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INQUIRY INTO PLANNING SYSTEM AND THE IMPACTS OF CLIMATE CHANGE ON THE ENVIRONMENT AND COMMUNITIES

Name: Dr Andrew Rawson

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Planning System and the impacts of climate change on the environment and communities

Dr Andrew Rawson

Adjunct Assoc Professor, Charles Sturt University, teaching Climate Change Science and Policy since 2007
Councillor, Cabonne Shire Council
Deputy Chair, Central Tablelands Water
Deputy Chair, Ophir Crown Land Manager Board
President, Canobolas Conservation Alliance
Former Senior Scientist, NSW Govt, 17 yrs in DLWC to OEH, Soil Science and Climate Change Science

(Disclaimer: This is a personal submission and not a representation from any of the above organisations)

Thank you for the opportunity to make a submission to this important Inquiry. Climate change represents a significant threat to our remaining native species, their habitats, natural functioning of the environment, and ultimately on human systems. Human-caused fragmentation of our natural landscapes in NSW since European colonisation has seen many extinctions, and an ever-increasing list of threatened, vulnerable and endangered species and communities under State, Federal, and Global Threatened Species lists. Most recent entries, such as the iconic Koala, are being listed due to climate change phenomena such as increased mean and extreme temperatures, changed precipitation regimes, extended and intense drought, more frequent and intense fire, unprecedented floods and habitat loss or modification as a result of all of these.

The NSW Planning system (and its interpretation by authorities such as councils) has a lot of catching up to do to manage the existential threat of impending climate change. As a former scientist of the NSW Govt, dealing mostly with developing climate change policy such as the 2005 NSW Greenhouse Plan and the 2011/12 Climate Impacts Profile, I believe I have some experience with the difficulties in transferring complex scientific concepts into effective policy. This is a key thrust of the climate change science Masters course I have taught at Charles Sturt University for about 15 years. In recent years I have joined Cabonne Council as a Councillor, primarily to warn local Govt in the Central West of the need to address climate change. Cabonne and Central Tablelands Water have now initiated drafting of climate change adaptation strategies that hopefully will begin the dialogue however I have been finding that in many cases the real barrier to effective climate resilience has been State Govt policies, especially around disaster recovery funding and planning controls (more later).

My time on Council has coincided with the worst flooding event ever experienced by Cabonne Shire (November 13/14, 2022), which largely destroyed the historic town of

Eugowra, the CBD of Molong, caused extensive damage in Cudal, Canowindra, Manildra and all across the Shire. Trauma suffered by our people was tremendous and the events of November last year are still keenly felt even after a year has passed. This is a community used to the vagaries of our climate, the floods and droughts and fires. However this event was like no other.

The Eugowra flood is now seen as a 1 in 4000 year event – this is for all practical purposes, impossible, even though it is statistically possible. Flood hydrologists use terms such as Probable Maximum Flood (PMF) to describe the theoretical upper limit of flooding, based on catchment characteristics and rainfall processes. It's not a benchmark ever met in reality. The Nov 2022 extreme event was near to this theoretical limit and was clearly a consequence of climate change augmentation of natural processes, and like the 2019-20 bushfires should be seen as part of the 'new normal' in NSW. Planning instruments in NSW must change to reflect this new reality. While the new NSW Reconstruction Authority has helped enormously in Cabonne, it should be noted that their role at this stage is largely reactionary, as is the sense I am getting of most legislative and regulatory instruments that deal with such events.

The Threat of climate change is much bigger than most people appreciate

It is very important for all Inquiry Committee members to truly understand the scale and scope of current and impending climate change. It is unprecedented in the historical and geological record. It is a demonstrable reality, supported by 1000s of peer-reviewed scientific studies. These studies have traditionally been sober expressions of evidence of global change, however I have noticed an increasing level of concern in scientific papers over the last decade. All recent publications by the IPCC, CSIRO, BoM and global summaries from the Union of Concerned Scientists (membership over 200,000) have become increasingly strident in their rhetoric about the evidence and consequences of climate change. The World Scientists Warning to Humanity, of which I was a signatory, declared in 2019,

> "We declare clearly and unequivocally that planet Earth is facing a climate emergency. To secure a sustainable future, we must change how we live. [This] entails major transformations in the ways our global society functions and interacts with natural ecosystems."

