The Infrastructure Road to Recovery—
Let's Build Our Way Out of the Depression!

Solving Our Salinity Problem

The great water projects proposed above, will inevitably raise the question, "What about the salinity?" If one were to listen to the greenies, or to much of the mass media, one would think that the problem were mainly caused by farmers out there drowning every field in sight. However, of the two kinds of salinity, 1) dryland and 2) wetland or irrigation salinity, the latter comprises only 152,000 hectares, versus 2,180,000 hectares for dryland salinity, according to even government sources.[1] Dryland salinity results from excess water draining into an underlying water table with the resultant rise of the water table bringing salt with it, while irrigation salinity is caused by over-irrigation of farmland (as in flood irrigation), inefficient water use, poor drainage, seepage from irrigation channels, etc., all of which also raise the water table. According to one CSIRO estimate, rising salinity levels are estimated to cost Australia over $600 million per year in lost production levels alone, not to mention the hundreds of millions of dollars in damage to roads, buildings, and other infrastructure.[2] Putting the greenie/media hype to one side, it is clear that Australia does have a significant salinity problem, which it must seriously address.

There are two approaches one could take to this problem. The first, preferred by Prince Philip's greenies at the Australian Conservation Foundation, its allies in the National Farmers Federation, and elements of Federal and State governments, including some so-called "scientists" at CSIRO (though not others), is to use the salinity problem as an excuse to do what they want to do anyway: shut down or radically cut back Australia's rural sector.[3] The second approach—to actually solve the problem—befits the dignity and creativity of human beings, and is coherent with LaRouche's discoveries in physical economy and with Vernadsky's discovery of the concept of the "biosphere". In the second approach, the salinity problem is recognised for what it is: a large-scale land-management problem, which can be solved by re-design, re-building, and changed land-managemnt practices, together with the application of new technologies. This must be tackled on a national level, with the appropriation mobilisation of manpower and resources.

Typical of the latter outlook is Prof. Lance Endersbee's proposal to solve the salinity problem in Australia's agricultural heartland, the Murray-Darling Basin, which produces over $16 billion in agricultural products per annum. As he recently put it:

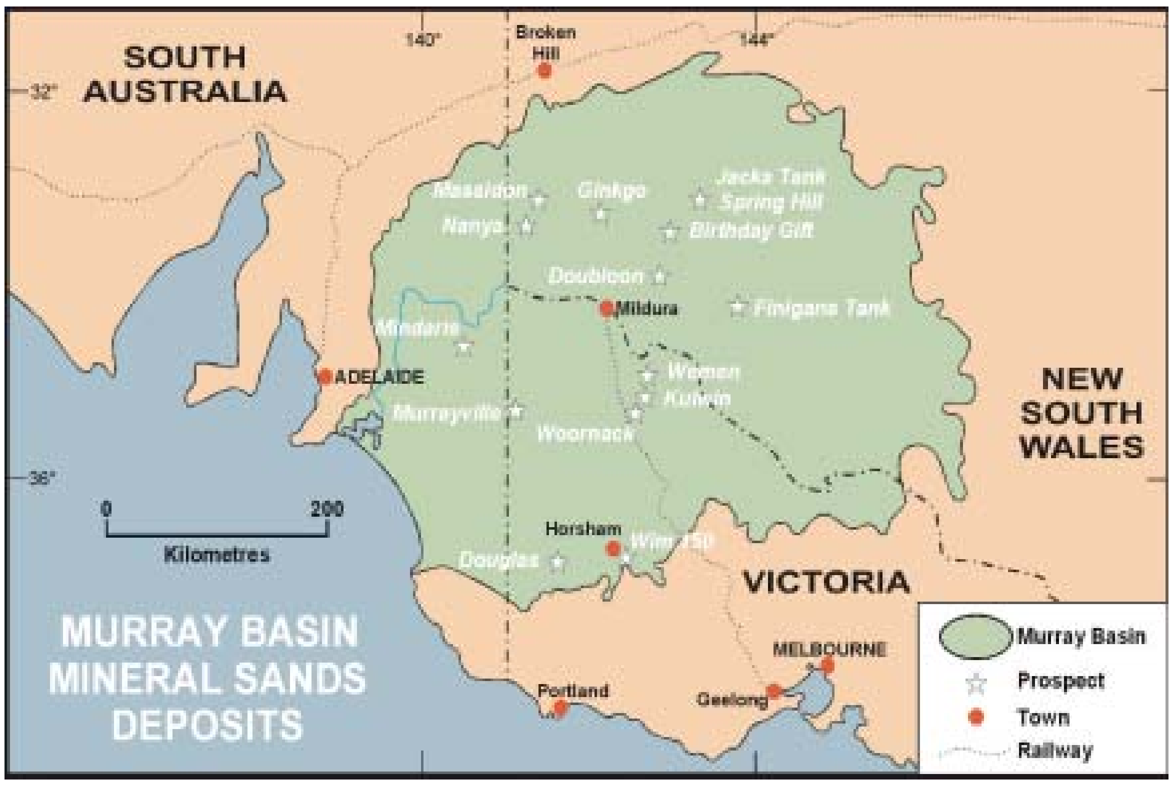
"The other problem is wetland salinity in the lower parts of the irrigation areas.

