present, the registers are being sent at the end of the month (or on the exhaustion of all the pages in it) to the rayon central hospital statistics bureau, where the data entry program has been loaded on to computers and assistants have been employed to enter the data.

1. Initially, the ZDRAV designed a card for the CIS. But, on discovering that it consumed lot of stationery and that it was also a bit difficult to check a row of patients, they switched to the journal system.
2. The register columns: Name, date of birth, dispensarization group, complication, referral, result of illness, ICD 10 grouping, stage of illness, description, remarks, etc.
3. A detailed instruction sheet has been developed and supplied to the doctors to take quick notes of the codes and fixed groups for easy data entry and analysis.
4. Some of the doctors feel comfortable with the system and would prefer to enter the information themselves in the computer.

At present, they have only developed the MS ACCESS-based data entry program.

A technical task and algorithm for working out the main forms of the state statistics reports

(F.1, F.12, F.30, F.39) has been prepared and with its help various statistical reports are generated. They are planning to reconcile these reports with the ones that are available through the routine health information system.

**ZDRAV Plus Project at this Stage Feels the Need to:**

- Continue testing the CIF system only in one sentinel site in FERGHANA oblast.
- CIF limited use in the rural health facilities where the other enabling factors are not in place. CIF has practical applications in the urban health facilities.

The ZDRAV Plus project feels that the financial information system module is more important for project management and monitoring. They also feel that is relatively simple and manageable with the financial module than with the clinical information system, which is, by its inherent nature, complex in structure and has several inter-linkages with routine reporting systems.

**Population database development**

This program was started at the end 1998, with the simple purpose of calculating the catchment area population as well as the age and sex distribution within the population for each SVP. These figures, in turn, would be used to calculate capitation rates for the SVP budget.

**Population database**

**It has been implemented in six rayons of Ferghana oblast and has also been established in some rayons of Syrdaria and Navoi oblasts. For Ferghana oblast, around 615,000 individual records have been entered at the rayon computer centers. At present, the database has been used only to calculate capitation rates for the pilot rayons, based on total population and population profiles.**

1. ZDRAV have conducted a household census using a fixed questionnaires with the help of the primary health facilities. (Not used any thing from the existing SVP population registers)

2. They have employed sufficient a number of computers and data entry staff at the oblast and now at the rayon levels to data enter this census information.
3. But, the utilization of this database by the primary health facilities has been restricted to budget calculation.
4. The updation procedures on migration and quality maintenance of this data are yet to be thoroughly tested. It is not sure whether this database has been reconciled with the makhalla system, which maintains a similar register.

At this stage of the ZDRAV Plus project, (august 10<sup>th</sup> 2003):

**Rolled out the population database to the respective oblasts in the experimental oblasts. Developed extensive package of documentation and has handed over to the World Bank project and to the RIAC organizations where ever applicable.**

**Further roll-out of this intervention to other oblasts should be decided in close consultation with the MOH.**

#### **Financial data system**

**The ZDRAV Plus project aimed to develop management systems at the primary health care level, with decentralization and financial autonomy as the main tools.**

The pilot SVP budget allocation system permits SVP managers to manage their own budgets and use resources in accordance to their specific needs.

A computerized financial application, with models at the facility , the rayon and the oblast levels, has been developed since 2000 by the ZDRAV Plus HIS team.

The application has been handed over to the oblast health care and to selected rayon hospitals (economists – accounting departments) and they are able to generate various expenditure statements of the SVPs and then plan the budgets.



### **The ZDRAV Plus project at this stage (august 10<sup>th</sup> 2003 )**

- Has developed another module for the secondary hospitals and is waiting for the sanction from the government and others to start implementing in hospitals.

### **5.5 ICD-10 Classification: Progress of Work in Uzbekistan**

The ICD-10 system is considered to have a better structure and diseases classification system, and it helps the doctors to understand the clinical situation better. It has an extended listing of diseases, symptoms, and pathological processes. ICD-10 has got a separate class to list the reason for the patient's visit to the doctor. These enhancements and improved provisions help improved functioning of the HIS.

In Uzbekistan, the switch over to the ICD-10 has already begun in July 2002. A number of events were held, including 4 big workshops, at the national level. The ZDRAV Plus project has been assisting this task with the technical and financial support of the WHO.

1. Four staffers from RIAC were trained for one week in MOSCOW at the Institute of Social Hygiene and Management of Health care, in April 2002.
2. In the month of May 2002, specialists from the above institute have trained 50 medical statistician staff in TIPME.
3. With the support WHO a training program on the ICD-10 coding software was organized, and trainers from MOSCOW are co-opted.
4. But, there is yet to be a major training program for the primary care physicians and others on the ICD-10.

The draft of the terminology has been prepared and now will be submitted to the Terminology Committee created for the task. The committee consists of chief specialists of the Republic, appointed by the respective decree of the Ministry of Health. The Terminology committee will have sub-groups on each class of disease (21 classes). Almost 75% of the work has been completed at the time of writing this report.

Later the translation will be handed to RIAC to secure the MOH approval.

After that, it is proposed to develop 2 versions of ICD-10 in two versions: – one as a book

with limited copies, and the other an electronic version. This work is scheduled to be completed during the first half of the year 2003.

Taking into account the shortage of funds for the book version of ICD-10, ZDRAV Plus has decided to create an electronic bilingual version of the classification. The data in Uzbek will be available both in Cyrillic and Latin script.

ZDRAV Plus has also plans to prepare the condensed version of the ICD-10 for the primary care doctor's usage.

## **5.6 Progress on the Performance Indicators System**

(Extracted from the minutes of the Working Group On Circulation of Medical Documents and Information Systems in Health Care)

During his stay in Uzbekistan, an international consultant, Theo Lippeveld, working for the ZDRAV Plus project proposed that a draft of the SVP report be created, in which all the information necessary for efficient facility management would be included. This proposal was discussed in the RIAC and was approved in principle. The basic idea was to prepare a report form that would not replace the state statistics forms, but add to it more important quality indicators, which would enable the administrators to manage the SVP better. The other feature of this form is more comprehensive usage of the information generated by the current state statistics forms.

It was proposed to create a working group on developing this SVP report form.

In Fergana, a working group on monitoring was created earlier, but it is yet to come out with a report. The performance indicators have not yet been selected. It was proposed to select indicators, taking into account the forms of the state statistics, and then, by the respective methods, to include the secondary design data which suits the analysis better. It was suggested that the report include a number of data items on the target vertical programs and the business plans data.

## 5.7 MEDSTAT – Data Entry Consolidation and Analysis Software

Developed by RIAC

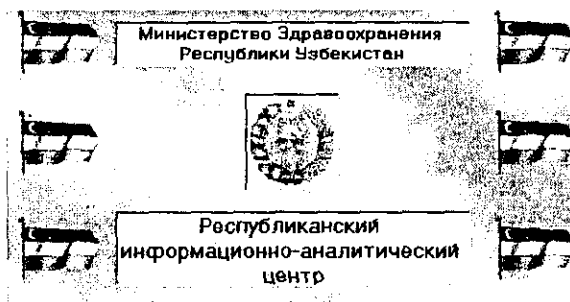
For a long time, the RIAC and the oblasts have been using computers. Several simple programs have been developed at various times for different data entry purposes. But the programs lack custom configuration and support and have become mostly obsolete for windows-based systems.

Considering the need for developing a comprehensive software and database for all the reporting systems and the need to deploy it at various levels, RIAC has directed its efforts to develop windows-based software.

RIAC's in-house programming department has worked for almost two years and developed MEDSTAT. It has revised it several times and experimented with it in a couple of oblasts.

**The salient features of the program are:**

1. Developed in Visual Basic with MS SQL as the backend database.
2. It has provision for data entry of 40 forms, but only 12 main forms are being used at present.
3. GRAPHICAL support is not provided on any reports at present, but, according to the programmers, it can be developed on request.
4. This program has the ability to support scanned maps with SVP locations
5. It is only around 10 MB in size and can be loaded through floppies and works on any Pentium 1 and above machines.
6. This software has not yet disseminated to other involved departments like SES, Statistics and others. Some of them are not even aware of this program.
7. At present, it is in use in the computer center of the RIAC for republican level data entry.
8. They have plans to deploy this in the oblasts starting from March 2003.



