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UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

**Report
of the International Training Course
on the Safety of Hydraulic Structures
for High-Ranking Executives from Countries in Central Asia**

**Moscow, Russia
16-20 August 2010**

This report has been issued without official editing by the Environment, Housing and Land Management Division of the United Nations Economic Commission for Europe (UNECE) secretariat

A. ORGANIZATION OF THE MEETING

1. The International Training Course on the Safety of Hydraulic Structures for High-Ranking Executives from Countries in Central Asia took place on 16-20 August 2010 in Moscow, Russia. The course was organized by the United Nations Economic Commission for Europe (UNECE) with the financial support of the Government of the Russian Federation and co-funding from the Eurasian Development Bank in close cooperation with the Technical Research Center “Hydraulic Structures Safety”.

2. The Training Course was held within the framework of the second phase of the “Dam Safety in Central Asia: Capacity Building and Regional Cooperation Project” implemented by the United Nations Economic Commission for Europe (UNECE) with the financial support of the Government of Finland and additional financing from the Government of the Russian Federation. The project is carried out under the supervision of the Project Working Group on Water and Energy Resources of the United Nations Special Programme for the Economies of Central Asia (SPECA). It is aimed at expanding the national capacity in the field of dam safety and strengthening the regional cooperation in this field.

1. Objectives of the Training Course

3. The training course was aimed at the familiarization of the heads of institutions and organizations in Central Asia countries dealing with the provision of safety of hydraulic structures (HS), with the relevant experience gained in the Russian Federation. Another purpose of the event was the sharing of experience among the participants.

2. Attendees

4. The training course was attended by 19 representatives from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Presentations were made by officers from ministries and agencies of the Russian Federation and representatives of several Russian research and educational institutes. In all, the training course was attended by 41 people. A list of participants is found in Appendix 1 to this Report.

3. Opening of the Meeting

5. A welcoming statement to the participants was made by Mr. Alexander Mironenkov, Head of the Technical Assistance Department of the Analytical Division of the Eurasian Development Bank. He noted that the training course was the first event within the framework of the “Dam Safety in Central Asia: Capacity Building and Regional Cooperation Project”, supported by the Bank, and expressed the intention to provide further assistance to the regional cooperation in this field.

6. Mr. Bo Libert, Regional Adviser of UNECE Environment, Housing and Land Management Division, described in his welcoming statement the progress in the implementation of the “Dam Safety in Central Asia: Capacity Building and Regional Cooperation Project”. He noted that the course would constitute an important element of the project and wished success to the participants.

7. On behalf of the host organization, the event’s participants were greeted by Mr. Dmitry Radkevich, General Director of Technical Research Center “Hydraulic Structures Safety”.

4. Program of the Training Course

8. The Program of the International Training Course on the Safety of Hydraulic Structures for High-Ranking Executives from Countries in Central Asia is found in Appendix 2.

B. PROCEEDINGS

9. The training course started with a roundtable on the provision of HS safety in Central Asia countries. As noted by the speakers, the natural aging of large hydraulic structures, built in accordance with uniform rules and standards some 30 to 50 years ago during the USSR times, gives rise to a higher probability of accidents. Therefore, an increased supervision is required of their technical condition as well as growing demands of maintenance and repair work. However, the safe operation of such hydraulic structures, which had been earlier supervised by unified Soviet state supervision authorities, is complicated by the fact that today each Central Asia country acts on its own, being governed by own standards and rules.

10. The roundtable participants from the region described the regulatory legal framework of HS safety in their countries and presented their vision of the need to improve the respective national legislation, organizational mechanisms and regulatory technical documentation. The opinion was expressed that it would be desirable to bring closer and harmonize national approaches to the provision of HS safety and strengthening of regional cooperation in this field. The Russian participants, many of which had taken part in designing, building and operating hydraulic structures in Central Asia, expressed an interest in the establishment and expansion of business contacts within the countries in the region as well as their willingness to offer support to these nations' efforts in the provision of HS safety.

11. The participants of the training course heard 12 presentations dealing with various aspects of the provision of HS safety in the Russian Federation. The speakers elaborated on such matters as the formulation and evolution of the regulatory legal framework of HS safety, organization of supervision of the technical condition and safe operation of hydraulic structures, maintenance of a state HS register, specifics of the provision of safety for small HS, creation and operation of information-diagnostic systems of safety control, etc.

