DECISION

No. 147, dated 18.3.2004

ON THE APPROVAL OF THE REGULATION FOR THE SECURITY OF DAMS AND DIKES

Based on article 100 of the Constitution and articles 4, 9 letter "b" and 13 of law no. 8681, dated 2.11.2000 "On the design, construction, exploitation and maintenance of dams and dikes", with the proposal of the Minister of Territory Regulation and Tourism, the Council of Ministers

DECIDED:

1. The approval of the regulation for the security of dams and dikes, according to the text attached to this decision.

2. The ministries and institutions, which include the field of construction of dams and dikes, state enterprises, owners and users, which exercise an activity of study, design, construction, exploitation and maintenance of dams/dikes in the Republic of Albania and the state bodies of control to undertake measures for the execution of tasks, defined in this regulation.

3. The decision no. 349, dated 20.09.1989 of the Council of Ministers "On the approval of regulation for the security of dams and dikes" is annulled.

This decision enters into force following its publication in the Official Gazette.

PRIME MINISTER
Fatos Nano

REGULATION
FOR THE SECURITY OF DAMS AND DIKES

CHAPTER I
GENERAL ASPECTS

Article 1
Scope

"The Regulation for the security of dams and dikes" is obligatory to apply in dams/dikes which fulfill the conditions of article 3 of law no. 8681, dated 2.11.2000 "On the design, construction, exploitation and maintenance of dams and dikes" by all ministries, institutions, state enterprises, owners and users which exercise an activity of study, design, construction, exploitation and maintenance of dams/dikes in the Republic of Albania and the state bodies of control.

All the requirements contained in this regulation aim the security of dams/dikes, starting from their design, construction, exploitation and maintenance, in order to realize the complex (or special) requirements of exploitation of water sources, the security of the population and the economic values in the basin and below it, in all phases of the dam/dike.

Article 2
Definitions

- The dam is a building-level and forming catchment facility, in an aqueous compound.

Purpose:
water supply for the production of electricity;
water supply of agriculture (irrigation, fish farming and aquaculture);
water supply of industry and communal needs;
drinking water supply of residential areas;
requests of partial tourism and water transport;
protection against flood of rivers.

- Dike is a building-level and deposit-formation facility with solid materials, in an industrial complex or plant.

- The artificial catchment is the cup which holds the water closed, as a consequence of the construction of one or more dams.

- Repair is the work performed in the dam/dike and other integral parts of it in case of their damage or obsolescence.

- Improvement is the work performed in the dam/dike to add the catchment/deposit capacity and the qualitative increase of exploitation manner.

- The demolition is the damage or deformation of the dam/dike to the extent to not hold water/solid materials.

- The accident is any situation created, any damage or malfunction in the dam/dike, without going to “demolition”.

- Thirds are factors situated in the upper and lower side of the dam/dike.

The security of the dam/dike is the entirety of organization, technical and financial measures to guarantee the normal exploitation of the facility, its longevity and non-violation of “thirds” provided for in the phase of design, construction, exploitation and maintenance.

The catchment basin of dam/dike is the area of land, within which the water, after joined in flows, is deposited in the catchment. The borders of a catchment basin are defined in topographic maps, according to watershed lines.

The license is a document given to any physical or legal person, local or foreign. It is , dated obtained by competent bodies defined according to legal provisions and allows its holder to perform professional activities in the fields of action defined by law no. 2.11.2000 “ON the design, construction, exploitation and maintenance of dams/dikes”.

The owner of the facility (dam/dike and catchment) is a physical or legal person, local or foreign who meets the requirements of the legislation in force.

The user of the facility (dam/dike and catchment) is the owner of the dam/dike, user, concessionaire.

The user of the facility (dam/dike and catchment) is a district, municipality, village, commune, associations of water users, state or private enterprise, physical or legal person, which deals with the exploitation and maintenance of dam/dike for defined purposes.

The concession (according to paragraph 4, article 2 of law no. 7973, dated 26.7.1995 "On concessions and participation of the private sector in public services and infrastructure") is a form of contract and agreement, through which a non-state legal or physical person has the right to obtain in the form of concession from the authorized state body, a property to perform specified services for a long period of time in one of the forms provided for in this law. The subject, to which the concession is give, is responsible for the financing of new investments specified during the period of concession. New properties created pass to the state sector after the conclusion of the concession.

Article 3
Definitions of integral parts of the facility

The facility is the dam/dike and catchment composed of:

1. The body of dam/dike
2. Drainages
3. Basement
4. Escarpments
5. Crown of dam/dike
6. Elements of impermeability
7. The dead volume
8. Used volume
9. Processing volume
10. Reserve from the maximum level up to the crown
11. The shores surrounding it
12. Sub-facilities that are:

12.1 Systems of deviation
12.2 Systems of discharge
12.3 Systems of intake
12.4 Systems of emptying
12.5 Systems of supply
12.6 Service and Storage Building

Article 4
State bodies which exercise their activity in the field of dams/dikes and the control of their security

The state bodies which exercise their activity in the field of dams/dikes and the control of their security are:

1. The National Committee of Large Dams
2. The National Secretariat of Large Dams
3. The Technical Inspectorate of Dams/Dikes
4. The Permanent Technical Council of Dams
5. Ministries and institutions which cover the field of purpose of the construction of dam/dike (shortly which administer the dams/dikes)
6. Ministry of Local Governance and Decentralization

1. The National Committee of Large Dams (KKDM) as a body of the Council of Ministers exercises the state control for the security of dams/dikes and embankments:
- organizes the exercise of state control on the security of dams/dikes;
- approves project ideas and project executions of new dams;
- approves projects of "repair" and "improvement" of dams and dikes which are in use;
- performs the physical, documentary and verifying control in dams/dikes during their construction and exploitation.
- performs the control of works during construction and exploitation of dams/dikes, realized through the Technical Inspectorate of Dams (ITD);
- helps the users of dam/dike through specialized institutes and bureaus for the processing and interpretation of data of hearing aids, placed in the body of the dam;
- controls the implementation of the "Regulation for the security of dams and dikes".

2. The National Secretariat of Large Dams (SKDM), as an executive office of KKDM:
- exercises control in the institutions which administer dams/dikes;
- collects data on dams/dikes and their confirmation, performing visits at ministries and administering institutions and at facilities on the ground.

3. The Technical Inspectorate of Dams/Dikes (ITD):
- exercises control during construction, exploitation and maintenance of dams/dikes;
- notifies KKDM for the results of the performed control. In case of extraordinary situations, data are provided immediately.

4. The Permanent Technical Council of Dams (KTPD), as advisory body of KKDM.
- seeks information from the Technical Inspectorate of Dams and from ministries and institutions which administer dams/dikes;
- exercises direct control in the dams and their sub-facilities, in the documentation which accompanies the exploitation of dam/dike, and hearing aids placed in the dam (for the condition and measurements performed in them), based on the program approved by KKDM;

- organizes the complete control of dams/dikes and recommends to the competent authorities the reduction of water level in necessary and unavoidable cases, notifying KKDM;
- helps the user to process data from measurements and to perform their interpretation through specialized institutions or groups and informs KKDM;
- assigns tasks after each control and asks their fulfillment on time.

