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House of Representatives Standing Committee of Regional Australia
Inquiry into the proposed Murray Darling Basin Plan

We believe the current proposed Murray Darling Basin Plan is deficient in a number of areas particularly in the potential integration of environmental, social and economic needs of the basin into sustainable water managements systems. The following submission outlines some principles that we believe should be incorporated into the MDB plan. We look forward to discussing these principles and ideas with this Parliamentary Committee

Professor John Langford, *AM, FTSE, FIE, Aust*
Director of Uniwater, a Joint Initiative of Melbourne and Monash Universities

Professor Snow Barlow *FTSE, FAIAS*
Foundation Chair of Horticulture and Viticulture
Convener, Primary Industries Adaptation Research Network
University of Melbourne

Dr Bob Farquharson
Senior Lecturer
Melbourne School of land & Environment
University of Melbourne

Submission

1. The unprecedented Growth in Asian Food/Fibre Markets is a great opportunity for Australia

- The economies of Asia are undergoing a tectonic shift of economic development and wealth creation with major consequences for resource exporting countries. The current minerals boom, the most visible manifestation of this shift is overshadowing the reality that agricultural commodities prices and terms of trade are also at historic highs. Major resource importers such as China as also acknowledging that they will not be able to meet the food and fibre demands of their ever expanding and more affluent urbanized societies
- More than 50 % of the current food production in India and China is dependent on the unsustainable use of groundwater in the Punjab and North China Plains,
- The increasing variability of global climates with droughts in Russia and North China is also impacting on food supply
- These social, economic and environmental drivers on our doorstep will provide great opportunities to Australian agricultural particularly

irrigation enterprises if we can establish sustainable irrigation systems in harmony with the social and environmental needs of the nation

- The economic opportunities for such systems extend well beyond the commodities they produce to the technology and systems management expertise that the globe looks to us to take a leading role.

2. Overcoming Australia's Uncertain Climate without compromising River Health

- Australia is not only one of the driest continents on earth it has one of the most uncertain climates as demonstrated by the last 15 to 20 years.
- The past 15 years were an unprecedented dry sequence in south eastern Australia;
- 15 years in a row without one wet month (defined as >90th percentile of monthly rainfalls) compared to only 3 years without one wet month in the Federation and Second World War droughts;
- Now most of Australia is experiencing unprecedented flooding;
- If Australia is to succeed in taking advantage of the emerging food markets then farm, water and environmental management will have to be transformed

3. Transforming On-Farm Water Management

- Australia's farmers have long experience in adapting to Australia's uncertain climate;
- While the past 15 years have been trying, leading formers have adapted quickly to the changed conditions and developed farming systems that more suited to the extended dry and changed rainfall patterns.
- There is considerable potential to make further improvements;
- Combination of new communication and control systems with improved levels of water delivery service (water on demand, high flows and stable water levels in channels) can make flood irrigation highly efficient (as efficient as sprinkler irrigation) remembering that flood irrigation is the dominant form of irrigation (70% of the water is applied using flood methods because it is low cost, and low energy).
- Research shows that 25% improvement in water productivity ($value/ML) is possible

4. Modernizing Irrigation Distribution Systems

- It should be recognized that improvement in the level of service to irrigators through modernization of channel and pipe networks provides a substantial benefit enabling formers to improve their water productivity ($value/Ml)

- While modernization is critical, the full return on this investment will not be realized unless parallel investments are made in the on-farm irrigation systems.

5. Smart Water Supply Chains from Dam to Crop

- The river operating systems can be made more efficient by application of control system engineering – recent NWC research demonstrates modern control systems could deliver efficiency gains of the order of 30%
- While care should be taken in interpreting results from one river system the potential efficiency gains should be recognized.
- The ultimate goal is to build smart water supply chains from the dam to crop to meet the needs of both irrigation and environmental water managers with a minimum of waste.

6. Transformation of Environmental Water Management

- Unlike irrigators who have both long experience and the benefit of substantial investment in agricultural research over decades providing them with a wealth of information on the water requirements of crops for optimum production, environmental water managers have only had significant water allocations to actively manage in very recent times, and do not have a knowledge base and experience on the water needs of freshwater ecosystems any where near that available to the irrigation managers ;
- Investment in focused fresh water research and the skill base of the environmental water managers can deliver substantial benefits by allowing environmental goals to be met with the optimum volume of water

7. **National Water Commission Farms, Rivers and Markets Demonstration Project**:

We are currently demonstrating the potential of the above principles in the Broken River Catchment

- Managing a river basin requires understanding that "everything in a catchment is connected to everything else" in a complex web and if we are to effectively manage water we need to explore all the connections together (Integrated river basin management)
- Farms, rivers and environmental water management should be looked at together not separately (as is the case with the current Guide to the Basin Plan)
- The National Water Commission and Victorian water trust has funded a project called Farms Rivers and Markets that is exploring and demonstrating

- The outcome of this work has important implications for the current situation in the Murray Darling Basin.
- When evaluating the economic and social consequences of the Water Act (2007) a scenario that sets out the social and economic consequences of:

    i. The opportunities of emerging markets for farmers in the MDB
    ii. Creation of smart water supply chains to deliver both irrigation and environmental water requirements
    iii. Investment in knowledge and skill development for environmental water managers
    iv. Considering agricultural and environmental water together rather than separately to use of water for mutual benefit can be realized.

8. Evaluating Economic, Environmental and Social Outcomes

- Comprehensive models are being used to identify patterns of agricultural water demand and environmental flow requirements to meet the objectives of the Water Act (2007);
- The level of detail in representing environmental and economic demands is substantially improved on previous analyses;
- The analysis considers alternative shares of water to the environment and agriculture and the effects of potential improvements in water use efficiency on farms, and in river and channel delivery systems;
- The approach is centered on river and stream flows to meet changed water demands and water supply scenarios;
- The results allow trade-offs to be made of farm economic and environmental outcomes (including environmental risks) from different water sharing arrangements, alternative on-farm water use technologies and water system delivery options;
- Social outcomes for a catchment are initially assessed by predicting changes in environmental and farm incomes resulting from alternative water sharing and water management scenarios;
- Initial results show considerable promise for improved water supplies associated with improved water use efficiency on farms and in river control delivery systems;
- The analysis includes potential impacts of a drier hotter future climate in the Southern MDB.