

WACAU-2014, Israel
International Workshop on Agricultural Coal Ash Uses
Agricultural Center, Bet Dagan
May 27th 2014

Opening Remarks

O. Lulav, National Coal Ash Board (NCAB), Israel

Good morning everybody and welcome to WACAU - the International Workshop on Agricultural Coal Ash Uses, organized by NCAB – the National Coal Ash Board of Israel in collaboration with the Institute of Soils, Water and Environmental Sciences, at the Volcani Center for Agricultural Research.

I would like to start by thanking our guests from abroad, who have traveled over oceans and continents to contribute from their knowledge and experience to an open discussion on an important beneficial use of coal ash, even though it is not found in the mainstream of coal ash uses and is subjected to a quite boisterous public dispute. I would also like to thank our Israeli partners, whose long casting contribution to our work is priceless.

For my deep sorry Dr. Vimal Kumar from India is unable to attend the workshop due to a sudden deterioration of his health. I wish him full recovery and good health

The Israeli National Coal Ash Board (NCAB) is a governmental agency founded in 1993.

Its task is to find solutions for the problem of ash accumulation at coal-fired power stations nationwide, an inevitable outcome of electricity generation.

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When the Board was established, its purpose was defined in terms of two, equally important objectives:

One is to ensure the reliable, continuous removal of ash from power stations under changing economic conditions.

The other is to find beneficial uses for coal ash, which benefit the economy and the environment through their sustainable application.

These two objectives are intertwined and inter-dependent.

However, even though everyone agrees that achieving the safe, continuous removal of coal ash must be the first and foremost objective; in an open, free market that can only be achieved by implementing the second objective - commercial exploitation.

Sustainable, commercial exploitation of coal ash can be accomplished only through research and development, but this requires allocation of resources according to national priorities, which brings us back to the ash removal issue.

The Coal Ash Board's role is to create a knowledge and regulation infrastructure which will enable the development of uses with a potential benefit. Such uses do exist as attested by the fact that there are commercial sectors with an interest in their implementation.

When a specific use has significant potential in terms of volume, economic benefit and commercial interest, such as the agricultural use of sewage

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sludge stabilized by fly ash for example, the Board invests resources in developing that use and helps remove administrative barriers impeding its commercial application.

As chaperon to the entire process, the Board also provides professional support during the implementation stage and ensures that the conditions for the prevention of environmental and health hazards are met.

Through a continuous effort extending over the past two decades, the Board has developed a number of high quality avenues for the use of coal ash, that provide a complete solution to coal ash disposal at times of production under economic conditions.

That effort has involved cooperation with a range of public bodies including: The Israel Electric Corporation, research institutions, universities, the Israel Standards Institute; environmental and health regulators; and of course, intermediary and end users.

While coal ash disposal began in this country as either its use as a cement filler or as waste buried in landfill or dumped in the ocean; the ash is now a sought after resource, in short supply.

The Coal Ash Board operations are guided by three principles:

The first – Coal ash is an industrial by-product as defined in the European Directive on Waste. It is sold under market conditions for use as a raw

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material in controlled industrial processes, causing no harm to the environment or public health.

The second – The range of coal ash uses must ensure high reliability in the removal of ash from power stations, both routinely and in emergencies.

Consequently, the NCAB must focus on expanding the range of uses and users, ensuring consistency and continuity.

The third principle – Efficiency and benefit are essential criteria when developing uses. Additional yardsticks include contribution to the development of a sustainable economy; the replacement of non-renewable natural resources and the reduction of environmental nuisances.

Even though development to date has focused mainly on the construction sector – the cement and concrete industries, which are the dominant users of coal ash globally; soon after its establishment, the Coal Ash Board has consistently invested resources in the development of agricultural applications.

On the surface, this would seem to be superfluous in a marketplace with excess demand for the ash and when the most important task is the efficient removal of ash from power plants.

But in fact, agricultural uses are a vital target, broadening the potential range of uses in the long run. The construction industry suffers from frequent and sharp ups and downs and with the current pace of technological development, today's "vital product" can be tomorrow's poor

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alternative. Long term planning must also take into account economic and security crises, often expressed as a significant drop in the construction industry's activities.

Indeed, the use of fly ash to stabilize sewage sludge intended for application to agricultural soils is consistent with the Board's aims and principles:

Firstly – the ash is sold at market prices for use in an industrial process in which the sludge is pasteurized and stabilizes rendering it suitable for agricultural application, subject of course, to environmental and health regulations.

Secondly – the long term, total potential for the ash agricultural use reaches some 15% of the predicted quantity of ash to be produced in sewage treatment plants across the country. This use ensures, therefore, a continuous removal from the power stations of a considerable fraction of the ash to be produced.

The development and implementation of this use is particularly important because over 90% of the ash is used by the construction industry which, as stated before, suffers from cyclical fluctuations.

At the same time, the default use of ash in road construction is limited in scope because of the lack of storage capacity required when supplying ash

WACAU-2014, Israel
International Workshop on Agricultural Coal Ash Uses
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May 27th 2014

as a road construction material, since this use requires typically large quantities of ash during a short period.

The third principle that justifies using ash as a component in agricultural applications of stabilized sewage sludge is its contribution to sustainable development. Ash partially replaces lime, which is an expensive industrial product that requires high energy inputs from fossil fuels to process the quarried material.

Utilization of ash is a lower cost and more convenient way to treat sewage and its use results in a product which is easier to spread in the fields.

Coal ash helps improve both light and heavy soils; its application to soil helps reduce water runoff and soil erosion and in addition to all that, it is effective in combatting weeds and soil borne diseases.

Treating sludge with coal ash helps convert the sewage from a waste material, which in the worst case is pumped out to sea, into a resource with added value in agricultural applications.

About two and a half years ago, Sewage sludge stabilized with lime and coal ash was begun to be marketed from the Dan Region wastewater treatment plant to farmers and it is by now a firmly established product with a solid position in Israeli agriculture.

To date, some 150,000 tons of treated sludge, containing about 60,000 tons of coal ash have been spread over about three thousand hectares.

Some 50 different farms are involved in this endeavor, which prevents the pumping of some 75,000 tons of sewage sludge out to sea.

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Anyone who believes in research and development policies focusing on vital needs and the creation of opportunities, based on solid science and professional expertise is invited to take a good look at the information available globally and locally in this challenging field which is still relatively new here in Israel.

The aims of the present workshop are first and foremost to share and exchange existing knowhow and to analyze the benefits and risks associated with agricultural use of the ash.

I wish you all an interesting and fruitful day.

Thank you for your attention.