5. Ministries and institutions which cover the field of purpose of construction of dam/dike (shortly which administer the dam/dike) and use them through:
- state-owned subordinate enterprises;
- to give in use to associations, federations, drainage boards, limited liability companies and corporations;
- granting concession.

They:
- exercise control of security of the dam/dike during design, construction, exploitation and maintenance, for the application of requirements of letter B a), b), c) and ç) of article 10 of Law no. 8681, dated 2.11.2000 "On the design, construction, exploitation and maintenance of dams/dikes";
- within March of each year notify KKDM on the results of the performed control. In case of extraordinary situations, data are provided immediately.
- follow the compilation of the plan of alarm, evacuation and help for the protection of population and material values in extraordinary situations, as a consequence of failure of dams/dikes, according to the Guideline no. 248, dated 28.1.2000 of six ministries, from the user of the facility in collaboration also with the structures of local governance;
- for cases of civil emergencies, they receive notifications from users of dams/dikes and embankments when:
- dams and dikes are seriously damaged;
- the level of waters reaches critical points in some measurable areas;
- rivers have got out of bed in dangerous levels;
- for which they notify the structures of central governance.

6. The Ministry of Local Governance and Decentralization with bodies of local governance, for dams/dikes and embankments which represent the danger of emergencies in cases of high flows or serious damages of these facilities, which:
- in collaboration also with the local governance structures and the user of the facility participates in the compilation of the plan of alarm, evacuation and help for the protection of population and material values in extraordinary cases as a consequence of failure of dams/dikes, according to the Guideline no. 248, dated 28.1.2000 of six ministries;
- receives notifications from structures of ministries for the announcement of cases of civil emergencies when:
- dams and dikes are seriously damaged;
- the level of waters reaches critical points in some measurable areas;
- rivers have got out of bed in dangerous levels.

Article 5
Integral structures

1. In each ministry and institution which administers the dam/dike and embankments, operates the group of security of dams/dikes, composed of engineers of the specialty hydro-technique and new specialties licensed by the Ministry of Territory Regulation and Tourism, according to the criteria defined by KKDM, defined in this regulation. The controls can be combined also with the user, according to the annual plan of control compiled by him and submitted at the ministry or subordinate institution.

This structure receives notifications from users of dams/dikes according to the requirements of this regulation and for civil emergencies in cases when:

- dams and dikes are seriously damaged;
- the level of waters reaches critical points in some measurable areas;
- rivers have got out of bed in dangerous levels and
- they notifies the Ministry of Local Governance and Decentralization.

2. In state enterprises, limited liability companies, concessionaire, associations, federations and drainage boards which use dams/dikes and embankments, operates the unit of technical leading, composed of engineers of the specialty hydro-technique and new specialties licensed by the Ministry of Territory Regulation and Tourism, according to the criteria defined by KKDM.

3. The same unit of technical leading may operate for one or more dams.

CHAPTER II
PROJECT

Article 6
Methods of design

1. Methods of design and criteria must be in accordance with technical norms, conditions, instruction and methodologies in force in the Republic of Albania. If the relevant Albanian technical norms, conditions, instruction and methodologies lacks, each project must present the accordance with the norms, conditions, instructions and methodologies in which it was based.

2. The project is compiled by a licensed designer.

Article 7
Phases of design

The project is compiled in two phases:

1. Project idea
2. Project execution

In accordance with the law no. 8681, dated 2.11.2000 “On the design, construction, exploitation and maintenance of dams/dikes”, article 4 letter dh), both phases are presented for technical approval in KKDM.

Article 8
The content of project idea for the technical approval in KKDM

1. The owner or concessionaire of the facility, together with the designer, presents in KKDM for the technical approval, the project idea in not less than two solutions.
The project idea includes the following studies:
1.1 The technical report, where are described:
- the purpose of construction, compiled variants, their comparison and the reasoning of the chosen variant, explanations on the components of variants;
- hydrological, topographic, geological, geotechnical, hydro geological and seismic studies of the facility, for all the catchment basin and the part below the dam, up to where the facility has an impact and the topographic study for the area of the dam axis;
- solution of the area of dam axis and its sub-facilities;
- main principles of calculation methods of dam and sub-facilities, studies performed for the construction materials and quarries to be used;
- system of telecommunication and radio phonic between the facility and interested institutions;
- duplicate systems of power supply of electrical equipment;
- systems of devices of measurement and control provided to be placed in the dam and its sub-facilities;
- road network of the facility and its connection with the regional one for the period of construction and exploitation;
- ways of control during the period of construction and exploitation;
- various studies provided to realize the project execution;
- the construction of the service and storage of the dam.
1.2 The report on the impact in the natural and social environment of the construction of the dam and catchment, the impact on the valley and areas close to the catchment basin.
1.3 The report on the characteristics of the wave created under the dam/dike, in the case of:
- maximum discharge;
- a forced discharge (plot plus the forced emptying of the catchment);
- the possible breakdown of the dam occurs;
1.4 Graphic materials, which include:
- plans of placement of the facility and sub-facilities, longitudinal cutting, transverse and their details for all studied variants. The material must be clear and to create a full framework for the recognition of the facility;
- road network within the facility and its connection with the regional one for the period of construction and exploitation;

- drawings of the place of measuring and control devices and their type;
- plans, longitudinal cutting of the cup of catchment and all the area where is extended the operation of the facility, in a appropriate scale;
- curves of volume and area of catchment;
- places of quarries of construction materials and places of deposits of materials deriving from excavations etc.

2. The project idea is signed by all the collaborators of its compilation and from the owner or concessionaire. It is accompanied by a report, compiled and signed by a licensed counseling studio and with experience in the field of design. The counselors sign also the project.

3. From the date of submission for the technical approval of the project idea until the issuance of the decision of KKDM should not exceed more than two months.

Article 9
The content of project execution for the technical approval in KKDM

1. The owner or concessionaire of the facility presents in KKDM for the technical approval, the project execution together with the following studies:

1.1 General technical study
1.2 Geological study
1.3 Geotechnical study
1.4 Seismic study
1.5 Hydrological and hydraulic study
1.6 Study on the construction materials
1.7 Study of calculations of facility and sub-facilities
1.8 Study on instruments of control and measurements
1.9 Project of service and storage building
1.10 Graphic studies and materials.

1.1 The general technical study includes:

1.1.1 The purpose of construction.

1.1.2 The special and general characteristics of territory, where is presented the impact from the facility construction, including the seismic risk.