12. The participants discussed the presentations and exchanged views on the state of regulatory documentation on HS safety and supervision authorities in Central Asia countries. They also discussed the opportunities for the implementation of the approaches suggested by the speakers. In particular, opinions were expressed on the possibility of the adaptation of Russian standards and rules, governing hydraulic structures construction and operation, to the conditions prevailing in the countries of the region.

13. The participants of the training course visited the engineering center for the control of safety of power stations structures of JSC "Research Institute of Energy Structures" (JSC "NIIES"), where they had the opportunity to familiarize themselves in detail with the operation of the information-diagnostic system of HS safety control "BING-3". During the visit to the Moscow State University of Environmental Engineering the attendees were provided with information about the university's structure, organization of the training process and the research work aimed to improve the safety of HS.

14. The list of basic materials, provided during the sessions of the course and distributed to the participants, can be found in Appendix 3. The participants received a CD containing the records of the presentations and additional materials.

C. CONCLUSIONS AND RECOMMENDATIONS

15. The participants

(a) Highly estimated the presentations they had heard and the materials they had been provided with and noted the undisputable professionalism of the speakers.

(b) When evaluating the course saw it as an important element of cooperation between the Russian Federation and Central Asia countries aiming to ensure the safe operation of hydraulic structures, called for more intense cooperation in this field by holding other events for the exchange of experience and professional development of relevant specialists as well as by providing consultancy assistance on various aspects of HS safety.

(c) Expressed their gratitude to the Government of the Russian Federation for funding this event as well as their desire that Russian intellectual and financial support to the provision of HS safety in Central Asia continue.

(d) Requested the UNECE project management and possible donors, primarily the Eurasian Development Bank to consider holding specialized training events, in particular, regarding the use of information-diagnostic systems of HS safety control, preparation and drafting of HS declarations, safe operation of hydraulic structures of small dams, and creation of national HS registers.

e) Expressed their gratitude to the management of the engineering center for the control of safety of power stations structures of JSC “NIIES” and Moscow State University of Environmental Engineering for the opportunity to visit these organizations and familiarize themselves with their work.

16. The participants also expressed gratitude to the teams of the Technical Research Center “Hydraulic Structures Safety” and the autonomous not-for-profit organization Institute of Additional Education “Professional” for excellent organization of the International Training Course.

LIST OF PARTICIPANTS
The International Training Course on the Safety of Hydrotechnical Facilities
for High-level Officials from Central Asia
16-20 August 2010, Moscow, Russia

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**Program
of the International Training Course
on the Safety of Hydraulic Structures
for High-Ranking Executives from Countries in Central Asia
Moscow, 16-20 August 2010**

Monday, 16 August 2010

09.00-09.30 Registration of the Participants

**09.30-10.00 Opening of the Training Course
Welcoming statement:**

Mr. Alexander Mironenkov, Head of Department, Analytical Division of the Eurasian Development Bank

Mr. Dmitry Radkevich, General Director of Technical Research Center “Hydraulic Structures Safety”

Welcoming statement and briefing on the progress in project implementation
Mr. Bo Libert, Regional Adviser, UNECE

10.00-11.30 Roundtable on the provision of hydraulic structures (HS) safety in Central Asia countries. Prospects for international cooperation in this field

Moderator – Mr. Timur Kamalov, Uzbekistan

Introduction
Mr. Yuri Steklov, consultant

Presentations by country representatives:

Survey of problems related to the provision of HS safety

- Laws and regulations
- Technical matters
- Training and professional development

Possible lines of cooperation with agencies of the Russian Federation in resolving the existing problems

11.30-11.45 Coffee break

11.45-13.00 Provision of hydraulic structures safety in RusHydro
Mr. Timur Yusupov, Operations Director, RusHydro

13.00-14.00 Lunch

Moderator – Mr. Igor Petrakov, Kazakhstan

14.00-15.00 Regulatory legal framework of HS safety in the Russian Federation
Mr. Dmitry Radkevich, General Director of Technical Research Center “Hydraulic Structures Safety”

- 15.00-16.00** **Regulatory technical framework of HS safety in the Russian Federation**
Mr. Igor Borzenko, Deputy General Director of Technical Research Center “Gidrobezopasnost”
- 16.00-16.15** **Coffee break**
- 16.15-17.30** **Means of automation of instrumental observation and diagnostic information and measuring systems (monitoring systems)**
Mr. Vladimir Sherbina, Head of Engineering Center “Energy Structures Safety” of JSC “NIIES”

