SUMMER SCHOOL

“ASPECTS OF RISK MANAGEMENT AND ENSURING ENVIRONMENTAL SAFETY IN INDUSTRIAL ENTERPRISES”

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PROJECT IMPLEMENTATION

➢ Project funded by: Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety of Germany

➢ Project coordination by: Federal Environmental Agency of Germany (UBA)

➢ Project implementation by: “Eco Peace” scientific, ecological NGO (Armenia)

Perm National Research Polytechnic University (Russia)

➢ Project supporter: United Nations Economic Commission for Europe
The issues of the project implementation and the choice of venue for the summer school were based on the following factors:

- The idea of organizing a summer school came still during the final seminar of the project on “Assistance to raising knowledge on industrial safety at universities in Armenia” (2012-2013), during which the representative of PNRPU was also participating;

- PNRPU is one of the leading technical universities in Russia, where at the Department of Environmental Protection;

- City of Perm is a typical industrial city and the issues of industrial and environmental safety here are urgent;

- In the Perm region, there are a number of industrial enterprises, which could be the subject of study for participants of the international summer school;

- Dissemination of the experience gained by Armenian students during the previous project could be useful for other countries, creating a solid foundation for further exchange and transfer of current knowledge in the field of industrial safety in the UNECE region.
The overall objective of this project was to advance sustainable development through innovative approaches in risk management and to enhance environmental safety in industrial enterprises as well as to promote the UNECE Convention on the Transboundary Effects of Industrial Accidents.
The preparatory stage

- Formation of final groups in the participating countries, consisting of students and lecturers.
- Preparation of all necessary teaching materials for the summer school.
- In coordination with the Federal Environment Agency of Germany (UBA) and the UNECE secretariat selection of international experts to conduct training within the framework of the event.
- Achievement the final agreements with industrial enterprises related to the visits by the school participants, as well as to the possibility to make photo and video recording.
Formation of student group in Russian

The choice of Russian students was made by online registration. This allowed to select participants not only from PNRPU, but also from other universities of Perm.

- Perm National Research Polytechnic University (PNRPU) - 18 participants;
- Perm State National Research University (PSNRU) - 5 participants;
- Perm State Agricultural Academy (PSAA) - 2 participants.

Application form for participation

http://ecoschool.timepad.ru/events/
Formation of student group in Armenia

In Armenia to participate in the event the students and lecturers, who participated in the last project, were chosen to transfer their experience and knowledge gained during the mentioned project to the Russian participants of the project.

The Armenian group consisted of 12 participants, who represented the following universities and organizations:

- National University of Architecture and Construction of Armenia - 3 students, 1 lecturer;
- State Engineering University of Armenia - 2 students, 2 lecturers;
- Crisis Management State Academy of MES RA - 3 students;
- Aarhus Centre - coordinator of Aarhus Center.
Republic of Armenia

- Geo-ecology and biosafety;
- Biotechnology and environmental protection;
- Mineral resources and environmental protection;
- Crisis management in emergencies.

Russian Federation

- Techno-sphere safety;
- Disposal and recycling of man-made waste;
- Sustainable development of urban areas;
- Chemistry and biotechnology;
- Mine surveying, geodesy and GIS.
The International Summer School was held from September 29 to October 3, 2014.
The Russian side presented the main activities of the PNRPU, the priorities for the development of the University, the achieved target indicators, as well as the development of innovation and entrepreneurship.

The Armenian side made a presentation on the results of educational reforms, implementation of the Bologna process in the educational system of the country (including issues of industrial safety), the industrial sector of the Republic and the main problems of the sector were presented.
The review of the checklist methodology

Checklists methodology had been developed in the course of consulting projects in the field of industrial safety in recent years. This methodology provides for the use of basic standards in the field of industrial safety, and allows verifying and assessing water protection measures at certain industrial enterprises.

Solving practical tasks by student groups

Presentations of Armenian students
HOLDING OF THE INTERNATIONAL SUMMER SCHOOL

➢ The practical training in industrial enterprises

1. OJSC “Mineral fertilizers” (branch of "URALCHEM", s. Perm)

2. CJSC “Sibur-Khimprom“ (s. Perm)

3. Pulpmill group PTsBK (s. Perm)

4. OJSC “RusHydro” - “Kama HPP” (s. Perm)

5. “Perm Chemical Company” LLC

6. OJSC “Sorbent” (s. Perm)

7. OJSC “Metafrax” (s. Gubakha, Perm region)
Visit to the OJSC «SORBENT» (01.10.2014)

The main product of “Sorbent“ OJSC is activated carbons of different purpose and composition.

Based on the data on the volume of storage substances in the laboratory the risk index for water was had a "low potential risk" for water bodies.