1.1.3 The general description of the facility and the main sub-facilities and the reasoning of the chosen variant.

1.1.4 The main characteristics of facility and sub-facilities.

1.1.5 The axis and arguments for the selection of the type of dam.

1.1.6 The place, quantity and technical characteristics of construction materials.

1.1.7 The impact of the catchment in the close territories (environment, microclimate, provoked seismicity etc.)

1.1.8 The temporary tasks and preliminary measures, the content and their possible overcoming.

1.1.9 Verifications of the stability of the dam.

1.1.10 Main data of the facility, sub-facilities and catchment.
1.1.11 The water volume in the catchment, curves of volume and area, where is defined the dead volume, the normal level, the maximum level and the time of emptying of catchment up to the harmless level. It is recommended that the dams must have an end discharger.
1.1.12 Regulation for the exploitation and maintenance, observation and control during the period of filling and exploitation, indicators of roads of entrance in the facility, system of alarm, communication, evacuation and help to face the consequences, resources for power supply (including those alternative and reserve) for the maneuver of discharge systems and the system of signaling in case of their failure.
1.1.13 Special regulations for the execution of works, provided for the construction of facility and sub-facilities.
1.1.14 The place where are stored and protected for a long period, from interventions and bad weather, under the responsibility of the owner or concessionaire and user, samples of basement materials and those used for construction, issued from studies in the place and the readiness in case of request for control from charged authorities and commissions.
1.1.15 The detailed description of various phases of the scheme of deviation of the main water resource.
1.1.16 The program of measures taken for the realization under control and successful of filling the catchment with water for the first time.
1.1.17 Data for the compilation of the plan of alarm, evacuation and help to face the consequences derived as a result of the wave created in the valley under the dam/dike in cases of:
- maximum discharge;
- a forced discharge;
- the possible breakdown of the dam occurs;
1.1.18 The topographic map in a scale not smaller than 1:25000, where are defined clearly: the basin of water supply, axis of construction of dam/dike; other main sub-facilities located within the basin or under the work, social-cultural constructions etc. IN this map are reflected and defined the areas of impact of the facility, in the case of normal discharges and the possible breakdown of dam/dike, until the impact is completely extinguished.
1.2 The geological study includes:
1.2.1 Performed works, superficial observations, wells, drilling, gallery etc. performed according to the norms.
1.2.2 Geological constructions (including the structural and tectonic construction)
1.2.3 Geo-morphological conditions.
1.2.4 Hydro-geological conditions.
1.2.5 Geo-dynamic phenomena (stability of slopes, erosion, seismicity etc)
1.2.6 Geo-morphological and hydro-geological assessment and modification which can be placed after the filling of the catchment or the natural evolution.

1.2.7 The geo-litological map (including works), the geo-morphological map of the region (of the catchment basin and all the area, according to the water flow under the dam, up to the place where the facility has an impact).
1.2.8 Geological-litological profiles of the catchment basin and the area under the dam.
1.2.9 The plan and longitudinal and transverse profiles, detailed, geological-litological of all the area of construction of facility and sub-facilities.
1.2.10 Copies of the original summarized report of studies realized on the ground and detailed stratigraphic modules together with realized wells, drillings and galleries.
1.3 The geotechnical study contains:
1.3.1 The description of performed studies and exchanges.
1.3.2 The preliminary geotechnical characteristics of the terrain where the facility is being constructed and of the materials provided for the construction of the dam.
1.3.3 The preliminary geotechnical schemes of the place of construction of the facility, the presentation of problems matched with solutions, for the perfection of the project.
1.3.4 Provisions for possible researches and studies which will be realized during the compilation of the project.
1.3.5 Results of performed researches and tests.
1.3.6 Geotechnical calculations related to the facilities and works.
1.3.7 Tests and researches performed to control data of the project, during the opening of excavations and quarries of materials continuously during construction.
1.3.8 System of geotechnical instrumentation for controls provided during the construction and during the exploitation.
1.4 The seismic study contains:
1.4.1 The general overview on the seismicity of Albania.
1.4.2 Seismicity of the area.
1.4.3 Neotectonic and seismic-tectonic structure of the region.
1.4.4 The assessment of seismic risk of the area.
1.5 The hydrological and hydraulic study contains:
1.5.1 Assessment of fluid flows (norm of water flow).
1.5.2 Assessment of compatibility between the water flow and the capacity of the catchment in relation to its use.
1.5.3 Assessments of effect of plots, hydrographs of plots with various repetitions and coping with the chosen plot, according to the norms for the class of facility. According to the norms is defined the security of maximum flows calculated each year of flow passing during construction.
1.5.4 The capacity of discharge systems, reserve from the normal level up to the crown and from the maximum level up to the crown. It is preferable to be superficial and in dams with country materials are obligatory to be constructed outside the body of the dam and with automatic action. The selection of any other type shall be accompanied with the justifying report, but always must be selected with automatic action (beyond the staff's will). Also shall be defined the capacity of deviation systems for each year of flow passing during construction.

1.5.5 Assessment of possibility of rupture of the peak in the catchment.
1.5.6 Regime of plots before and after the construction of the facility.
1.5.7 Illustrations and criteria chosen for the definition of maximum flows for the period of construction and also for the period of exploitation.
1.5.8 The description and modules of opening of discharge systems in normal conditions of exploitation and in extraordinary situations, presented with characteristics and phenomena arising at the bottom side during discharges.
1.5.9 Hydraulic studies accompanied with the necessary hydraulic models, according to the importance of the facility.
1.5.10 The assessment of the annual solid flow which enters in the catchment, measures for their reduction, constructing mountain ambushes, settlements, afforestation, etc.
1.5.11 The assessment of time of plot formation.
1.5.12 Duration of maneuver of gates in the discharge system and time of complete opening of gates.
1.6. The study on the construction materials contains:
1.6.1 Detailed description of their characteristics.
1.6.2 Location and description of quarries.
1.6.3 Description of tests conducted on the ground and quarries, of results of preliminary tests conducted on natural materials and on compounds provided for the construction of the facility and sub-facilities; characteristics of materials according standards in force; conducting tests from licensed laboratories, accompanied with the certificate of test and the summarized report with comments.
1.6.4 Program and description of researches, tests and control followed during the implementation of the facility.
1.6.5 The geological-litological map of calculated quarries and reserves.
1.7 The study of calculations of facility and sub-facilities contains:
1.7.1 Calculation methods, main schemes of calculations, their results (of the facility and sub-facilities) in stability, carrying capacity, deformation etc., in normal and extraordinary conditions. These shall be based in conditions and norms of design in force.
1.7.2 Tests performed in the model.
1.8 The study on the instruments of control and measurements contains:
1.8.1 Description of the type and place where the instrument was placed, the frequency of measurements during the period of construction and exploitation, including also the instruments of control, provided according to the requirements of paragraph 1.3.8 of this article.
1.8.2 Instructions on the use of any type of instrument placed with descriptions of phenomena which are observed (with enough credibility).
1.8.3 Instructions on the maximum interval of service time, within which the instrument must be maintained, for defaults that may suffer, for the way of repair or replacement with equivalent instruments.
1.9 The project of service and security contains:

1.9.1. Offices for the archive of implementation projects with changes occurred during the period of construction, studies, data of measurement control. It is preferable to place in the building also the equipment of command of electromechanical devices of distant command, devices of telecommunication, devices of alarm and command of lighting system.
1.9.2 Place of the guards.
The service and security building can be for each dam or some dams near each-other, where can be controlled the whole facility and sub-facilities. It have to be protected from the passing of plots, slides etc.
1.10 The graphic studies and materials contain:
1.10.1 The relief of catchment in the scale 1:5000, 1:10000, 1:25000 according to its size.
1.10.2 The detailed plan of the facility and sub-facilities (their co-placement), and the temporary deviation.
1.10.3 Detailed drawings with absolute quotes, in an acceptable scale, of the facility and sub-facilities, for a complete knowledge of the facility and sub-facilities which are going to be constructed.
1.10.4 Schemes of plant of command devices and control of discharge systems, with relevant instructions, to guarantee their continuous and secure functioning.