## **5.8 Note on the Use of GIS MAPPING in Uzbekistan in General and the Health Sector in Particular**

GIS mapping of the land use, cropping pattern, water bodies, their expansion and shrinking, is being done by the Scientific Research Institute of Space Engineering, Tashkent. Through a German collaborative project called the TACIS ISEAM Project (Information System for Environment and Agriculture Monitoring), they have equipped themselves with advanced GIS software and tools and training resources. They have acquired remote sensing maps of Uzbekistan from various satellite mapping agencies. They also possess topo-sheets for entire Uzbekistan. In Uzbekistan, maps less than 100,000 scale are considered restricted and not usually given for civilian application.

But they have not comprehensively mapped any one oblast for general purposes. They can do so on a specific request from any user agency. They are in the process of developing sustainability and would like to process commercial orders for specific mapping requirements.

The cartography department also has developed large-scale format maps, and they are being mainly used for printing paper maps.

RIAC's programming department employs the scanned maps of the oblast and tries to plot the main hospitals using Visual Basic software. It is a lengthy process and serves a very limited purpose.

WHO has a (WHFA) custom-made software (national data presentation system) and has maps at the oblast level for mapping various health indicators.

Apart from the above agencies, the other major projects and UN agencies like ZDRAV Plus, ADB, World Bank, and UNICEF have no mapping program in implementation. But, they have expressed keen interest in developing and utilizing GIS health mapping.

**5.9 The list of the health care statistical reporting forms (according to the Ministry of Health Order #677 from 11.28.1999)**

#	OFFICIAL NUMBER OF THE FORM	NAME OF THE FORM	FROM WHAT INSTITUTION	FOR WHAT PERIOD (REGULARITY OF SUBMISSION)	DESCRIPTION OF THE FORM
1.	1	Report on some defined infectious and parазitarian diseases	District (city) centers for sanitary and epidemiology control to oblast SES	One month	Information on a number of infectious and parазitarian diseases registered in the current month
2.	2	Report on some defined infectious and parазitarian diseases	Centers for sanitary and epidemiology control to oblast SES	One year	Information on a number of infectious and parазitarian diseases, with breakdown by ages, registered in the current year
3.	5	Report on preventive vaccination	1. Ambulatory health care institutions to district (city) SES 2. District (city) SES to oblast SES	One Every quarter One year	Information on: 1. The number vaccinated against infectious diseases (according to the compulsory immunization schedule). 2. Utilization of the vaccines.
4	6	Report on the group of population (contingent) to be immunized against infectious diseases	1. Ambulatory health care institutions to district(city) SES 2. District(city) SES to oblast SES	Every quarter One year	Information on the number vaccinated against infectious diseases, with breakdown by age and type of vaccination (according to the compulsory immunization schedule).
5	7	Report on oncology morbidity	Oncology dispensary, oncology, department of hospital to Central District Hospital (in rural area) or District Health Care Department (urban area)	One year	Information on: 1. The number of patients with oncology pathology by diagnoses registered at the first time this year 2. The total number of patients with oncology pathology by diagnoses registered in a particular institution. 3. The number and type of surgical operations performed in this institution.
6.	8	Report on tuberculosis morbidity	Tuberculosis dispensary to Central District Hospital (in rural area) or District Health Care Department (urban area)	One year	Information on: 1. The number of patients with tuberculosis registered at the first time this year 2. The total number of patients with tuberculosis registered in this institution

7	9	Report on STI, fungal infections, skin diseases and scabies	Dermatovenereology dispensary, women consulting branches, dermatovenereology department of the hospital, polyclinic to Central District Hospital (in rural area) or District Health Care Department (urban area)	One year	Information on: 1. The number of patients with STI, fungal infections, skin diseases and scabies registered for the first time this year 2. Total number of patients with STI, fungal infections, skin diseases and scabies registered in this institution.
8.	10	Report on mental diseases (without alcohol psychosis, drug addiction and toxomania)	Mental health care institutions (psycho neurological dispensaries) to Chief Doctor of CRH (in rural area) and Head of District Health Care Department (in urban area)	One year	Information on the number of psychiatric disorders (neuroses, psychoses and dementia) registered this year.
9.	11	Report on narcological disorders (alcohol psychosis, drug addiction and toxomania)	1. Narcology dispensary to Chief Doctor of CRH (in rural area) and Head of District Health Care Department (in urban area) 2. Chief Doctor CRH (in rural area) and Head of District Health Care department (in urban area) to Oblast Health Department	One year	Information on : 1. The number of patients with narcological disorders (alcohol psychosis, drug addiction and toxomania) registered for the first time this year. 2. The total number of patients with narcological disorders (alcohol psychosis, drug addiction and toxomania) registered in this narcological health care institution 3. The number of physicians working in this narcological health care institution.
10	12	Report on number of diseases registered in the catchment area of an ambulatory health care institution (except epidemiology reports)	1. Ambulatory health care institution to Central District Hospital (in rural area) or District Health Care Department (urban area) 2. Central District Hospital (in rural area) or District Health Care Department (in urban area) to Oblast Health Department	Every quarter One year	Information on the number of diseases registered among patients in this ambulatory health care institution (save infectious diseases, skin and venerological diseases, TBC) with a breakdown by diagnoses.

11.	13	Report on the number of abortions, deliveries and children born in this month and year	1. Delivery hospital or maternity department of the health care institution to Central District Hospital (in rural area) or District Health Department (in urban area) 2. Central District Hospital (in rural area) or District Health Department (in urban area) to Oblast Health Department	One Every month One year	Information on : 1. The number of abortions 2. The number of childbirths 3. The number of newborns 4. The number of complications and deaths during childbirth and women recently confined
12.	14	Report on hospital's activities	All district hospitals to Central District Hospital. Central District Hospitals to Oblast Health Department	Bi-annual? One year	Information on: 1. The number of patients treated in a specific hospital with breakdown by diagnoses, ages and outcomes. 2. The number of surgical operations performed in this hospital. 3. Financial aspects of the hospital's activities.
13.	17	Report on staff utilization	Central District Hospital, district SES to Oblast Health Department	One year	Information on: 1. The number of physicians, with breakdown by specialization. 2. The number of other health care workers with breakdown by specialization.
14.	18	Report on the activities of the Center for Sanitary and Epidemiology Control and Sanitary Condition of Catchment Area	District (city) centers for sanitary and epidemiology control to Oblast SES	One year	
15.	30	Report on activities of a health care institution	Health care institution	One year	The form comprises information on: 1. Number of patients treated in this health care institution. 2. Number of visits to physicians in this health care institution (including SVP). 3. Number of physicians and other health workers in this health care institution. 4. Number of beds if this health care institution is a hospital.