"The Murray-Darling Basin comprises a deep basin of saltwater sediments. The salt is already there and has been for millennia—the salt is a geological condition. We get salinity in the surface soils if we irrigate in such a way that we flood the groundwater. The saline waters then rise. Some of those areas of low-lying land should never have been irrigated anyway, and may now have to be taken out of irrigation. The present irrigation systems were designed virtually without regard to groundwater. As a consequence, the use of irrigation water is quite inefficient. The overall efficiency of application of water in irrigation areas is no more than 10%.

"When the settlers first went into the Murray-Darling Basin, the groundwater was much lower and all the surface waters were nice fresh waters. By bringing in irrigation and raising the groundwater, salt water has been brought to the surface and destroyed these fertile soils, particularly the low-lying parts in the Murray-Darling Basin. Now my approach to all of this, is that it is far better to think about redesigning the entire system. If we redesign the entire system, we can double the area of irrigation—easily double the area under irrigation for the same volume of water. The overall system would be much better. We could irrigate some of the higher lands, design new irrigation systems and canals and so on. The present system of irrigation uses open channels and open ditches in the farms—all of that is simply feeding water into the groundwater. In parts like the Mallee, in the porous red soils, the irrigation channels and ditches just virtually pour all the water into the ground. Overall, there is such a colossal loss of water, that we have no alternative other than to plan and redesign and redevelop the entire irrigation system."

Such a new irrigation system as Prof. Endersbee calls for, would feature drip-irrigation or similar systems which provide only as much water as the crops can actually use. Such concepts would be built into all the great projects the CEC has proposed above, right from the outset.

To tackle the task of Murray-Darling salinity, Prof. Endersbee has proposed to assemble a national team of top level engineers and scientists to evaluate the Basin as a whole, from a national and not merely a state standpoint, and to develop a strategic, top-down approach. With the appropriate funding level (at a "ball park" estimate of $5 billion for the project as a whole), such an approach would generate a flow of research and scientific studies which could rapidly lead to an explosion of wealth-creation in addition to solving the salinity problem. And, given that an initial investment of $5 billion would double the Murray-Darling agricultural output to over $30 billion per annum, while largely solving the salinity question, it is obviously "cost-effective". In fact, it is far more so than the "market-oriented" proposals of the states and Federal government involving $1.4 billion over seven years; or the multi-tens of billions of dollars proposal by the Federal parliament's environment and heritage committee under National Party MP Ian Causley, to tax every Australian at least 1% of their annual income; or the ACF-NFF plan to spend $65 billion over ten years for who-knows-what.



CSIRO scientists have proposed to extract salt and other valuable raw materials from groundwater, creating whole new industries while tackling the salinity question. Mining and processing the mineral sands of the lower Murray Basin, for instance, which are worth billions, could also make major inroads into the salinity problem. Source: CSIRO

Another exciting, complementary approach to that of Prof. Endersbee, is the proposal by scientists in CSIRO's Minerals Division, as reported in a recent CSIRO release:

Australia's salinity crisis can be turned to advantage, helping to create regional industries, jobs and an improved environment, a new study by the national science agency, CSIRO, says.

An opportunity exists to tackle salinity by extracting valuable minerals and chemicals for industry from saline groundwaters and so reduce their impact on the landscape and on agriculture, according to Dr. Hal Aral of CSIRO Minerals.

"Substances dissolved in our salty groundwaters can be used in the making of fertilisers, light metals, plastics, industrial chemicals, oil refining, pesticides, glass, fibre glass, ceramics, bleach, soaps, detergents, dyes, inks, sewage treatment, sugar refining, alcohol brewing—the list is almost endless," says Dr. Aral.

Dr. Aral and colleague Dr. Graham Sparrow, propose the creation of new industries to extract valuable raw materials from the groundwater, using natural evaporation and solar energy.

For instance, ordinary salt can be crystallised out of groundwater by evaporation, then used to make chlorine, hydrochloric acid, sodium hydroxide, sodium metal, soda ash, sodium bicarbonate and table salt. Among these are substances which can be used in the processing of titanium and zirconia.

Once the salt is removed the water, known as "bittern", still contains magnesium, potassium, sulphates, boron, strontium, bromine, iodine and other useful compounds. These range from epsom salts, worth $400-800 a tonne, to fertiliser ingredients, cement ingredients and many other chemicals more valuable still. Bittern can be directly used in the mining industry as a dust suppressant.

The Aral plan envisions the widespread recovery of salts from saline evaporation ponds. A network of solar-powered desalination plants and energy-storage ponds across the Murray-Darling Basin can then convert highly saline waters to fresh water for local communities and value-added chemicals for industry.…

The plan also links into the development of major titanium and mineral sands industries in the Basin, based on the existing $13 billion resource and using value-added salts in the processing. Titanium, in turn, can be used to make corrosion-resistant parts for desalination plants.

The core of the plan envisages the production of a host of new industrial products and so lowering the environmental threat posed by salt.

"CSIRO considers salinity can been seen as a resource and an asset, as well as a liability. We have a lot of information about the richness and extent of this resource. We feel it is time to have this vision widely discussed and debated," says Dr. Aral.

"The Murray Darling Basin could, potentially, become the centre of an Australian sustainable chemical industry—drawing on a vast natural resource, and integrating production so that one industry uses the waste products of another.

"We also believe the large-scale removal of salt from the Basin will have a beneficial impact on salinity, as well as generating wealth needed to combat landscape salinity, making it less of a drain on the national coffers.

"Investment in these new industries will bring new businesses and