Article 10
Signing

The implementation projects are signed by all collaborators of its compilation and from the owner or concessionaire. They are accompanied by a report compiled and signed by a licensed counseling studio, with experience in the field of design. The counselors sign also the project.

Article 11
Term of approval in KKDM

KKDM motivates in writing the approval or non-approval of the project execution not later than two months from the moment of filing the documentation, according to the requirements of article 9 of this regulation.

Article 12
Term of validity of project

The project is considered invalid, if after 5 years from the date of the final approval of the project execution, the construction works have not started. Necessarily, prior to the commencement of works the approval is made in KKDM.

Article 13
Repairs

The requirements of paragraph 1.1 to paragraph 1.10 of article 9 are valid also for the repair or improvement of a facility or sub-facilities, analyzing also the causes.

CHAPTER III
CONSTRUCTION

Article 14
Responsible units

The main responsible units for the construction of the facility are:

- the owner, concessionaire;
- entrepreneur;
- designer;
- supervisor of works.

Article 15
Tasks of the owner or concessionaire

1. The owner or concessionaire, before the commencement of works provides:

1.1 The decisions of KRRT, KRRTRSH for the construction square or permit and the original construction permit.

1.2 The project execution fulfilled according to requirements of article 10 and local bodies according to jurisdiction.

1.3 The organization plan of works.

1.4 Nominates the responsible person for the administration of the contract.

1.5 Stipulates the contract with SKDM for the definition of the technical inspectorate of the dam/dike as representative of ITD.

Article 16
Construction of dam/dike

The construction of dam/dike starts after the construction permit is granted according to law no. 8405, dated 17.9.1998 “On urban planning” amended and after the fulfillment of the requirements of law no. 8402, dated 10.9.1998 “On the control and regulation of construction works”, law no. 8681, dated 2.11.2002 “On the design, construction, exploitation and maintenance of dams and dikes” and requirements of this regulation.

Article 17
Changes in the project

1. The project, during the implementation of works, may require forced changes if conditions different from those of the project are met. These changes are made only by the designer, argued, respecting the criteria, concepts and principles which are for the original project (Chapter II).

Changes in the project will be submitted for reconsideration in KKDM in cases when: the connection with the basin changes, the impermeable part of the dam changes, the type of the dam changes, the area of the dam changes, the dimensions of the dam changes, the type and capacity of dischargers, changes have an impact in the stability of facilities and sub-facilities etc.

2. After the excavation works, the regular geological, geotectonic and topographic documentation must be held. The results of factual data must be confronted with those of the project and in case of change from the project, shall be operated according to paragraph 1 of this article. Documents are signed by the representatives of entrepreneur, supervisor and designer.

3. The documentation of changes must be compiled in not less than four copies (one copy for the archive in the service building, one copy in the technical archive of the owner/concessionaire, one copy for the archive of the project and one copy in the archive of the entrepreneur).

Article 18
Methods, equipment and machineries of construction

Methods, equipment and machineries of construction should be appropriate to realize the quality of works according to the requirements of organization plan and technology of works, provided for in the project.

Article 19
The implementer of the works (entrepreneur)

1. The entrepreneur company of works, for the facility that is going to be constructed, nominates the director of the site and his deputy. The director or the deputy follows the progress of construction works without interruption.

2. The director of the site creates immediately the book of the site and until the delivery of the facility it notes the most important events, widely described and accompanied with technical, topographic, filmic documentation. At the end, this book must be stored at the service and security building.

3. After the conclusion of excavations, are highlighted the features of geological structures, so that the designers are able to perform an analysis of the specific situation and as appropriate to reflect each change in the project. Before the basements or their processing are filled with construction material, is held the act of verification and approved by the designer, supervisor and staff of construction. The deformations of structures, basements or foundations of

the dam and strains are continuously controlled and compared to the values calculated in the project.

4. During construction, is provided a continuous information on the quantity of superficial waters in the entirety of the facility to be constructed and of waters of filters, accompanied also with the respective values of pressure, comparing to values calculated in the project. For these information is notified the designer, who performs the corrections in the place. Also, are performed chemical analysis of flowing waters to define the content of soluble substances and their impact in the quality of sub facilities of counter-infiltrations (the cement cladding that is under construction and during exploitation).

5. The control on the quality of works is guided by the standards specified by the project. This control is made by the entrepreneur and supervisor. The results of control of quality of construction are documented in the book of the site. These controls include the relevant information, methods used to define the quality of construction materials, results of tests, geological map of excavations, results of geotectonic works and report on the treatment of basement and its inspection on the ground.

6. After the monitoring instruments are placed, their reading starts to control the functioning and reliability of the observation system. The data of devices are sent regularly to the group of monitoring of user, who performs the interpretations.

7. For any change made in the original project, the requirements of article 17 “Changes in the project” must be respected and placed in the file of project changes. The changes are reflected in the file of supervision of works (held by the supervisor) and in the book of site (held by the entrepreneur). In these, are registered also information which may be useful for possible works of repair, to distinguish possible ways of water infiltration and other considerations which serve to the security of the dam during exploitation as for example type, quality and mark of construction materials, irregular interruptions of process of concreting, the difference between the cracks etc. A careful and complete identification shall be made also through photograph and filming.

8. In continuity are observed, documented and registered all operations of concreting according to the project.

9. At the conclusion of construction works, the director of the site prepares a detailed and complete report, with all changes in the project, accompanied with technical reports, which reflect special events, occurred during the construction period. A copy of the complete report and technical reports are sent to KKDM, group of testing and commission of take over of the facility.

10. The entrepreneur of works participates in the testing of works together with the supervisor of works. The correspondence between supervisor-investor-entrepreneur, which constitute the documentation of the facility are stored together with other documents.

11. The supervisor of works leads and organizes the realization of the deviation program of the river and the placement for the first time with load of the facility and sub-facilities.

12. Except the above, the entrepreneur must respect the tasks defined in the law no. 8402, dated 10.9.1998 “On the control and regulation of construction works”.

Article 20
Supervision of construction works

1. The supervision of construction works is made according to the law no. 8402, dated 10.9.1998 “On the control and regulation of construction works”, Guideline no. 3, dated 15.2.2001 “On the supervision and testing of construction works” approved by the Council of Ministers and aims to control the progress of the process of works execution in accordance with the project, the technical conditions of project, execution and destination of the facility, taking into account also its economic part.

2. According to the character and dimensions of the facility, the supervision of the works is made by the supervisor and its staff, nominated by the owner, concessionaire and approved in KKDM. In the case when judged by the owner or concessionaire, in the role of supervisor is proposed its employee, always equipped with a license and approved also in KKDM.

3. When the designer has not the task of supervision of construction works, in the staff of supervisor must be also a representative of the project as technical adviser.

4. The selection of supervisor and its staff shall be made between those who have experience and high technical–professional level in the construction works, especially of hydro-technical works and which are licensed.

5. The tasks for the supervision of construction works are given in the guideline no. 3, dated 15.2.2001 “On the supervision and testing of construction works” paragraph I “On the supervision of construction works” and requirements of this regulation.