16.	31	Report on medical care for children		One year	
17	32	Report on medical care provided to pregnant women and women in childbirth	1. Health care institutions having maternity departments to Central District Hospital (in rural area) and District (city) Health Department (in urban area) 2. Central District Hospital (in rural area) and District (city) Health Department (in urban area) to Oblast Health Department	One year	Information on 1. Number of pregnant women living in the catchment area. 2. Number of childbirths. 3. Number of newborns, with breakdown by weight and condition. 4. Number of diseases of newborns, with breakdown by diagnoses, 5. Number of diseases that occurred in pregnant women in the course of pregnancy. 6. Number of deliveries at home.
18	47	Report on the network of health care institutions and activities of the health care institutions	Central District hospital (in rural area), District Health Department (in urban area), City Health Department to Oblast Health Department. Oblast Health Care Department to Ministry of Health	One year	The form includes information on: 1. Number and power of health care institutions of all types (including SES etc). 2. Number of patients treated this year in the various curative health care institutions, with breakdown by age and outcome of treatment. 3. Number of visits to physicians in all the curative health care institutions (including SVP). 4. Number of physicians and other health workers in all the health care institutions. 5. Number of beds in the various hospitals.
19.	49	Report on health education activities (number of lectures delivered, posters and so on)	District (city) Center for Health to Oblast Center for Health	Bi-annual	Information on the number of health education activities involving the general public.
20.	50	Report on staff, activities and equipment of the Center for Health	District (city) Center for Health to Oblast Center for Health	One year	Information on staff, activities and equipment with the Center for Health



## ZDRAV special reports

21.	1-zdrav	Report on number, staff and activities of the health care institutions	City, region department of health, ministries and other organizations hving health care institutions within their structure to regional statistical branch	One Every quarter One year	Information on: 1. The number of different health care institutions, with breakdown by specialization. 2. The number of physicians and other health workers working in this health care institution. 3. The overall number of patients treated in these health care institutions and other kind of medical care provided. 4. Budget and spending of health care institutions.
22.	1a-zdrav	Supplement to form #1-zdrav. Report on private medical practice		One Every quarter One year	
23.	2-zdrav	Report on breakdown of the hospital beds by specialties		One year	
24.	4-zdrav (fin)	Report on delivering and utilization of the financial resources in the health care institutions	District Central Hospitals (in rural area), District (city) Health Department (in urban area) to Oblast Health Department	One year	Information on budget and spending of health care institution.

Special reporting forms					
25.	4	Report of testing laboratory on number of tests on VIH –detecting			
26.	16	Report on preventive measures undertaken			
27.	39-zdrav	Report of activities of the Forensic Medicine Commission			
28.	39-zdrav	Report of a blood transfusion station			
29.	40-zdrav	Report of a station (branch) of emergency care hospital			
30.	41-zdrav	Report of a Child Nursery Home			
31.	42-zdrav	Report of a forensic medicine bureau			
32.	43-zdrav	Report of a sanatorium			
33.	44-zdrav	Report of a children's sanatorium			
34.	45-zdrav	Report of the TBC sanatorium for adults			
35.	16-zdrav	Report on staff of a SES/ disinfecting station			
36.	3	Report on flu (grippe) and other acute respiratory infections' morbidity			

*Notes on the forms:*

Form nos. 3, 6, have been discontinued now.

Form nos. 5 and 6 were separate forms earlier and now they have been consolidated as one single form.

Form no.15 (new) is being developed now as an endocrinology report. The earlier one has been combined into form 13

Form no. 16 – a sanitary and epidemiological report – has now been discontinued.

Form nos. 33- 46 were earlier used for different kinds of diseases like TB etc. A decade ago, they were combined into form nos. 8, 9 and 34.

*Forms in the order of importance:*

Form no. 7, 8, 9, 10, 11, 12 are dealt by the curative and preventive medical facilities

### 5.10 Proposed Step-wise Plan for the Computerization of Department of Health, and the General Computer Scenario in Uzbekistan

Year	REPUBLICAN - LEVEL	OBLAST-level	RAYON - LEVEL	SVP - LEVEL	Computing developments in general
At present 2003 AUGUST	90% officers have computers, mostly applied to word processing. No databases are available. GIS is tried but not regularly utilised. Only payroll of the staff is computerised. Spreadsheets for budget and statistics are used. Most of the officers have email IDs but seem not using regularly.	Approximately 40% have access to computers. Payroll and word processing is done on computers. No email facility for most of them.	Around 30% of seniors officers have access to computers. World bank project has provided computers in project rayons.	No computer and telephone connection available at many places. World bank project has provided computers in project SVPS.	Internet connection is available in all the OBLASTS centers. Entry-level computers are available from US \$ 500 on wards. Computer training and servicing centers have been set up in most of the oblasts capitals.
2005 MARCH	Databases on personnel, drugs, equipment and budget will be developed. Most of the officers will have computers access to the databases.  GIS-based health services planning and monitoring will be employed for the projects.  Video conferencing may be used for regular meetings.	All oblasts will be networked (off line or online) with republican computers. Databases on all functional areas will be available.	All rayons will have computers and access to internet. communication becomes very easy.	Many of the SVPs may get computers under different schemes or donor support.	Computer training and servicing centers will come up in good number at all rayon centers. Internet connection will be widely available.  Video conferencing will become possible
2007 March	Most of the health databases will be online. All the officers will have computers.  Online GIS based systems.  Video conferencing with the districts and below on day to day basis will be possible.	RAYON computers will be able to access online databases and update directly to them. GIS based Health services planning and monitoring.	All RAYON computers and will be able to access internet and send online information	Most of the PHCs will have computer and internet connection.	Training and support center will come up. Universal internet access possible. Broadband connection will be an option. Video conferencing will be employed for medical meetings and trainings.
2010 March	National-level, State-level databases of most of the government departments will be available online for sharing and integrated planning.	Instant information of all government departments will be available to the users.		Some SVPs will be able access and update online to the main databases	Huge costs and access problems will disappear and wireless technologies help instant communication, transmission of data, video and voice between different health facilities.

## **5.11 GIS Activities Implemented under the Development Study Project**

**Introduction:** Uzbekistan follows a centralized and aggregated statistical information system. Besides the UN agencies there are few other donor agencies working in the health center and ministry of health is implementing a major World Bank funded project on developing health infrastructure. Health facilities (GIS) mapping or plotting various indicators on a map has not been employed (except WHO, which has a limited oblast level thematic mapping, WORLD BANK project which manually plotted the SVPs on a paper map to show the facilities to be renovated or constructed in project oblasts.)

This study project aimed to develop the base maps of Uzbekistan up to rayon level, develop maps for one sample oblast thoroughly with all the features, distribute basic maps on license free software, and transfer this technology, hardware and software to the RIAC so that further development, distribution can be undertaken by them.

The following activities are undertaken by the study project

1. Digitization and development of Uzbekistan map with the following layers.
  - Oblast (state) boundaries and capitals
  - Rayon (districts) boundaries
  - Rayon centers (capitals)
  - Important cities in each rayon
  - Roads of all types (national highways, major roads, minor roads, other roads)
  - Railway lines of all types
  - Water bodies – sea, river etc.
2. Digitization and development of a sample oblast complete maps (FERGHANA oblast) with the following layers
  - Rayon boundaries
  - Water bodies (RIVERS)
  - Canals
  - Contours (hills and mountains)
  - Forest

- Sand areas
  - Roads
  - SVP points
  - Other hospital points
  - Habitation (village) points
3. Collection, attachment and printing of maps (around 50) of rayon level data on population, health infrastructure, diseases, health services statistics)
  4. Development of distributable GIS application. This program is developed in ark explorer 2.0 (for slower computers) and ark explorer 4.0 (java version) for latest computers. This program with the DATA ATTACHED can be installed in any number of locations free of licensing requirements. It is provided that RIAC would update the data once in a year and distribute it to the users.
  5. GIS training and technology transfer to the counterparts.