Proposed activities for “Sorbent“ OJSC

<table>
<thead>
<tr>
<th>Name of checklist</th>
<th>Identified shortcomings</th>
<th>Short-term activities</th>
<th>Medium-term activities</th>
<th>Long-term activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire protection plan</td>
<td>Lack of awareness of staff</td>
<td>training and instruction of personnel</td>
<td>-</td>
<td>regular control of fire safety knowledge</td>
</tr>
<tr>
<td>Production planning for the prevention of emergency hazards</td>
<td>Lack of plans for emergency response</td>
<td>provision of publicly available plans for staff</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Visit to the OJSC «METAFRAX» (01.10.2014)
Visit to the OJSC «METAFRING»

Calculation of the real risk for the tanks for storage of methanol

<table>
<thead>
<tr>
<th>Risk assessment</th>
<th>Number of used checklists</th>
<th>ARP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ARC</td>
<td>7</td>
<td>1,8</td>
</tr>
<tr>
<td>WRC-3</td>
<td>Σ EQ3 = 700</td>
<td></td>
</tr>
<tr>
<td>WRI = 2.8</td>
<td>WRI= log 700 = 2.8</td>
<td></td>
</tr>
<tr>
<td>RRP = 3.1</td>
<td>log (1,8x700) = log 45628 = 3.1</td>
<td></td>
</tr>
<tr>
<td>RRP - WRI = 0.3</td>
<td>3.1 - 2.8 = 0.3 (low hazard level)</td>
<td></td>
</tr>
</tbody>
</table>

Proposed activities for "Metafrax" OJSC

<table>
<thead>
<tr>
<th>Name of checklist</th>
<th>Short-term activities</th>
<th>Medium-term activities</th>
<th>Long-term activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overfill safety systems</td>
<td></td>
<td></td>
<td>Installation of an automatic device for fixing the overfilling of liquid (with audio alarm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipeline safety</td>
<td>Determine the rate of corrosive wear, ultrasonic wall thickness measurement at certain times in various characteristic points of the pipeline. Calculation of the possibility of occurrence of inadmissible statistic weakening due to corrosive wear</td>
<td>Periodic inspection of corrosion on some representative points of the piping. Marking of pipelines to the extent required by the regulations based on the physicochemical properties and the direction of flow with color coding (complete or partial coloring, colored rings);</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The used checklists: Substances; Overfill Safety Systems; In-plant Pipeline Safety; Sealing systems; Fire protection strategy; Plant monitoring; Internal alarm and hazard control planning; Equipment of tanks.

The shortcomings:
- The overfill safety system does not automatically interrupt the filling process and does not provide audio or light signal.
- The overfill safety system does not automatically interrupt the filling process and does not provide audio or light signal.
International seminar on “Risk Management”

With the purpose to organize training on “Risk management”, international experts were selected in coordination with the Federal Environment Agency of Germany and the UNECE secretariat. The training was covered the following aspects:

- International experience and policy in the field of the risk management and environmental safety in industrial plants;
- Innovation and best practice in the field of risk management and environmental safety in industrial plants;
- The role of risk management or environmental safety as a component of sustainable development during the preparation of relevant professionals in the given sector.
IMPLEMENTATION OF THE MAIN ACTIVITIES OF THE PROJECT

➢ International seminar on “Risk Management”
IMPLEMENTATION OF THE MAIN ACTIVITIES OF THE PROJECT

➢ National cultural evening
Organization of national cultural evening in a nice friendly atmosphere, the purpose of which was the exchange of national cultures, sharing a pleasant pastime in informal surroundings.

➢ The movie shooting
With supporting of UNECE the UNTV prepared a film on the UNECE Industtrial Accidents Convention, including scenes from the summer school

➢ Closing of summer school
The event ended with the closing ceremony of the summer school with the award of certificates, commemorative statues with the emblem of the summer school and a joint photo.
RECOMMENDATIONS

Students

❖ to extend the checklists methodology for risk assessment of atmosphere air and waste (including mining waste);
❖ to devote more time (several days) to the future practical trainings on using the checklist methodology for better data collection at the enterprise;
❖ develop a separate checklist for monitoring of industrial safety of chemical laboratories, which are located in the industrial enterprise.

International experts and lecturers

❖ the possibility of such training in the future with the development of modules on various aspects (provisions) of the Convention with a broad scope of application;
❖ focusing of the Russian party on organization and carrying out of similar schools in other cities in Russia (for example, Kaliningrad, Voronezh, in the cities of the East-Siberian region- Novosibirsk, Irkutsk and others.);
❖ organization of regular international summer schools in the future on risk management and environmental security and expanding the scope and geography (with other technical universities in the EU and EECCA);
❖ holding of such events with the participation of students from Armenia, Russia, as well as from other EECCA countries in the territory of Germany, as the founder of the checklist methodology.
The results of the summer school became the impetus for the creation of a generalized educational module based on the checklist methodology.

Availability of training module based on the checklist methodology can be integrated into the already available on-line modules, making a significant contribution to the implementation of the relevant provisions of the UNECE Convention.

www.ecopeace.am
INFORMATION

INFOLISTS
www.unece.org
www.umweltbundesamt.de
www.utimeneews.org

INTERNET
www.pstu.ru
www.seua.am
www.ysuac.am
www.aarhus.am
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