5.1 At the conclusion of construction works, the supervisor of works must prepare a detailed and complete report with all project drawings, accompanied also with technical reports which reflect special events occurred during the construction period. A copy of the full report and special technical reports are sent to KKDM, group of testing and commission of takeover of the work.

5.2 The supervisor of works participates in the group of testing.

Article 21
The control of works by the Technical Inspectorate (ITD)

1. The works in the facility start under the supervision and control of the representative of ITD approved by KKDM. This representative is mainly charged to verify the respecting of this regulation, conditions of execution of works to control the progress and quality of works, the authenticity of laboratory tests performed in the site. Periodically, he compiles a technical report and he sends a copy to KKDM.

2. The owner or concessionaire of the facility, in the contract which regulates the labor relations with the representative of ITD, must express the obligation of the latter to respect rigorously of requirements of this article and for the presence in the site.

3. The representatives of ITD must have an appropriate work place.

4. The representatives of ITD, when note that the progress of works does not offer guarantee for the qualitative realization of works in the facility, imposes to the entrepreneur their interruption notifying KKDM, the owner or concessionaire and the supervisor of works.

5. After the completion of construction works, the representative of ITD compiles a final report on their chronological progress, on important events occurred during works and on the results of tests and their statistical processing for materials of construction used in the work. The report is submitted to KKDM.

Article 22
The control of materials during construction

1. Materials coming in the site must be in accordance with the technical requirements of the project, accompanied with the certificate of origin and quality. Materials in the facility are used only with the approval of the supervisor of works.

2. The taking, transport, storage and way of performing tests of samples of used materials, is made in accordance with the conditions and norms in force and instructions defined in annex 1 of this regulation.

3. Certificates of tests issued by specialized, licensed or legally recognized laboratories must be stored in the file of facility of the supervisor.

4. When samples are taken in the facility or from the realized part of the facility and their characteristics proved in the laboratory do not correspond with those of conditions, norms and instructions defined in the project, the supervisor orders the taking of necessary measures to destroy the construction. In any case, during the control, ITD has the right to receive a copy of the documentation. The representative of ITD, when notes inconsistency with the project, has the right to order the destroy of the construction.

Article 23
Tests of construction materials

1. Materials used for the construction of the facility and sub-facilities are subject to tests to define the chemical, physical and mechanical characteristics and their compliance with those of the project. These tests are performed at able and licensed laboratories.

2. Near the place of construction, under the care of the owner or concessionaire of the facility, is set up the experimental and field laboratory to perform the tests of construction materials. The laboratory equipments are defined in agreement with KKDM. ITD can suspend the performance of construction works when notes that the laboratory does not have the appropriate technical and scientific level to perform the tests.

3. A copy of certificates of tests, accompanied with an explanatory report, signed by the entrepreneur and supervisor of works must be given to the representative of ITD by the director of works. In the report are described all the characteristics of materials used in construction.

4. Characteristics of construction materials must be in accordance with the conditions and norms in force, to respond to the requirements described in the project.

5. The samples of construction materials are stored at the laboratory of the site for possible controls.

Article 24
Test of works

1. The test of works is performed by a specialist or group of specialists and each of them must have the relevant license for the specialty covered in this test. In this group are also necessary economists and lawyers.

2. The tester or group of test are assigned by the investor (user), who communicates in writing this person or group of persons to the Technical Secretariat of KKRRT of the region and KKDM within 30 days from the date of conclusion of works.

3. In agreement with the supervisor and tester (or group of test), the owner or concessionaire defines the way and terms of the testing process.

4. The tester or group of test shall implement the requirements of paragraph II "On the test of construction works" of Guideline no. 3 of the Council of Ministers, dated 15.2.2011 "On the supervision and test of construction works".

5. The supervisor of works participates in the test of the facility, responds to the tester with all the necessary documentation for test and signs the record of this test. When are noted defects in verifications, the tester or group of test assigns tasks in writing for the works to be performed, defining also terms of their completion.

6. After the conclusion of the test of facility and sub-facilities, is compiled the record of test, which is signed by the tester or group of test, the entrepreneur and supervisor of works. The record must include all the requirements of point II/7 of Guideline no. 3, dated 15.2.2001. The record is submitted in two copies at the office of urban planning and after the registration, one copy is sent to the user.

7. Except the test at the completion of works, also the test during the process of works is obligatory in cases when works are complex and special difficulty as: test of works in the cup of catchment, works of deviation, partial exploitation etc.

8. In the test group participates also the representative of ITD.

9. The act of test is approved also in KKDM.

Article 25
Deviation of the river and filling of the catchment with water for the first time

1. Deviation of the river.

1.1 Before the deviation of the river, is performed the test of the facility and sub-facilities which serve to the deviation.

1.2 The deviation of the river is made in accordance with the criteria defined in the project, as: maximum plots, probability of their repetition, hydrographs, accepted risks, time and period provided for deviation, provided in the project approved in KKDM.

1.3 The entrepreneur and supervisor should know the criteria and concepts where the project is based for the deviation of the river.

1.4 If there is an avoidance from the plan of deviation provided in the project, as delays in construction which brings the change of deviation time, must be considered changes in the project and shall be acted according to article 17, chapter III ("Changes in the project").

1.5 Before deviation, the commission composed by the user, entrepreneur, designer, supervisor of construction works, the representative of ITD and group of test verify the fulfillment of necessary documentation which allows the river deviation, compile the deviation program. The user notifies the ministry or institution which administers the facility, KKDM and local governance bodies.

2. Filling of the catchment for the first time.

2.1 Before the filling of the catchment with water for the first time, the test of the facility and sub-facilities is performed which serve to the realization of the filling.

2.2 The commission composed by the user, entrepreneur, supervisor of works, the representative of ITD and tester verify the fulfillment of necessary documentation which allows the filling of catchment.

2.3 This commission compiles the program of work and provides the necessary measures for the filling of the catchment for the first time. In the program is provided the number, specialty and tasks performed by the people who participate, type of measurements and observations, their frequency and measures to be taken during this process in case of extraordinary situations. The program shall be based in the regulation compiled by the designer according to point 1.1.12, chapter II and according to the real conditions created during construction. The program is realized by the user through the entrepreneur and is leaded by the supervisor of construction works in the presence of the representative of ITD.

2.4 The loading for the first time of facilities and sub-facilities is made only with the written permission from KKDM. The user, before the filling of the reservoir must inform the ministry or institution which administers the facility, KKDM and local governance bodies.

2.5 Before the application of the authorization of the first time filling with water of the catchment, all works in the surface of the catchment cup must be completed in accordance with specifications of the project and security requirements. The scheme of signaling and the salvation of people's lives must be defined. A special attention must be given to the elimination of floating waste, sanitary conditions and dangerous collections.

2.6 The main elements applied during the water filling of the catchment are:

2.6.1 The speed of water level rise in the catchment must allow the performance of measurements in instruments and observations according to the frequency defined in the project. It may be necessary to realize the above until the interruption of the level rise.

2.6.2 The frequency of measurements is defined in the relevant guideline compiled by the designer. It can change depended on the speed of water level rise. The measurements become more frequent when the water level in the catchment is close to the normal level quote. The time between two measurements in the case of a slow rise of the water level should not be great. The frequency of measurements is recommended to be greater in those case when during filling are noted in the dam, basement and its sub-facilities, undesired phenomena, in order to reflect them completely, to define measures which must be taken for its suspension or avoidance.