Tuesday, 17 August 2010

Moderator – Mr. Iskander Djaldoshaliev, Kyrgyzstan

- 10.00-11.15** **Modern instruments and control systems for HS safety systems**
Mr. Vladimir Sherbina, Head of Engineering Center “Energy Structures Safety” of JSC “NIIES”
- 11.15-11.30** **Coffee break**
- 11.30-12.15** **Survey of hydraulic structures. Procedure, methodology and main requirements for the content of the survey report**
Mr. Alexander Chochia, Head of Department, Technical Research Center “Gidrobezopasnost”
- 12.15-13.00** **Practical provision of HS safety, with Zagorskaya GAES (pumped storage power station) as an example**
Mr. Vladimir Chernenko, Head of Equipment Monitoring and Test Service, Zagorskaya GAES
- 13.00-14.00** **Lunch**
- 14.00-17.30** **Visit to the Research Institute of Energy Structures**

Wednesday, 18 August 2010

Moderator – Mr. Akbar Nabiev, Tajikistan

- 10.00-11.45** **Russian hydraulic structures register: Objectives of creation and manner of formation and maintenance.**
Management of Volga-Kama reservoir cascade
Mr. Sergey Bednaruk, Director of Federal State Unitary Enterprise “Center of Russian HS Register and State Water Cadastre”
- 11.45-12.00** **Coffee break**
- 12.00-13.00** **Modern methods of evaluation and assignment of water-carrying capacity of hydraulic structures of multipurpose hydraulic power systems**
Mr. Alexander Asarin, Deputy Head, Department of Water Economy and Environment Protection of JSC “Gidroproekt Institute”
- 13.00-14.00** **Lunch**

Moderator – Mr. Durdy Ataev, Turkmenistan

- 14.00-16.00** **Methodology of evaluation of safety level and state of low-head hydraulic power systems. Russian experience**
Mr. Grigory Kaganov, Professor of Moscow State University of Environmental Engineering
- 16.00-16.15** **Coffee break**
- 16.15-17.30** **Influence of several important factors (cracks of basement, etc.) on carrying capacity of certain types of concrete dams**
Mr. Grigory Kaganov, Professor of Moscow State University of Environmental Engineering

Thursday, 19 August 2010

- 10.00-13.00** **Visit to Moscow State University of Environmental Engineering**

Friday, 20 August 2010

- 09:00-13:00** **Meeting of the Working Group on Harmonization of Regulatory, Legislative and Technical Instruments on HS Safety in Central Asia Countries**
- 13:00-14:00** **Lunch**
- 14:00-16:00** **Wrap-up session**

**List
of basic documents submitted at the sessions of International training course dedicated
to the safety of hydraulic structures held for high-level managers from Central Asia**

**Moscow, Russia
August 16-20, 2010**

CERTIFICATE
of pre-declaration waterworks inspection (except for navigable waterworks)

A.E.Asarin
MODERN APPROACHES TO DETERMINATION OF DISCHARGE SLUICES
PARAMETERS

Bednaruk S.E.
MODELS USE IN OPERATING WATER RESERVOIRS SYSTEMS IN RUSSIA

LIST OF NATIONAL STANDARDS AND CODES WHICH APPLICATION HAS
RESULTED IN MANDATORY OBSERVATION OF THE REQUIREMENTS SET FORTH
WITH FEDERAL LAW “TECHNICAL SAFETY REGULATIONS FOR BUILDINGS
AND STRUCTURES”
(resolution of RF Government dated June 21, 2010 No. 1047-r)

Bo Libert
Approximation of regulatory legal and regulatory technical documents related to the safety of
hydraulic structures in Central Asia.

Bu Libert
On implementation of the project “Dam safety in Central Asia: capacity building and regional
cooperation”

Kaganov G.M., Evdokimova I.M., Volkov V.I.
Effect of different material factors on bearing capacity and stressed state of massive head
buttress dams.

Kaganov G.M., Volkov V.I.
Methods for assessment of low pressure waterworks condition of IV class, developed by
FGOU VPO MGUP.

Steklov Y.N.
Round table on the problems related to waterworks safety provision in Central Asia.

Chernenko V.I.
Zagorskaya PSHS

Scherbina V.I.
INFORMATION AND DIAGNOSTIC SYSTEM BING-3

Usupov T.M.
Waterworks safety provision at OJSC “RusHydro”