As the Secretary General of the UN Antonio Guterres recently stated, "Humanity has opened the gates to Hell". He went on to state "In short, our world needs climate action on all fronts - everything, everywhere, all at once". This includes adaptation to inevitable climate change, regardless of global efforts to rein in fossil fuel emissions. The role of planning for a climate change affected future is no more important than now.

All natural and human systems will be severely impacted by climate change – now, and for the foreseeable future. Recent bushfires and floods in NSW are good indicators of potential impacts, but it should be noted that we are only partway along the modelled

trajectory for expected climate change this century based on IPCC projections. There is an expectation that conditions will degrade even further, and faster than at any time in recorded history.

This means that significant climate change will continue largely unabated for decades. Even the most optimistic future emissions scenarios will deliver significant climate change, while the Business as Usual (BAU) scenario will deliver potentially catastrophic change and impacts by the latter half of the century. Many of these changes are at least an order of magnitude faster than anything that has occurred before.

There is no direct comparison in the geological or ecological record for what is happening now.

The BAU scenario has up to 5 degrees of global average warming by 2100, which is equivalent to the difference between previous glacial (Ice age) and warmer interglacial conditions. This change is happening within a century rather than over the thousands of years that is usual for glacial/interglacial cycling.

There is no guarantee that most native species will survive this unprecedented rate of change. Most have adapted to our usual ENSO-dominated wet and dry cycles, but not to the changes in mean temperatures and drought severity we have experienced in recent years. It's likely that no species has truly adapted to the bushfire severity of 2019-20, especially if such events occurred more frequently. It is highly likely that extinctions will occur in NSW over coming decades. The species most at risk are in small, isolated communities, endemic, specialised, with a high risk of predation, and habitat at high risk of change eg. due to fire, or vegetation modification from climate change. Physiographic features that limit dispersal, as well as land fragmentation from human activities all limit species abilities to withstand or adapt to climate change.

Further concerns include Emergent risks which are the result of combinations of changes or impacts. These could include cascading impacts, for example the combined impact of extreme temperature increase, changed rainfall and increased fire activity leading to habitat loss and changes in species behaviour and ultimately, reproductive capacity.

Humans will undoubtedly survive by modifying their environment. It is essential that we ensure that this adaptation does not cause further damage to the natural environment (ie. perverse outcomes). Examples in my Shire include the many recent attempts to fix flood and storm affected roads, bridges and culverts, mostly with safety, not environmental protection, as the highest priority. Trees in road reserves are cut down to provide better line of sight, even if they are mature habitat trees. This represents a significant loss of the available habitat trees in a landscape that has seen 200 years of modification and clearing.

Climate change has highlighted the ecological importance of the remaining patches of native vegetation in our landscape, whether they lie within road reserves, TSRs, National

Parks or State Conservation Areas. Efforts to retain and restore these refuges must take priority over other potential uses, including tourism. Current natural areas have increased value as refuges in future. Ditto corridors, either current or planned. All refugia or potential refugia/corridors should have increased weighting for protection.

Of particular concern in my Shire has been the attempt by Orange City Council to place numerous mountain bike trails into Gaanha bula Mt Canobolas State Conservation Area (SCA), which is the highest ecological value reserve in Central NSW. While this proposal has stalled due to lack of money and declining interest, it is supported by a new NPWS Cycling Policy which is, frankly, the worst piece of public policy I have ever seen (and should never have been released in its current form). The reason I say this is that it clearly assumes that high energy, gravity fuelled mountain biking is an acceptable activity in areas of high and increasing ecological value. Global literature on the impacts of this activity are largely ignored by the policy, and any mention of climate change is cursory. There is no understanding inherent in the policy that increasing climate change impacts make these lands too valuable as ecological refuges to allow yet another disturbance regime. The fundamental conservation principles of the NPW Act are also essentially downplayed to allow this new type of activity, in the pursuit of tourism dollars. While this is just an example, I suspect there may be other Govt Policies with similar ignorance of the realities of climate change.

Planning Considerations

Planning outcomes have a long time envelope, especially for housing, public infrastructure and the environment. Therefore future climate change is relevant to planning decisions made now. Due to the new normal of rapidly trending climates, many fundamental tenets of what were once 'acceptable' planning outcomes are no longer fit for purpose. For example, small incremental land use change or native vegetation removal has previously been seen as acceptable due to the perceived restorative ability of the natural environment. There is an expectation that 'nature will return' after development occurs, or that the small area of disturbance of any individual development would have little overall impact. This may no longer be true in a trending climate. This places a greater onus on current planning and environment laws to protect an increasingly vulnerable landscape, even from small incremental disturbance.