2.6.3 The instructions for cases of undesired phenomena are specified before the commencement of filling for the maneuver of emergence gates of discharge sub-facilities. For other measures and other emergence bodies which must intervene immediately must be given importance to the security of telephone and radio interconnection, inside and outside the facility.

2.6.4 The values measured depended on the filling of the catchment are controlled continuously to be compared with values provided in the project. Any important change must serve as an alarm signal. During the filling of the catchment with water for the first time, the observations and measurements are performed under the qualified control of the designer, constructor, user and supervisor of works, able to exactly interpret the results of measurements.

2.6.5 During the filling of the catchment with water for the first time, except the dam and other sub-facilities of the facility must be provided also needs of supervision of shores of the catchment cup.

2.6.6 If the seismicity provoked by the catchment is expected, the system of seismic monitoring must be continuously observed.

3. The technical report

The user of the facility, 6 months after the filling of the catchment, must submit to KKDM a report in which are described in a detailed manner, the behavior of the dam and sub-facilities during this period and a comparison of the observed behavior with the provided one. The results of this report must be included in the annual report of the first year of exploitation, to obtain also the results of the complete or partial emptying of the first year. Then, the facility enters progressively in the way of normal exploitation.

Article 26
Preliminary measures to face the critical situations during construction

1. Before the commencement of the activity for the construction of the facility, the user, designer, supervisor of construction works, helped also by the representative of ITD must compiled in collaboration with the local bodies, the plan of measures and plan of alarm to face the extraordinary situations during the construction period. This plan is compiled based on the Guideline of six ministries no. 248, dated 22.1.2000.

The representative of ITD is informed for the above.

2. The plan must take into account:

2.1 The assessment and facing of critical situations in the site.

2.2 The assessment and facing of catastrophic situations caused by natural disasters.

2.3 The assessment and facing of critical situations provoked by the performance of works and which constitute a risk for “third parties”.

2.4 The extraordinary situations caused by riots, sabotages or other criminal acts.

The plan, except the instruction for its actions, schemes of rescue, adaptation and use of emergence equipment, medical care of emergence, securing the population in extraordinary situations etc. must contain also other clear tasks for local authorities accompanied with severe procedures, which should follow emergence situations.

3. Details of instruction to face the critical situations must be written and be easily clear and understandable. The assigned persons must receive the necessary treatment for emergence operations.

4. The observation and notification to face critical situations.

The entrepreneur and user, with their staff, compile a scheme of reliable observation according to which is immediately informed the team for dangerous situations of plots in the upper part of the facility, to create the possibility of taking the necessary protective measures.

Article 27
Changes or repairs in existing dams and catchment

1. The important activities of construction on the elevation, change, repair of the existing dam and catchment or the increase of the class of dam must be leaded by principles of articles mentioned in this regulation for the design, construction, exploitation and maintenance of a new dam.

2. A special care must be taken to structures and existing parts of the dam during the performance of works.

3. If the works require the emptying or partial reduction of the level of catchment, its refilling must be made according to the requirements of article 25, point 2 of this regulation.

4. The user of the facility must perform small repair or maintenance works, without the approval of KKDM for the following cases:

- leveling of crown, repair of parapets, repair and cover of escarpment, repair of wells of extinguishing water dischargers, repair of existing catastrophic dischargers, reconciliations, placement and repair of seals, grills in wells of energy extinguishing, drainages, works to inhibit erosion, feedings channels etc. so, works of repair and maintenance that do not bring changes of parameters of the facility and sub-facilities from what was designed.

CHAPTER IV
EXPLOITATION AND MAINTENANCE
Article 28
Exploitation of the facility

1. It is the main responsible for the security of the dam/dike and other sub-facilities related to it and the consequences deriving or possible accidents in the dam/dike. The entirety of organization, technical and financial measures taken by the user, should guarantee the normal exploitation of the facility, its lifespan and non-violation of "third parties" provided in the phase of design, construction and during exploitation and maintenance.

2. Exploits the water resource from the dam and catchment for the purpose defined in the project. For the case of the dike, the depositing possibility created by the dike to hold the industrial waste and not allow their removal in an uncontrolled way.

3. Maintains the facility according to the technical requirements deriving from regulations and instructions, approved by the Council of Ministers and KKDM and performs repairs and improvements according to the specific conditions during the period of exploitation, a period which starts after the placement on the load of the dam for the first time through the filling of the catchment.

4. Covers all the expenses related to the exploitation, maintenance, repair, improvement and all the activities related to the security of dam/dike and "third parties".

5. Totally compensates the losses suffered by "third parties" when they derive from the dam/dike. In the case when damages are caused by force majeure, impossible to be foressen in the project, in the compensation of losses participates also the state.

6. Informs the ministry or relevant institution which administers the dam/dike, not less than two times a year, about the facility and any event related to its security.

7. In collaboration with structures of local governance, compiles the plan of alarm, evacuation and help for the protection of population and material values in extraordinary cases, as a consequence of failure of the dam/dike, according to the guideline no. 248, dated 28.1.2000 of six ministries.

8. Notifies the local governance bodies and the ministry or institution which administers the dam/dike to announce the civil emergence condition in case of floods when:

- dams and dikes are seriously damaged;
- the level of waters reaches critical points in some measurable areas;
- rivers have got out of bed in dangerous levels;

Article 29
Exploitation of the facility and regulations

1. The exploitation of the facility starts immediately after the first time filling of the catchment with water. The user is obliged to strictly implement "The regulation on maintenance, exploitation, observation and control of dam/dike" compiled by the designer according to chapter II, article 9, point 1.1.12 of this regulation.

2. Based on the general regulations and instructions issued by KKDM (on the supervision, observation, measurement, data processing and their interpretation for the assessment of the condition of dam/dike), the user compiles :The technical regulation of

exploitation, maintenance and control of the facility and sub-facilities", approving it at the ministry or institution which administers the dam/dike. In this regulation, are defined the tasks and actions of all the team and other employees who deal with the exploitation, maintenance and control of the facility and sub-facilities, defined in paragraph 2 and 3 of article 5, chapter I "Integral structures". This regulation shall be approved in KKDM.

3. For each dam or group of close dams, the user assigns the licensed technical director for the security and control during exploitation and maintenance of dam/dike, which compiles and fulfills the register of exploitation for supervisions, observations, measurements, data processing and their interpretation.

In the register, according to dates, are noted the events during the exploitation of the facility and catchment, as: fillings, emptying, discharges, gates maneuvers, measurements, controls, incidents which are ascertained (filtration, water flow, cracks etc.), special hydro-meteorological events, seismic movements and their consequences, works of maintenance, improvement and repairs performed in the facility and everything that is estimated to be recorded.

The register should be made available to the authorized teams of control as long as it is carried out on the facility.

4. Any improvement or change made in the legislation and regulations previously approved by state bodies and KKDM, is reflected by the user also in the 'Technical regulation of exploitation, maintenance and control of facility and sub-facilities".

5. In each dam, which fulfills the conditions of article 3 of law no. 8681, dated 2.11.2000 "On the design, construction, exploitation and maintenance of dams/dikes", are set the guards of the facility and sub-facilities, the number depends on its size.