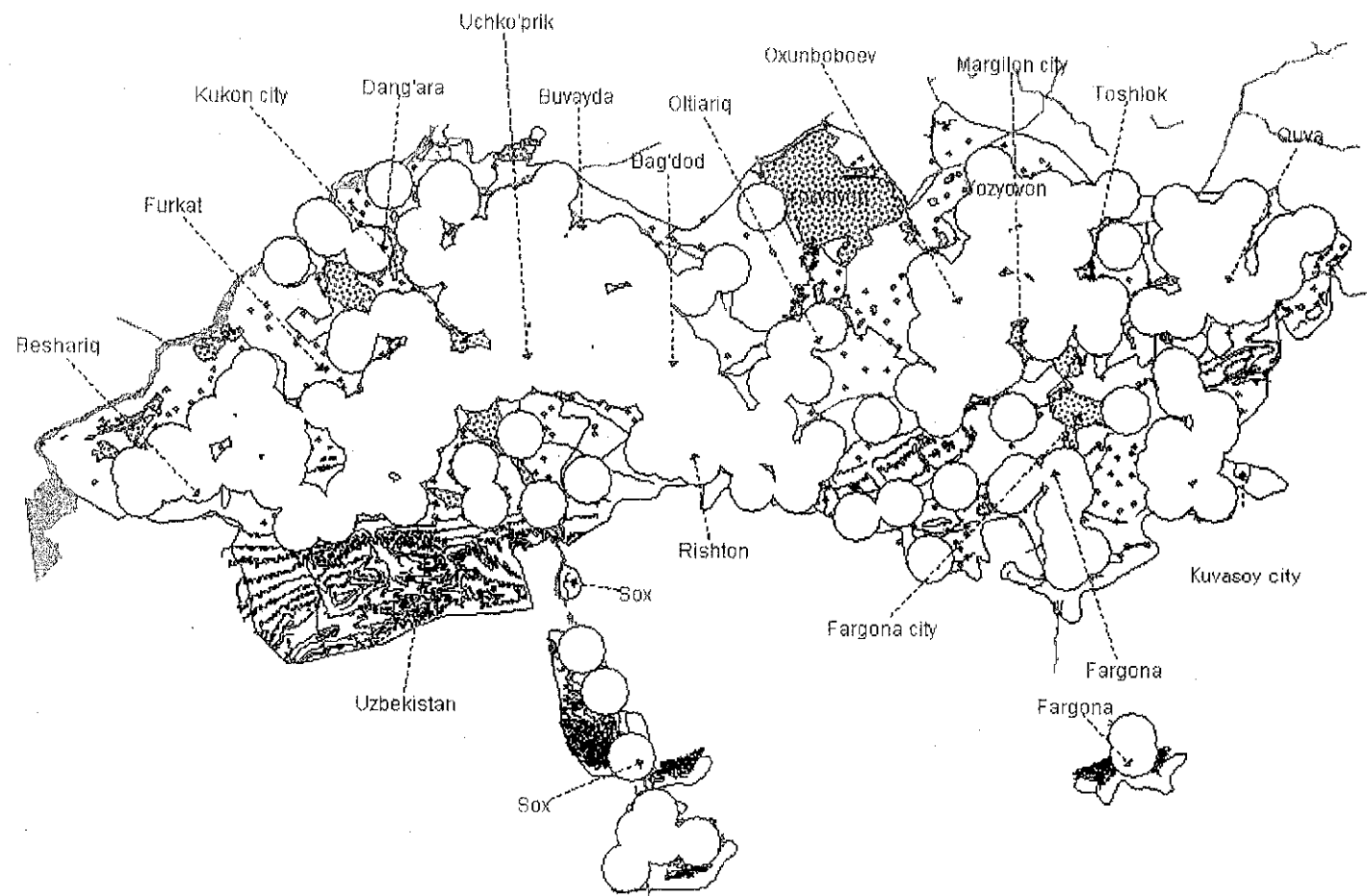
Sr. no	Item	Description
1	Number of programmers (RIAC) trained	11
2	Methodology of training	Lecturer method, practicals, small project –exercises
3	Topics training was focused on	Digitization of paper maps, development of different layers, attachment of data, generation of various thematic maps, printing of maps, doing simple analysis through zoning (buffers) utilization of different formats of source data, development of applications and distribution of GIS maps and applications
4	Duration of training	30 days



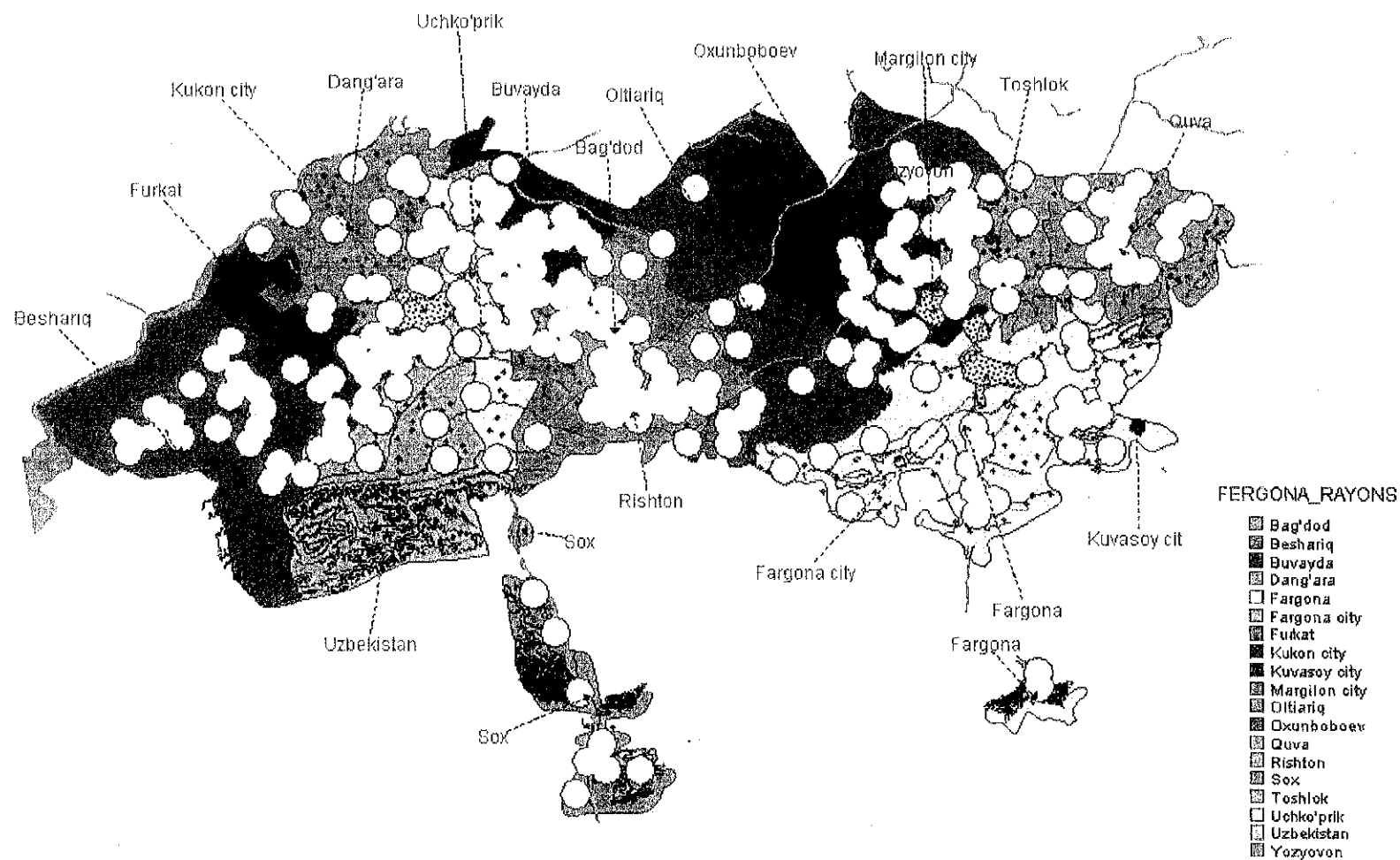
**HEALTH INFORMATION (GIS)**<sup>6</sup>



