تشيرنوبيل والكارثة النووية

شهد العالم في السادس والعشرين من عام 1986 أسوأ حادث نووي في تاريخ الصناعة النووية، وذلك حينما اندلع المفاعل الرابع من مجمعة مفاعلات شيرنوبيل في الاتحاد السوفيتي. أدى ذلك سقوط الأتفاق عن تعديل مركز المفاعل بالكامل بالإضافة إلى الإهار المبنى وحواجز الحماية وتواجد الأنواع المتنوعة.

إطلاق المفاعل لدى اندلاعه جزئيات مشعة إلى الجو، وقد أدى الحادث إلى أضرار خطيرة، ومع ذلك، لم يبلغ عدد من حاكم بلادنا خارج نطاق الأماكن بعيدة خلال الأيام العشرين الأولى التي أعقبت الإفجار وعُرفت باسم المرحلة النشطة للحادث.

بُنيت الوكالة الدولية للطاقة الذرية هذا الحادث بأنه حادث في فئة الحوادث التي تتراوح آمال التصميم حيث جاء تصنيفه في المستوى السابع بين فئة الحوادث الشديدة جداً. وقد تجاوز عدد الذين أُصابوا بإعصارهم من أكرانيا وروسيا البيضاء، 200 ألف شخص.

شارك عدد كبير من المهندسين والمختصين خلال الفترة التي تلت الحادث من سبتمبر إلى نوفمبر 1986 في وضع تصاميم من أجل العمل على قناعة ما تبقى من مواد المشعة في المفاعل المدمر ومنه إنتاج الجزيئات المشعة عبر التربة والماء والهواء.

في نوفمبر 1986 وافق مجلس الوزراء الروسي على بناء ما يعرف بـ "منظومة الحماية، فوق المفاعل" وقرر أن حوالي 95% من وقود المفاعل الرابع قد بقي داخل التربة.

وبلغ وزن هذه المواد النووية الإنجابية الخطرة حوالي 200 طن. يُذكر أنه جرى بناء "منظومة الحماية، سرعة كبيرة وہواء حديثة" التي تُعرف باسم "الشُّرفة".

GLHERNOBYL: THE NUCLEAR DISASTER

On April 26, 1986, the worst nuclear accident in the history of atomic industry took place at Chernobyl Nuclear Power Plant in the ex Soviet Union. The fourth reactor of the power plant exploded and caught fire. As a result of the explosion, the core of the reactor, the protection barriers, and the safety systems were completely destroyed. Furthermore, the reactor building, the de-aeration stack, and the turbine hall were severely damaged. During the ten days which followed the accident, being recognized as the "accident active stage", the reactor emitted millions of curies of radioactive particles into the atmosphere contaminating the land for miles around. The accident was classified as "level 7 - major accident" according to the International Nuclear and Radiological Event Scale (INES). Consequently more than 200,000 inhabitants were evacuated in Ukraine and Belarus.

During the period from May - November 1986, designs, construction operations, and organizational set ups were established in order to stop the radioactive remains in the destroyed reactor from dispersion through soil, air and water. In November 1986, the USSR Council of Ministers approved the construction of a confinement design called the “Shelter”. It was estimated that about 95% of the nuclear fuel of unit 4 (200 tons) would remain inside the “Shelter”.

The “Shelter” was built in a great hustle and under tremendously tough conditions resulting in a number of serious problems. The bearing capacity of the survived structures, which served as supports for the new structures, was not known.
The high radiation fields nearby to the destroyed unit made it rather impossible for the workers to work on concrete or to perform welding operations on the spot. Hence, construction defects in the roof and walls, thus reducing the sealing capacity of the "Shelter". The cracked areas totaled about 1000 square meters.

In 1997, the leaders of the seven industrial states decided to assist the Ukraine in facing the disaster that erupted at Chernobyl. The "Chernobyl Fund" was established to be administered by the European Bank for Reconstruction and Development (EBRD).

Toward the end of 1998, the participation of various countries in the said fund amounted to US$ 716 millions. The participation of the state of Kuwait amounted to US$ 4 millions. The Kuwait Fund was entrusted to pay the said participation from its own resources, and to administer the Kuwait Grant. A number of consultants and contractors were employed to prepare the preliminary and final designs, and to supply many pieces of equipment and systems to protect from the spreading of the polluting radioactive radiation. In this process, the safety of the workers, the site organization, the legal, technical, and administrative procedures. In August 2007, and as an outcome of an international tender, a contract was signed with an international consortium to construct the "New Safe Confinement" for an updated cost of Euro 728 millions. It is anticipated that the confinement would be completed within 54 months.

The Chernobyl Fund asked for additional financing. Pledges by 24 countries increased to reach Euro 768 millions. The pledge of the state of Kuwait was increased by US$ 2 millions paid from the resources of the Kuwait Fund.

By September 2010, the annual budget of the Chernobyl Fund showed a total income, including pledges, of Euro 793 millions, total expenditures of Euro 874 millions, including signed contracts.

The estimated cost of all the Chernobyl projects, including the "New Safe Confinement" is Euro 1594 millions. The confinement would be completed by the end of 2012. The available financing is expected to be sufficient until the end of 2011, whereby further financial participation would be expected.

The Government of the Ukraine is planning to invite top international officials to celebrate the 25th anniversary of the Chernobyl disaster, where further financial participation would be secured.

The Kuwait Fund, believing in the noble aims of international cooperation to save human communities, administers the Kuwait Grant and maintains continuous efficient follow up of all the Chernobyl Fund projects, operations, and budget.

The designs and the preparatory works of the "New Safe Confinement" took more than 3 years due to the complicated technical, legal, and administrative procedures. In August 2007, and as an outcome of an international tender, a contract was signed with an international consortium to construct the "New Safe Confinement" for an updated cost of Euro 728 millions. It is anticipated that the confinement would be completed within 54 months.

In 2003, the main protection project was identified on the spot. Hence, construction defects in the roof and walls, thus reducing the sealing capacity of the "Shelter". The cracked areas totaled about 1000 square meters.

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