Q&A Report: Responding to water availability in the Murray-Darling Basin

#	Question	Answer
1	Thanks for the talk, Geoff. This might be a language issue, but I'm interested in adaptation versus transformation, and particularly the role of public policy on facilitating "positive" transformation of regional economies and communities (as opposed to just letting it happen). This kind of facilitated transformation of local economies has precedence (both good and bad examples), eg coal production vs car manufacturing, so was interested in your views on this where industries may need to change?	Internally we say both adaptation and transformation - maybe its a continuum? I think we are looking at adaptable farm systems in regard to highly variable water availability.
2	Does CRC have a way to identify those high risk farms? Or do farmers just contact CRC seeking support?	Not yet. It is an area for further work.
3	Are there recent, positive examples of co design working in economic development or transition? And what principles are important to ensure genuine codesign occurs	live answered
4	I find it interesting that the discussion is about accepting the inevitability of change. In the dairy industry in northern Vic particularly change has been our world especially over the last 20 plus years. I find it demonstrates a lack of understanding about farmers as business people. In addition there is the paternalistic nature of govt and public servants so that the views and problem solving capacity of farmers and their communities are dismissed	live answered
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6	The separation of water from land to facilitate trading was big mistake. Trading is fine but you must hold land to be able to trade water. For surace water the water is held in dams. The rivers are just now glorified drains to transport the water. For groundwater you can only extract groundwater what what underlies your land.

On farm water eficiencies can only go so far. There is an end point where no more efficiencies can be obtained.

All water comes from rainfall and this governs how much water is available. Climate chage will effect then rainfall patterns. | Water trading has a very important part to play in assisting change, but it has to be clear, transparent and appropriately regulated. |
7	How can Local Government lead this but not have any depth of background on water policy when its not their remit. Expecting them to leap into this as well as all the other forms of responsibility. They will of course be competing with each other hard to hard to think how they can.	live answered
8	How can Local Government lead this but not have any depth of background on water policy when its not their remit. Expecting them to leap into this as well as all the other forms of responsibility. They will of course be competing with each other hard to hard to think how they can.	LGAs tell me they dont have the capacity to do much in this space
9	How can Local Government lead this but not have any depth of background on water policy when its not their remit. Expecting them to leap into this as well as all the other forms of responsibility. They will of course be competing with each other hard to hard to think how they can.	they keep getting thrown forward but …..
10	Following from Ben's comment in the Barwon-Darling region of the MDB analysis of time series satellite remote sensing showed in January 1988 there were 17 floodplain onfarm water storages (FoFWS) with a total maximum surface area of 101.89 ha. By December 2021, the then 105 FoFWS maximum surface area was 5587.68 ha; a 55-times increase in FoFWS surface area. Peña-Arancibia, J.L., Ticehurst, C.J., Yu, Y.Y., McVicar, T.R. and Marvanek, S.P. (2024) Feasibility of monitoring floodplain on-farm water storages by integrating airborne and satellite LiDAR altimetry with optical remote sensing. Remote Sensing of Environment. 302, 113992, doi:10.1016/j.rse.2024.113992	
11	I think another way of interpreting the approch is what as communities and industries do we need to preserve, what do we need to expand and what are the new areas we need to explore - which is a positive mindset approach rather than defend what we have got.	live answered
12	Amanda the benefits of your coal example are that it is a single industry in one location and they are workers valued by unions and labor govt. Ag and rural communities are diverse and spread out over a huge geographical area	Yep I agree Ann. I think there are learings there but definitey need to be shaped by the much more diverse context of the MDB
13	While not a question, I'm posting this in the Q&A, to share awareness of this resource to all on the excellent Webinar.

If anyone want to understand monthly rates of actual evapotranspiration (AET aka water) use at a Landsat (30 m) resolution then the following CSIRO-TERN AET dataset is freely accessibly and available for you. Following are some URLs AET Explorer on Google Earth Engine (GEE) https://tern-landscapes.earthengine.app/view/cmrset-landsat-v22 allows you to pan / zoom anywhere in Oz and change the date of the AET image you're looking at and to download monthly mean data for a user-defined polygon (in either depth or volume units = units of CSV are same as the view units). B) TERN AET comms piece https://www.tern.org.au/news-australia-wide-aet-data/ C) GEE (Google Earth Engine) Catalogue entry https://developers.google.com/earth-engine/datasets/catalog/TERN_AET_CMRSET_LANDSAT_V2_2 D) TERN AET metadata https://portal.tern.org.au/actual-evapotranspiration-a | |
| 14 | I think that we are missing the optimism and energy being invested in managing change in ag. It is not all doom and gloom. And good farmers no longer look at single seasons in isolation | We are interested in that. |

15	How, and to what extent, do long-term changes in water availability and cost of water affect farm output, scale and labour in both the short and long terms?	**Short Term** - Cash flow on seasonal / annual basis - Capacity of water market to meet demand (e.g. expansion of perennial plantings across the Basin) - Length of time reduced water availability impacts farmers **Long Term** - Loss of confidence to invest in long term capital infrastructure (e.g. major irrigation infrastructure upgrades) - Crop type changes have long periods of lost cash flow before income returns - Financial Security – loss of lender support
16	What are the impacts of a reduction in available water on local employment, consumption and services for selected communities in the MDB?	> Prioritisation of cash flow to maintain business at cost of personal spending > Delay or put off non-essential purchases > Maintenance of vehicles / machinery slide, impacts 3rd party suppliers > Luxury items postpone or cease (e.g. dinner @ Hotel, clothing upgrades)
17	How can we effectively and efficiently identify community vulnerability to changes in water availability?	Monitor Feedback from: - Rural Water Supply Corporations - Irrigation Trusts & Associations - 1BCRC Tier 3 Regional Partners incl National Irrigators Council - Industry Bodies (e.g. wine, almonds, citrus, cotton)
18	How are farmers adapting (or not) to constrained or reduced water availability? Are there ways in which potentially beneficial adaptations could be supported or accelerated to increase net economic benefits?	> Increasing use of water market & water products (e.g. longer term temp water lease arrangements) > Improving water Literacy to access markets > Reduced irrigation application / management or removal of aging or non-viable patches > Re-assessment of water portfolio strategies & risk profile
19	How are communities adapting (or not) to constrained or reduced water availability? Are there ways in which potentially beneficial adaptations could be supported or accelerated to increase net economic benefits?	> Many communities have been established on irrigation and have a low appetite or skillsets for change. > Communities with greater economic diversity (e.g. non agriculture, tourism, education) fare better with changing conditions