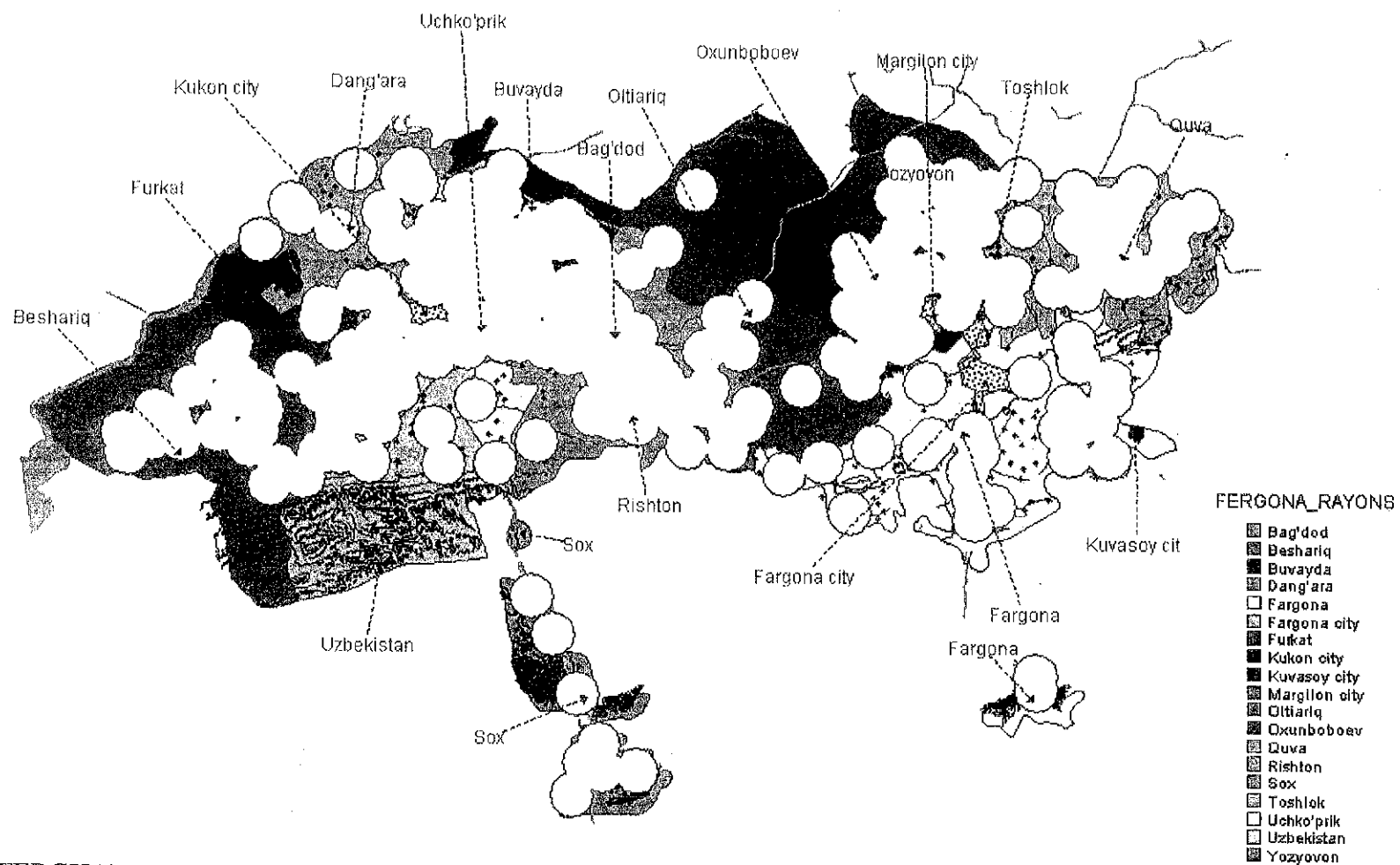




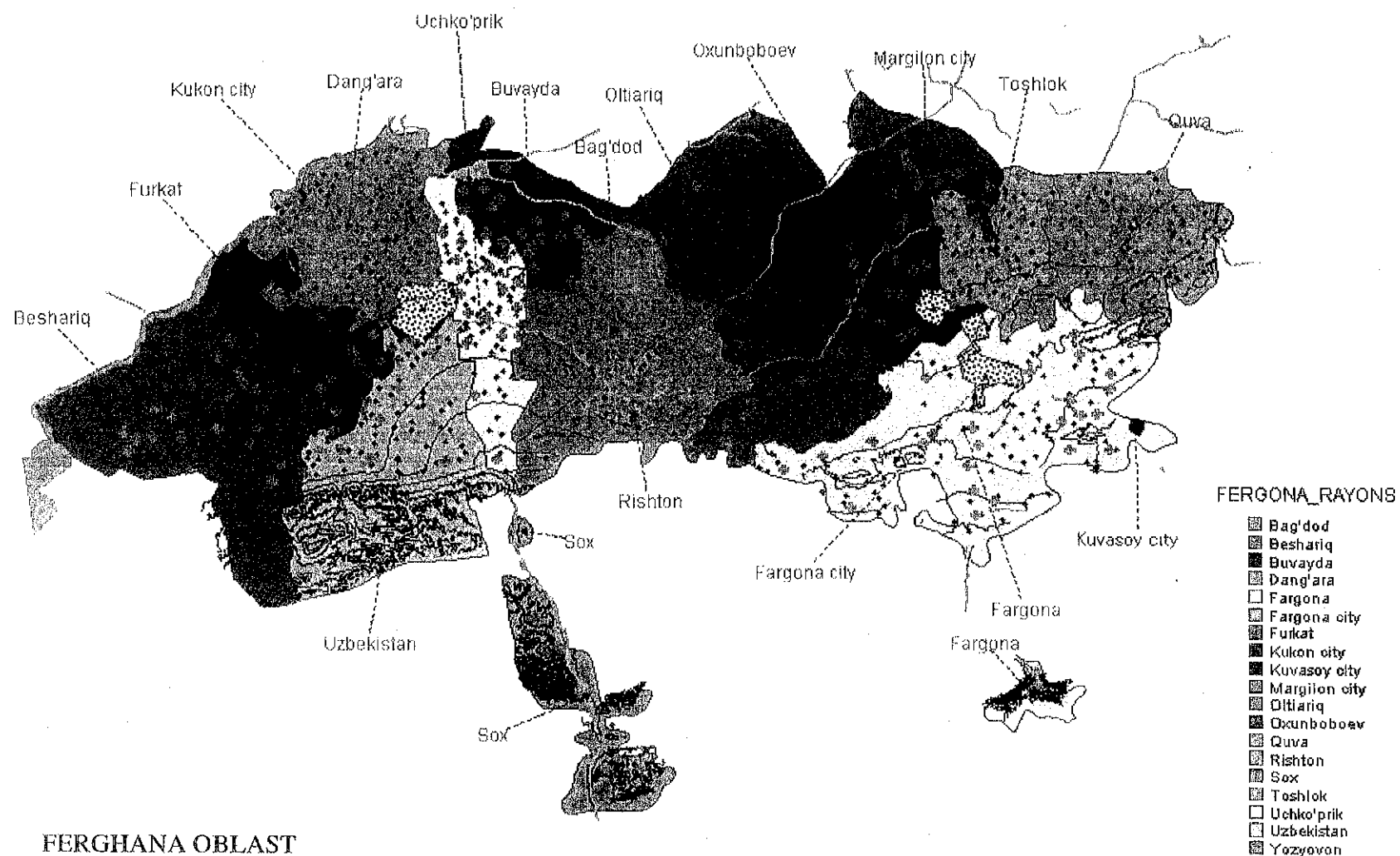
FERGHANA OBLAST 2KM BUFFER

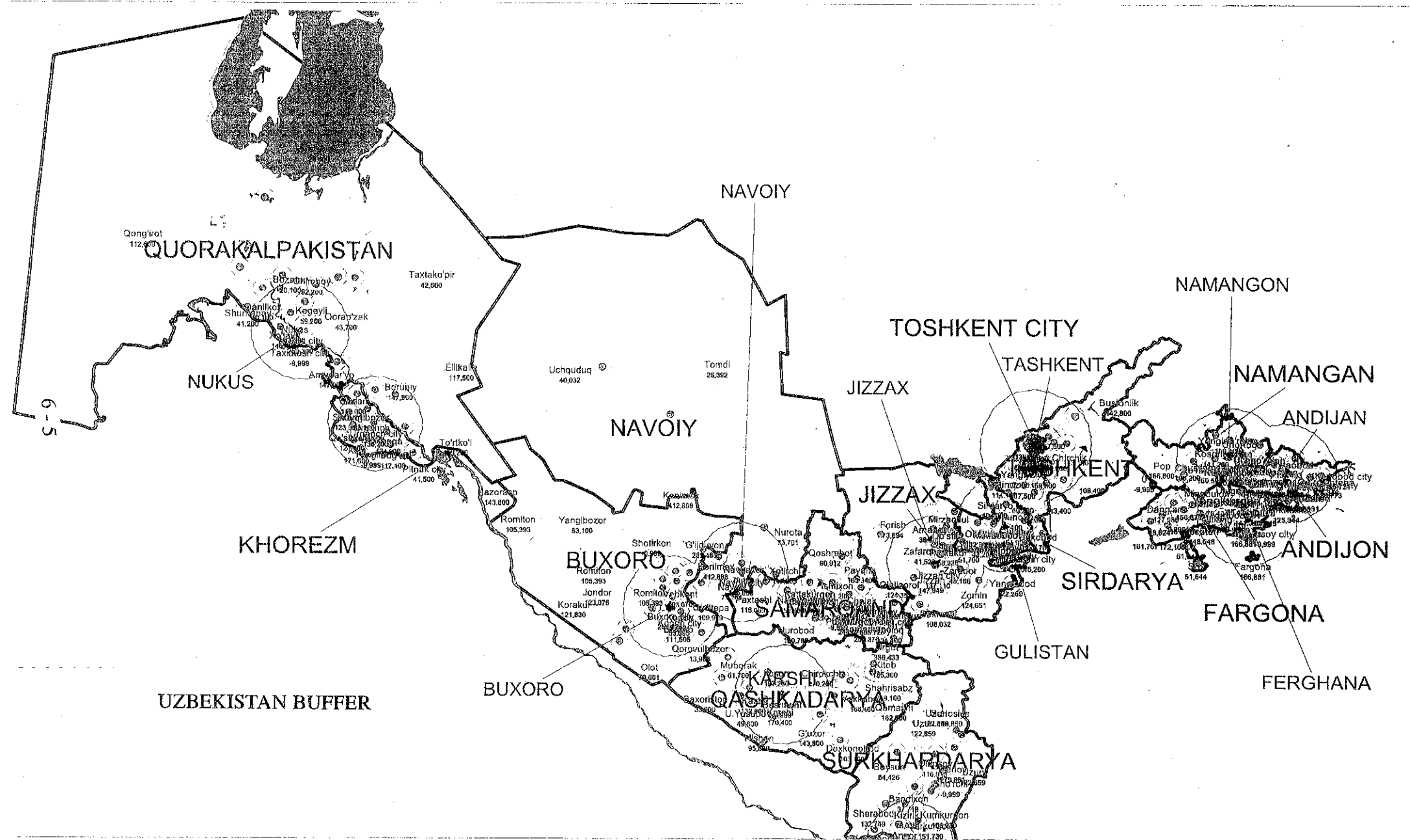