6. In the building of service and security of the dam, except the preservation of all studies, projects, booklets of measures, situations, preventives, changes during construction, analysis of tests of materials performed during construction, various acts of inspection and controls performed during construction and those performed during exploitation, as results of measurements, observations, interpretations, technical diary of the facility and sub-facilities, of works of improvement and demolitions, reports and tasks given by periodic controls and other legal acts and bylaws related to the facility are stored and at any moment must be made available to the authorized teams of control.

Article 30
Discharge of plots and their control

1. Before the start of each season of discharges, the functioning of all sub-facilities of discharge and emptying of catchment is controlled to the place where are extinguished the effects of discharges, taking the relevant measures for the shortcomings ascertained, with a fixed deadline for their full readiness.

2. The user, twice a year (every 6 months), controls the bottom of the flow. In cases of ascertainment of obstacles of discharges, takes the necessary measures for a normal discharge of plots. According to the importance of the situation, it notifies also the subordinate and control structures, for a common coordination of actions to be taken.

3. The levels of water in the catchment, flows of the river which feed the catchment, discharges etc., are periodically registered, comparing also to the project data.

Deposits of solid materials are measures once in five years for the reservoirs that have a smaller volume than one hundred million m3 water and once in ten years for larger reservoirs.

4. Before the start of the wet season (plots), the condition and readiness of signaling system is controlled. After the sign of the discharge of plots, in the area where is extended the effect of discharges, the measures defined for the evacuation of population, are implemented, which were previously instructed.

Article 31
Observations and measurements in facilities and sub-facilities

1. The observations and measurements with the devices placed in the facility and sub-facilities and shores of the catchment, start since the moment of their placement and during the time of exploitation of the facility. The frequency of observations and measurements is defined in the "Technical regulation of exploitation, maintenance and control of the facility and sub-facilities". If unforeseen results are ascertained in the project, their frequency is added.

Data of observations and measurements are controlled by a specialized staff.

2. The processing and interpretation of measurements and observations is made every month. The conclusions are sent every 6 months at the ministry or institution which administers the dam/dike and once a year (within March) the report is sent to ITD. When are ascertained significant deviations of those allowed by the project, immediately is notified the ministry or institution which administers the dam/dike and KKDM.

3. The results of measurements in devices, interpretations and reports are archived in the service and storage building of the dam.

4. The measurements which require long and complicated interpretation, processing and interpretation of data of hearing aids placed in the body of the dam, the user realizes them through specialized institutions.

Article 32
The control of dam/dike from the user

The control of the dam/dike by the user through the unit of technical direction is realized as follows:

1. The periodic and visual visit and control in the facility and its surroundings, the control of condition of discharge systems, emptying and water taking and unstable areas in the

catchment shores (if there are any since the phase of implementation and shown during exploitation).

The visual control consists in:

- control of the dam crown, if there are reductions, deformations, trees etc.;
- control of the escarpment of the upper side (especially when the water level is reduced in the catchment) if there are damages of escarpment, displacement of protective cover, trees etc.;
- control of the escarpment of the lower side if there is water leak, damages of escarpment, animal nest, trees etc.;
- control of discharger, if there are blockings or narrowing of sections from various materials, erosion, corrosion etc.;
- control of energy extinguishing, if there are various corrosions or deformations;
- control of contact of the dam with shores, if there leaks, erosion etc.;
- control of stability of catchment shores, if there are slides, erosion etc.;
- control of pulling capacities of the maximum flows in the lower side of the dam, if there are section narrowing, slides, uncontrolled constructions etc.

2. The control through measurements of devices placed in the facilities and sub-facilities according to the project.

The control through measuring devices consists in:

- measurements of water level in the catchment;
- measurements of filtration in the lower side;
- measurements of levels of piezometric wells;
- measurements of pressure of pores;
- meteorological measurements;
- geodesic measurements;
- measurements of deformations;
- measurements of deformations of joints;
- measurements of reductions;
- measurements of temperatures;
- measurements (registration) of seismic changes (if in the dam are placed devices);
- measurements of deformations of shores (unstable).

3. The frequency of control and measurements is defined in the project and it changes according to the importance of the facility and anomalies of observed matters. The control and measurements shall be more frequent in cases of unusual hydro-meteorological and seismic phenomena.

4. The frequency of measurements is realized according to the requirements of the project reflected in the “Regulation of maintenance and exploitation of the facility”.

5. The user compiles the annual report of exploitation, which, through the ministry or institution which administers the dam/dike sends it to ITD each year within March of the next

year. The report contains observations, measurements, works performed for the maintenance and elimination of small damages, measurement graphs, results of interpretations etc.

When is considered necessary, depending on the problems, the report is sent frequently. This report, every two years, must contain a detailed analysis of the evolution of the dam/dike.

ITD submits this report to KKDM for review.

KKDM reviews, analyzes the reports, assigns tasks and informs the user.

Article 33
Maintenance of the dam/dike

1. The user, in the facilities and sub-facilities, provides without interruption a team of employees prepared for the maneuver of discharge systems in any case.

2. The user, through maintenance, guarantees the access roads to the facility, constructed according to the project. They must be passable at any time and for al the vehicles which may enter at any moment, according to the needs for observation, control and intervention in case of need.

3. The entrances in the maneuvering cab of systems of discharge, emptying, water taking, entrances to control galleries at any time should be easily passable and equipped with lighting and air plant when necessary. The lighting must cover both sides of the dam, each sub-facility and entrance roads to them.

4. All the commanding devices are placed in closed places and protected from unauthorized persons or any undesired activation, out of the danger of flooding, scraps and other phenomena.

5. The communication of employees of service and storage building of the facility with defined persons, with public order authorities, with central and local governance authorities and with the office of emergencies, shall be with phone and radio system, independent from each-other.

6. The maintenance shall guarantee the power supply of the facility and sub-facilities from two independent resources.

Article 34
Passport of dam/dike

The user must complete and send to KKDM the file of the dam/dike which is in use. It must be fulfilled according to the requirements of the Guideline of the Council of Ministers no.4, dated 18.7.2003 “On the requirements of legal and technical documentation contained in the file of dams and dikes”. This file must be denominated the passport of dam/dike.

Article 35
Protection of population and material values

1. The disasters caused by the eventual failure of the dam/dike are accompanied with the great economic damages and serious losses in human beings and livestock. Measures provided for by the quality of the project during the implementation of works of construction, care in the period of exploitation and maintenance are preventive and minimizing for consequences. However, dams/dikes and catchment remain a potential risk, for which appropriate measures should be taken.

For this purpose serves Guideline no. 248, dated 28.1.2001 “On the compilation of the plan of alarm, evacuation and help for the protection of population and material values in extraordinary cases, as a consequence of the failure of dams and dikes” approved by six ministries.

2. The plan of alarm, evaluation and help is divided into two phases:

- in the first phase are included all the studies needed to define the extension in space and time of the wave created by the possible failure of dam/dike in its lower side, the frequency of wave movement and wavelength depths to not present dangerousness;

- in the second phase is included the definition of means of alarm, persons who give it and time when it is given, means and ways for the evacuation of population, place of its temporary stay and those who organize this.