Councils are generally friendly to land development, and they follow rules and regs developed by the NSW Government to guide their decisions. In all but a few cases, development that includes removal of canopy vegetation is generally allowed (using the assumptions above). The list of controls on development, including fire hazard zoning and endangered species locations are often passed over or ignored by Council, at the recommendation of staff who may or may not have had training in climate change science. This is an education issue that is for another Inquiry, however the planning rules currently do not give enough credence nor importance to the impact of incremental

landscape change or the combined impacts of the development and climate change. Climate change is, in effect, not considered at all.

Development Control Plans (DCPs) do exist in critical locations such as on floodplains. Floodzone DCPs often use hard baselines eg. the 1in 100 year or 1% Annual Exceedance Height (AEH), as planning thresholds. However what do we do when these thresholds are also changing due to climate change? PMF based on previous flood data is not sufficient anymore. Either we must develop new PMF calculations that incorporate new record flood events as they occur, or change the planning thresholds from 1% AEH to perhaps 0.5% or even 0.1% AEH. Another option is to have have geomorphic constraints determining upper limits, assuming an 'end-of century' type precipitation event.

In Cabonne we have DCPs for Eugowra and Molong floodplains. Both are dated 2010 and are now out of date due to what has happened recently. To give an example of their obsolescence, the 1% AEH level in Eugowra was almost 2 metres below the height of the Nov 2022 flood in some parts of the town. This is why whole houses were ripped from their foundations and moved down the street by a wall of water (the "inland tsunami" often mentioned). We clearly need new DCPs for all 'at risk' locations in the Shire, including Molong, Eugowra, Cudal, Canowindra, Manildra, and possibly also Cumnock and Yeoval. This process needs guidance from the NSW Govt and indeed new rules regarding what are acceptable planning thresholds in new DCPs.

As another example of the inadequacy of current planning rules, I helped clean out a new home on the edge of the Boree Ck floodplain in Cudal, in the wake of the Nov 2022 flood event. This house and shed were approved by Council and built with the tacit assurance that it was above previous record flood level. It was only 6 weeks old when the flood inundated it, causing considerable damage. Luckily the owners were insured, as presumably the insurers also assumed that they were safe from flood. However climate change has forever shifted the goalposts in this small town and many others across NSW. It is imperative that the NSW Govt review all planning laws where a change in climate may affect critical thresholds or assumptions.

Building and Infrastructure standards need review

Building standards eg. Gutters and down pipes, wind and fire resilience, location, and environmental impact all require review in NSW in the light of changing climatic conditions. This also includes engineering standards for public infrastructure such as stormwater pipes, culverts, creek crossings, bridges, and road surfaces. Almost all future climate modelling done in NSW (eg. NARCliM via AdaptNSW, CSIRO/BoM) indicates increased likelihood of extreme rainfall events, leading to record storm and flood conditions. Infrastructure built under 20th Century standards may now be out of date. BASIX requirements have a focus on energy efficiency, which is laudable, but adaptation to impending changes is also required. A new adaptation-focused version of BASIX may be a solution.

Other standards such as fire resistance in structures also need review. Many houses in small regional towns are poorly insulated and require retrofitting to come up to modern standards. Heatwaves are often worse in regional locations away from the moderating influence of the ocean. Combined with the overall older and poorer populations in rural areas (including Cabonne), future heatwaves have a high likelihood of causing fatalities, especially amongst the elderly. Novel liveability options such as more shading and even sidewalk mist sprayers should become the norm in regional urban areas.

Role of the NSW Reconstruction Authority

This Authority was an outcome of the NSW Flood Inquiry and was gazetted under the NSW Reconstruction Authority Act 2022 No. 80. This Authority has been given extended powers to develop a State Disaster mitigation plan, which will "set priorities for the plan, disaster adaptation plans and strategic plans under the EP&A Act (1979). This includes
- giving advice to councils on disaster adaptation;
- co-ordinating development in disaster-affected areas;
- acquiring and subdividing land for rebuilding communities;
- rebuilding infrastructure.
According to the Authority, this "represents a new and unique alignment between disaster planning and strategic planning…and "be an integral part of how we design our future cities and towns".