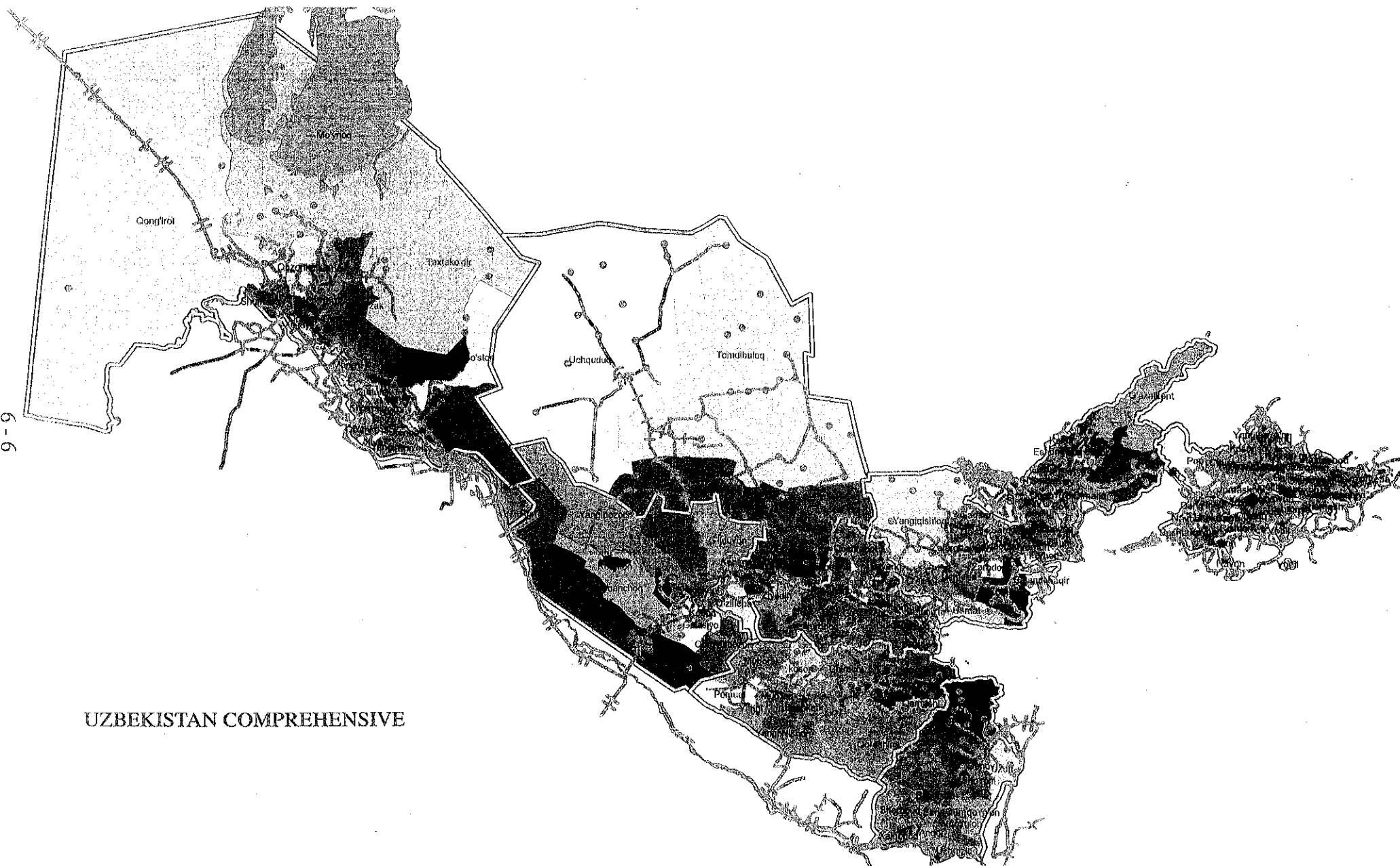
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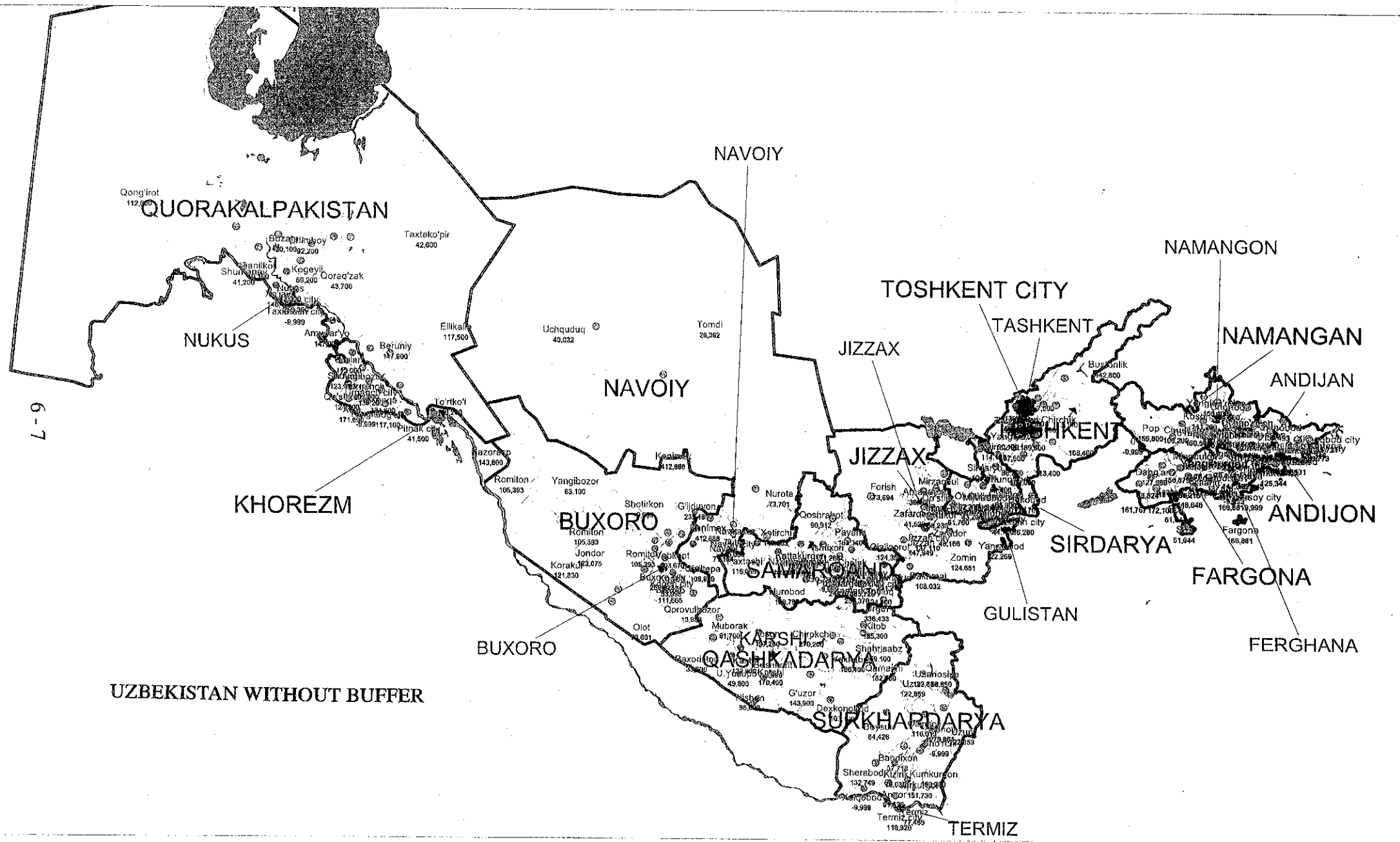
FERGHANA OBLAST 3KM BUFFER