3. In the compilation of the plan of alarm, evacuation and help according to the tasks participates: the user of the facility, designing organizations and other specialized institutions, local governance bodies (commune or municipality where the risk is present), prefecture, public order authorities, civil protection of the Republic (MCR) and defined structures of the Ministry of Defense.

4. The integral elements of the plan of alarm are:

- dams/dikes and embankments of rivers, which in case of failure, bring serious consequences in the life of people, in economic and social values depending on their place in the valley down the dam/dike;

- parameters of wave caused by the eventual failure of dam/dike as: depth, frequency of movement and limits and extension;

- equipment with instruments of the area where the facility is included, placing devices and measuring devices above and under the axis of the dam/dike;

- the bar of supervision, which is in the service and security building of the dam, which provides a complete view on the lower escarpment of the dam and over the river bed below it, which is protected by floods also in the case when the dam/dike is damaged and guarantees entries-exits at any time and situation;

- interconnection tools, installed at the bar of supervision, which are doubled;

- network of transmission of alarm to the population, as sirens placed in points which cover the populated area, remote control of command and supervision for distant various sound signals (alarm, alarm end, test);

- periodic tests of alarm from the bar of supervision and action of population;

- stages of alarm and factors which define them as: first stage (reinforced vigilance), when maximum flows of the river are increased in values which increase the water level in the catchment above the normal level; second stage (risk – alarm of type I), when the water level in the catchment is increased above the maximum quote, when filtration are increased more than normal, when are noted slides of the area around the catchment and any threat on the stability of the dam/dike; third stage (failure – alarm of type II) when there are partial or full failures of the dam/dike;

- persons and bodies to be informed as: the user of facility, public order authorities; chairman of commune and alderman of the area; inspector of public works; structures of civil protection of ministry or subordinate institutions and MCR.

Article 36
File of control of dam/dike

The file of control of the dam/dike remains to the user of the facility and ITD, where are found: the main documents of the implementation of works; description of important events during construction works; main moments on the progress of first time filling with water of the catchment, most important events, works of repair or maintenance, reports on the controls performed during exploitation, reports on the hearing of the dam etc.

Article 37
State control at the dam/dike

1. The annual control of the dam/dike is performed by the department or relevant subordinate institution and guided by the security group of the dam/dike according to article 5, chapter I. As appropriate, can be coordinated also with the control exercised by the user according to article 32, chapter IV, compiling a common report.

The annual control is performed: in the parts over the water of facility and sub-facilities, on the functional condition of auxiliary elements, the condition of systems of discharge, emptying and water taking, on the condition of the dam and surrounding premises, supervision of filtration in the body of the dam, in the basement and shores of the catchment, in the galleries of control and drainage (when the dam has such), on the functioning of measuring devices placed in the dam/dike, on ways of measurements, their systematization and processing, works of maintenance, repair or improvement performed in the dam/dike and their quality, condition of documentation at the facility, register and file of exploitation, respecting of provisions of competent bodies and “Regulation of exploitation of the dam by the staff of exploitation”.

The control is performed in the presence of the user, according to the request of the group chairman. For ascertainments is held a record, signed by both parties, which is submitted to the chairman of the department or the relevant institution. A copy is officially sent to ITD.

2. The 5-year control of the dam/dike is performed by the department or institution which administers the dam/dike and from KKDM, for dams made available within 10 first years, with the requirements of paragraph 1 of this article.

3. The full 10-year control is organized and guided by KKDM in all dams which have fulfilled the first 10-year and then again every 10 years. Except elements of annual control according to paragraph 1 of this article, also the parts under the water of the dam are controlled.

The control is performed when the catchment is fully emptied. When is required the emptying of the catchment, but accompanied also with economic losses (of energy, drinking water etc.), in collaboration with state central bodies, is chosen the period with minor losses.

When from the data, arise doubts for defects of parts under water, the full control must be performed in the presence of the water, using submersible television camera or specialized submersible diving. When the above control is impossible and when doubt is great, the reservoir must be emptied from water.

At the conclusion is compiled a report when, in addition to comparisons made by the full control, are noted also the results of controls during 10 years. A copy of the report is left to the user, a copy to the department or subordinate institution and a copy to the archive of KKDM.

CHAPTER V
THE ABANDONMENT OF THE DAM

Article 38

The abandonment of the dam/dike and catchment is made when:

- the facility has lost the main function (irrigation, energy, drinking water etc.) for which it was constructed and can not be altered;
- the catchment cup is filled with solid materials to the extent that the facility has lost the function.

Article 39

The abandonment of the dam/dike and catchment is made when the user has compiled the project and plan of abandonment, approved by the ministry or institution which administers it. The final approval is given by KKDM.

Article 40
Plan of abandonment

1. The plan of abandonment of the facility and its sub-facilities contains:

1.1 Analysis of stability of the main remained structures of the facility or sub-facilities in new conditions of demolition of basement, erosion or other factors.

1.2 The study of condition of hydrological and hydraulic equipment for abandonment.

1.3 The definition of the new bed of water flow after catchment emptying.

1.4 The control of plots during and after abandonment.

1.5 The effect of maximum and minimum plots along the river valley, in the lower side of the abandoned dam/dike.

1.6 New risks which can be created by solid flows.

1.7 Definition of measures to prevent the access of population in the remaining structures.

1.8 Potential consequences in dams and other catchments located in the valley, technical and financial measures to face the new situation, coordinated with other users.

1.9 Methods and practices of failure and security of remaining structures.

1.10 Plan of alarm, evacuation and help for the protection of population and material values in new conditions.

Article 41
Maintenance until abandonment

As long as the disapproval of abandonment of facility and sub-facilities lasts, they shall be maintained in conditions of a security of exploitation also in the case when the catchment is emptied.

Article 42
Abandonment of facility and sub-facilities

1. The works of abandonment of the facility and sub-facilities start after the approval.

It is recommended that the works of sub-facilities in the body of the dam/dike shall start after the emptying of the catchment or before the full emptying, but provided that the abandonment shall not have an impact in the further security.

2. The works of abandonment shall be performed according to the secure and without risk practices for the stability of remaining structures.

3. In any case the works of abandonment should not block or reduce the discharge security of the natural plot.

Article 43
Restoration of natural conditions

1. The abandonment must secure the passing of maximum natural flows of the river in its upper and lower side.

2. In areas which remain secure from the abandonment, is restored the state of natural conditions.

In obstacles, which may have existed in the river bed before the construction of the dam, will not be interfered.

Article 44
Control of security

1. The Ministry or institution which administers the dam/dike and the user who had this facility in dependence and ITD continue the supervision of security of the place, when the facility and sub-facilities were not completed removed.

2. The structures remained out of abandonment must be controlled in time intervals not greater than five years, to see the extension of deformations, dissolution of materials and destruction of basement.

If ascertained conditions of insecurity, the affected structures is recommended to better be removed then repaired.

Article 45
Documentation of security

The results of control of structures remained out of abandonment of the facility and sub-facilities are documented and registered in a report and for the tasks which shall be implemented, are charged the responsible units for security.

All files of facilities and sub-facilities must be stored in regular conditions.

Article 46
Transfer and storage of documentation

The user must submit all files of documentation created during the design, construction, exploitation and abandonment in the Central Technical Archive of Construction.