This enshrines the Reconstruction Authority as the key NSW Govt authority dealing with planning for climate change. They have sweeping powers to compel Councils to follow their disaster mitigation rules and guidelines, all of which are currently not yet written. Note that the rhetoric surrounding the Reconstruction Authority and other related entities is reactionary ie. disaster recovery rather than avoidance. A 'disaster' is only a disaster if there is an impact we haven't been able to avoid with suitable planning. Climate change impels us to re-write the planning rules to ensure future 'disasters' don't happen or are reduced in impact. Better planning equates with fewer expensive and traumatic 'disasters'.

Role and limitations of Councils

Councils have limited capacity to keep pace with current and future environmental changes. Budgets are very tight and in most LGAs most significant council activity (such as road maintenance) is funded by State and/or Federal Govt money, usually in the form of competitive grants. Unfortunately, unless expressly specified, State and Federal grant funding rules don't allow for improvements in infrastructure to build resilience in the community and its infrastructure. It's mostly "like-for-like", which is effectively going backwards in a changing climate. We have many examples of repairs to flood affected infrastructure eg. culverts at creek crossings, funded under NSW Govt rules, that have

been destroyed again by subsequent flooding. If this were to continue into the future, the financial burden to the State over time could be substantial, and worse still, for projects that 'throw good money after bad'. I and fellow Councillors are heartily sick of the inadequacy of the current grant funding system with respect to flood recovery. The multiple disaster declarations of the last few La Nina years only added to the complexity of project completion, as each needed to be assigned to a particular declaration. Delays to essential repairs due to the persistent wet weather meant delays in acquittal of grants, leading to the absurdity of us moving $14 million of tied reserves across at EOFY budget time to cover 'grant-funded' bills. What would happen to a council that didn't have the reserves available? Would they resort to borrowing money at EOFY to cover bills that the State Govt had provided a grant for? Clearly something needs to change here, as these types of events are likely to increase into the future.

Under State Govt rules any bid for a 'betterment' or 'resilience' style project requires a detailed business case to give reasons why higher standards are needed. However the funding application timelines (usually after successful EOI) are often too short (eg. 6 weeks) for a business case to be developed that has detailed climate change modelling attached.
Suggestions:
Detailed modelling should be done statewide that highlights pinch points where extra betterment funding is required. This could possibly be done via Reconstruction NSW with their new legislative role in developing statewide adaptation plans. Resources would need to be provided to the RA to progress these. These could be used by councils to develop business cases. I would consider this suggestion as being of high priority, as funding rules that recognise climate change imperatives are needed now, not in 5 years time.

Council staff in Cabonne follow State guidelines to the letter, esp. if a project is potentially controversial. This puts a premium on the value of State guidelines , and less on the views and/or local knowledge of Councillors. Some of these guidelines do little to protect the natural environment, even less so under climate change. Councilors are there to provide a 'local' perspective on planning decisions, however very few have the technical skills to adjudicate on environmental impact, either now or into the future. Education of Councillors and Council staff about the realities of upcoming climate change should be an imperative of the NSW Govt.

Summary

The record Cabonne floods in Nov 2022 are a good example of the new 'norm' and the mismatch between expectations (and hence infrastructure) and the new environmental reality. There were significant impacts on many communities (loss of property, productivity, significant trauma, depression). Some infrastructure affected was only recently approved and constructed under current planning guidelines. Clearly these regulations aren't good enough anymore. I would recommend:

- A complete and extensive review of all NSW Planning Regulations and Guidelines where climate change may have an impact. This includes identification of conflicts between planning decisions and long term environmental impact due to climate change. Emerging and cascading risks should be a focus of any such review.

- A complete and extensive review of Grant funding guidelines for Councils to incorporate climate change adaptation and resilience as a core component of any new infrastructure project.

- A complete and extensive review of building and planning standards to allow better adaptation standards and guidelines.

- New DCP guidelines, especially for disaster-prone areas, incorporating more realistic planning thresholds (eg. expected flood heights and frequencies).

- Review and redraft of the NPWS Cycling Policy to remove gravity trail creation, increased removal of illegal trails, and strengthened ability of NPWS to prosecute illegal trail users and creators. Incorporate truthful global scientific evidence of damage done by mountain biking, and identify risks associated with a combination of trail impacts and climate change on sensitive ecological communities.

- Any location, especially within a NP or SCA, that is mapped as having EEC, CEEC, endangered or critically endangered species, should be prioritised for protection as refugia, over all other potential uses, including tourism.

With kind regards,
Dr Andrew Rawson