# UZBEKISTAN COMPREHENSIVE



8-9

Qong'irat  
112,000

## QURAKALPAKISTAN

Taxtak'o'pir  
42,600

E'likalla

ZOOM OF KARAKALPAKISTAN

Bozatau  
20,100

Chimboy  
92,200

Qapliqo'l  
40,100

Shumanay  
1,200

Kegayli  
59,300

Qarao'zak  
23,700

Nukus  
43,300

O'jayli  
140,400

Nukus city  
27,300

Taxtak'o'pir  
42,600



FERGHANA SVP 2KM BUFFER



**7**  
**WORKING GROUP CONCEPT PAPER**



# **Organization of working group activities on planning and carrying out of Master Plan of Healthcare System reforms for the period of 2001-2005**

## **Plan:**

1. Issue of “problems and solutions”
2. Traditional approach to problem solutions
3. Paradigm of full thinking specter, methodology of thinking and breakthrough
4. Planning of objectives and goals of working groups
5. Confirmation of working groups contents and first meeting schedule

## **Issue of “Problems”:**

1. Problems do really exist. They will arise always, even when we are able to “solve” some of them.
2. Problems are stimulators of the progress, they are coming together and are the reason of aims of a person for progress achievement.
3. Overwhelming complication is not a problem itself but the approach to its solution.

## **Problems:**

*Problem (necessity, desire)* – a condition or a set of circumstances to be changed according to a person or a group of people. Problems are the product of discontent and appetencies of people.

The way of our approach to the problem is a mental process. The approach to its solution depends on our apprehensible of the problem itself.

Even simple listing of a problem is an endless occupation.

**Fundamental areas of Human activity, where problems appear:**

1. Working process and administration-control and support of successfully working systems
2. Planning and constructing- establishing new systems or reconstructing old ones not meeting the modern requirements
3. Survey- search for generalizations and new studies
4. Education- gaining knowledge and passing them from one person to another
5. Assessment- determination of the success of achieving the goals

*Scientism, which is the basis of paradigm of approach to the problem's solution, successfully manages only in generalization researches and working outs.*

**Basis of traditional - problem solving form:**

Three principles of problem solving in traditional way:

1. Every problem can be broken into consisting parts.
2. "Not acceptable" elements may be changed with more "acceptable" ones.
3. After coping with the element that causes failure and removing it, one can solve the problem in general.

**Basis of traditional approach is in solution of the problem from the "beginning"**

**Stages:**

1. To detect the problem
2. To describe the problem
3. To collect information on the problem
4. To analyze data and to compare with others
5. To carry out models – to detect difficulties, understand the fault, take certain actions on situation diagnostics
6. To make a survey on alternatives – search of solutions and generation of new ideas

7. To choose and make the decision definite with the help of methodic of choosing the solutions
8. To explain the solution, make recommendations with their applicants, to carry out plan and to make it understandable for its applicants
9. To introduce the solution into reality

#### **Disadvantages of traditional approach to the solution of a problem:**

- Focusing on a problem but not on its solution, which leads to ineffective solutions
- Frequent focusing on apparent, bubble headed problem
- Reference not to the exact problem, or apparent, but not to the one to be solved
- Ineffective control of solution carrying out process
- Amiss understanding of foreseeable, «apparent», incomplete solution
- Back-out from more complete and effective solution by having an «apparent» solution

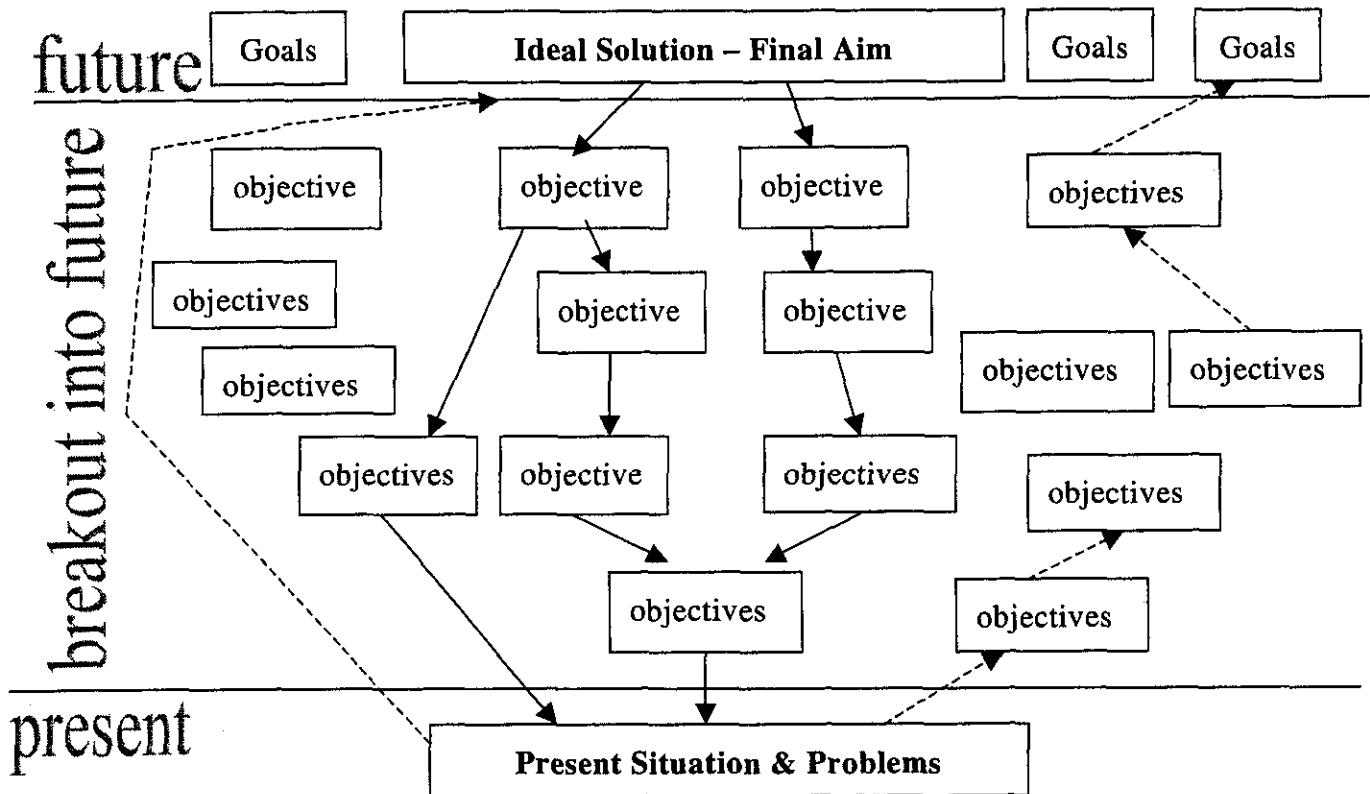
#### **Defects of Traditional way of problem solving**

