International Workshop on
Environmental Aspects of Coal Ash Utilization
Tel Aviv, Israel
December 15th – 16th 2009

The Workshop's Objectives: Reformulation of Environmental and Health Provisions for Coal Ash Utilization

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Coal ash is a byproduct of coal burning. This ash is commonly classified as either bottom ash or fly ash. The present workshop will deal mainly with fly ash, although bottom ash will also be considered. Fly ash is a resource and can substitute for diminished resources, for example in the production of cement. Yet, its use requires the application of precautionary steps to prevent damage to human health and the environment.

Fly ash contains trace elements, including radioactive isotopes, which originated in the coal and become tenfold more concentrated during the burning process. It is also a powder. These two facts are the main reason for the need to establish environmental conditions for the use of coal ash and in particular fly ash.

Environmental conditions are imposed on the use of coal ash in Israel for over 10 years. The National Coal Ash Board (NCAB) is funding research projects that are aimed at the rational assessment of the risk involved in the various uses of the ash and hence at the establishment of the optimal environmental conditions, for over 15 years. Four years ago, a workshop took place in the same location as the present one. The objective of that workshop was to define knowledge gaps, the existence of which necessitated invoking the Precautionary Principle, namely imposing more severe environmental conditions. And indeed, the environmental conditions then in force reflected the uncertainty that existed regarding the environmental and health effects of the use of coal ash. For lack of better options, many rules of thumb were used, for example in the definition of the levels of trace elements allowed in coal ash intended for a given use.

We believe that the knowledge accumulated to date enables us to depart from those rules of thumb, to establish environmental conditions on the basis of firm scientific information and at times, to relax the existing environmental conditions. Accordingly, the overall objective of the present workshop is to examine a number of proposed changes in the environmental conditions for the use of coal ash which are presently in force and to formulate separate conditions for each use of the ash on the basis of the research conducted to date.

Exposure to radiation is perhaps the only important aspect of the use of fly ash that is not yet ripe for the optimization of the environmental conditions related to it. Thus, although radiation emanating from coal ash will be discussed in this workshop, no recommendations for environmental conditions related to it will be put forth. This will be done in a separate forum.

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The workshop's organizers are proposing general principles for the formulation of environmental conditions governing the use of coal ash. For example, separate conditions for each type of use; replacing the TCLP extraction procedure by the European procedure; and defining the ash layer applied in road infrastructure as a monolith. The organizers do not intend, however, to simply introduce the proposed environmental conditions to the participants, but rather to use these proposed conditions as an opening platform for discussion and as a basis for the formulation of an optimized version of the conditions.

The proposed modifications in existing environmental conditions are based on practices followed in the Western World. We shall, therefore, be happy to learn from the experience of our guests from abroad and from the way coal ash is used and regulated in their countries. For example, a proposal will be put forward to define fly ash as nuisance dust, as is the practice in the more developed countries.

It will be proposed that the environmental conditions for the use of coal ash in road infrastructure will vary with the hydrological sensitivity zone in which the application of the ash takes place. The specific conditions for a given sensitivity zone are formulated on the basis of the findings of research projects and surveys that were conducted to date. For the use of fly ash in agriculture it is proposed that the environmental conditions will be based on a model for boron transport in soil which was developed by Prof. Keren.

I wish all of us a successful workshop and hope that its outcome will enable the Israeli authorities to adopt environmental conditions that will protect the public and the environment while at the same time will not encumber the use of coal ash more than is necessary.