- Breaking problems into smaller parts minimizes possibility of finding universal solutions
- Extra volume of analytical data, “informational noise” causes the risk of paralysis of solution search process, “stupor” of decision making
- Emphasize on analysis and breaking the problem into parts, deepened study of separate elements of system leads to losing the general sense of problem and connection of elements
- Over assessing of fictitious fears and potential risks

## BreakThrough Thinking – Creative Solution Finding

BREAKTHROUGH THINKING by Gerald Nadler and Shozo Hibino. –Rocklin, CA: Prima Publishing, 1994

Creative Solution finding (The Triumph of full-Spectrum Creativity over Conventional Thinking) by Gerald Nadler and Shozo Hibino, with John Farrell - Rocklin, CA: Prima Publishing, 1995



### Fundamentals of Full Specter Thinking Paradigms:

1. Principles of unity
2. Principles of purposefulness
3. Principle of basis on final, further solution
4. Principle of systemizing
5. Principle of data collection limitation
6. Principle of permanent and timely improvements
7. Principle of work organization with people



### **Factors and characteristics of Full Specter Thinking:**

- Determination of unity of each project or problem
- Consideration of each part of the project as some problem
- Expansion of the solution space
- Determination of criteria of result quality and evaluation, applicable for the considered problem
- Determination of optimal quantity of information necessary to be collected
- Influence of all interested parties into the problem solving process
- Arraignment of different profile specialists
- Work sequence

### **Advantages of Full Specter Thinking:**

- Techniques at synthesis but not at analysis
- Focuses on the solutions of future but not at the problems of present
- simplifies solutions
- Minimal work of time for data collection, abrupt decrease of work of time and efforts for information analysis
- Technicism at the activity but not at its effectiveness
- More space for choosing solutions
- Minor chance of amiss and ineffective solutions
- More qualitative, viable, economical and long-term solutions
- Possibility of phasing in changes and improvements
- Technicism at fulfillment of solutions
- Positive methods of people arraignment in work
- Typical expression of a belief, but not doubts, encouragement of carrying out fresh solutions
- Natural creation of groups for work fulfillment and project implementation

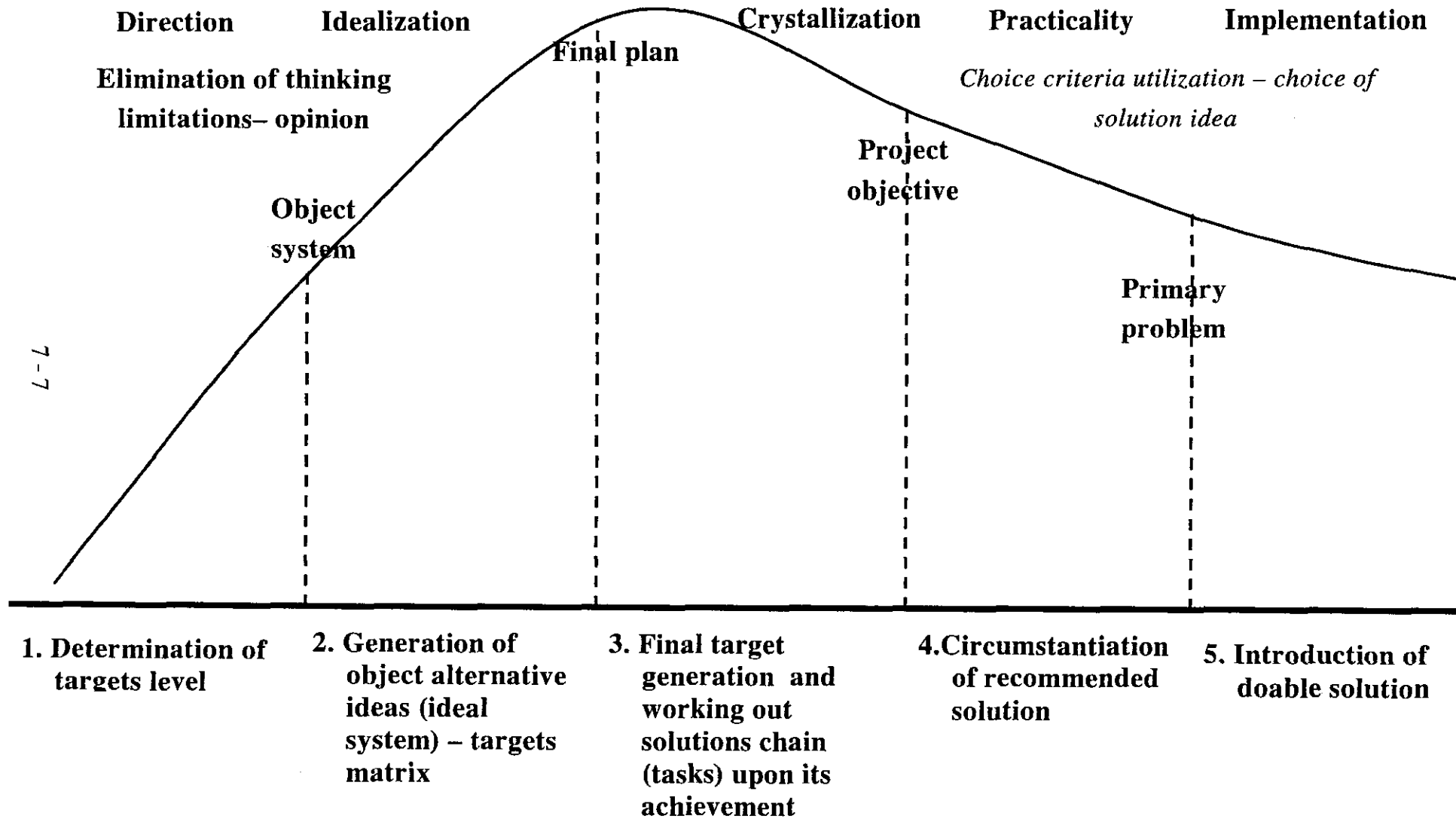
### Characteristics of Planning and Model Levels

<i>Level</i>	<i>Period (years)</i>	<i>Characteristics</i>
Political	(5-7) <u>7-10</u>	Staging of final targets and objectives, recommendations on further actions and planning at other levels
Strategic	(3-5) <u>5-7</u>	More detailed activity plans or directions with indication of means of definite task implementation in frames of worded policy. <i>Intermediate targets and objectives.</i>
Tactical	(1-3) <u>3-5</u>	Definite plans and models as the elements of transfer and correlation between strategic and functional models.
Functional	(0-1) <u>1-3</u>	Detailed model describing definite actions by definite people in definite moments of time.

### 3 Basic Targets of Planning

1. Maximal effectiveness increase of planned solutions
2. Maximal contingency increase of solution fulfillment
3. Maximal effectiveness of human resources involved
4. For Healthcare System, focusing on patient

**5 Stages of Thought Flow in Full Thinking Specter:**



### 3 STAGES OF WORK GROUPS ACTIVITIES

1 stage. "Vertical, sector planning"

2 stage. "Horizontal, inter-sector planning"

3 stage. "Geographic planning"

– Tertiary level – high specialized care

– Secondary level – specialized care

– Primary level- primary care