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## **Fair Water Distribution**

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### **Abstract**

The Millennium Drought in Australia's Murray-Darling Basin (MDB) has accelerated ongoing water management reforms, which have been marred by bitter confrontations between various user groups such as irrigators, rural communities and government officials. Accusations of unfairness and injustice abounded, however decision-makers have limited guidance of how to ensure fair water distribution. Previous work has identified that during the Millennium Drought, water distribution in the MDB was guided by three competing principles: need, equity and efficiency.

Drawing on data from the original research, this paper examines how these three principles have been implemented and what their consequences have been for different stakeholders (landholders, the environment, and Indigenous peoples) in one part of the MDB. The implementation of equity and efficiency has resulted in significant benefits to those who already benefitted from (and therefore contributed to) the agricultural system (irrigators more than croppers and graziers). This was balanced by the expressed recognition of basic needs for previously excluded stakeholders (like the environment and Aboriginal peoples), which potentially puts them in better stead for the future. Instead of determining which principle is fairest, this analysis explores the consequences of all three to illustrate the difficulty of achieving fair water distribution.

### **Keywords**

social justice, distributive justice, water reform, Murray-Darling Basin, drought

### **Introduction**

Water governance in the Murray-Darling Basin (MDB) becomes a salient political issue only during floods and droughts. It is currently the subject of ongoing reforms whose latest iteration started in the 1990s. The recent Millennium Drought (2000-2010) was a time of extreme water scarcity that exposed many conflicts over how we, as a society, use water in the Basin. In this paper, three principles of distribution evident in Australian water management are discussed: need, efficiency and equity.

Instead of suggesting which principle is fairest, the purpose of this paper is to explore the consequences of these three principles on different stakeholders (the environment, floodplain croppers and Aboriginal communities), and thus expose how our understandings of justice are affected by our point of view.

This paper starts with an explanation of the water reform process during the Millennium Drought followed by a brief review of social justice concepts used in the analysis. The research methodology is then explained along with the case study, followed by a discussion of the results where the consequences of distributive justice principles are organised around the three stakeholder groups examined.

### *Water Reform*

The current Australian water reform process started in the early 1990s and continues to this day with the implementation of the Basin Plan. Evaluations and descriptions of the reforms abound (Baldwin et al., 2009; Crase, 2008; Matthews, 2011) and a thorough description is beyond the scope of this paper. However several points most relevant to the MDB require emphasis. Historical water management focused on intensive irrigation as a way of developing the state (Hillman, 2008; Schofield, 2009). This promotion of irrigation was seen to be in the public interest, with both the government and community supporting a growth ethic (Connell, 2007). In the 1970s and 1980s focus began to change from production to conservation (Godden, 2005) as community support for the environment came to the fore (McKay, 2002), prompting water managers to consider environmental and social policy objectives. There was a move away from engineering works to catchment conservation and restoration (Hillman, 2006), highlighting the role of local communities as stakeholders.

The Millennium Drought started in the late 1990s in some parts of the country and broke in 2009 or 2010, depending on the location. It influenced the 2004 National Water Initiative (NWI: Australia's blueprint for water reform) and spurred on the water reform process. The severity of the Millennium Drought was compounded by the growth in development, over-allocation of water licences in the MDB and climate change (Kendall, 2010). Engagement of diverse interests (such as environmental or local community interests) became recognised as important, and managers had to incorporate social and environmental considerations into a process that was previously purely technical. Following the launch of the NWI in 2004, access to water and water management for Aboriginal people became an important part of reforms. The environment also emerged as a water stakeholder with the Commonwealth Environmental Water Holder acting on its behalf.

The two main government programs operating during the Millennium Drought were 'Restoring the Balance in the Murray' (the water buy-back) and 'Sustainable Rural Water Use and Infrastructure' (upgrades). The water buyback and infrastructure upgrade programs were designed to redress the over-allocation of water licenses for

agricultural producers (especially irrigators) and return water to the stressed river systems. The water buy-back involves the permanent purchase of water licenses from agricultural producers, which are then used for environmental purposes (Robinson, 2010). This program particularly affected NSW, with 72% of all water licenses sold coming from that state (NWC, 2009). The infrastructure program is meant to promote both efficiency and sustainability (Harwood, 2010; MDBA, 2009). It aims to assist the rural sector to adapt to water security by improving the efficiency and productivity of water use (Robinson, 2010). The upgrade program is essentially another way of buying water since the Commonwealth government invests in irrigation infrastructure in exchange for some, or all of the water savings, which are then used for environmental purposes (Productivity Commission, 2009).

### *Social justice*

Social justice as described by social psychologists is a type of justice that looks at the allocation of benefits, like bargaining power, resources or fundamental rights and duties, in a society (Prilleltensky and Nelson, 1997). The two most researched components of social justice include distributive justice, which deals with how resources are distributed in a group (Kymlicka, 2002); and procedural justice, which focuses on the decision-making processes (Wendorf et al., 2002). The distributive and procedural components of social justice have been used previously to analyse fairness and justice of water management (Baldwin and Ross, 2012; Gross, 2011; Howard, 2010; Syme et al., 2000; Syme et al., 1999). More recent work by Lukaszewicz et al. (2013a; 2013b) developed a Social Justice Framework to comprehensively identify and describe social justice principles evident in the MDB water reform during the Millennium Drought. While this framework has three components of distributive, procedural and interactive justice, which analyse the resource distribution; decision-making processes and interactions between decision-makers and stakeholders respectively, this paper focuses solely on an exploration of the distributive justice principles.

Deciding what is fair is complicated since evaluations of justice are subjective and tied to underlying beliefs, morals and values (Beierle and Konisky, 2000; Peterson, 1994; Rasinski, 1987). Social justice thus lies in the eyes of the beholder, meaning that an assessment of what is fair or unfair can change overtime within a society or significantly differ between societies and cultures (see Finkel, Harré, & Rodriguez Lopez, 2001 for an example). Furthermore justice evaluations will be affected by the scope of factors included, such as the timeline being considered, the scale at which an evaluation is made and the subject of the evaluation. A common example of how different timelines can affect justice evaluations is the debate over the rights of present generations over future ones. In this case the timeline is extended into the future. However the timeline can also be extended into the past; for instance when evaluating the justice of actions towards Indigenous peoples. Similarly, the scale at which justice evaluations are made is important as actions deemed fair at a national,

or industry scale can be deemed unfair at a local level (Patrick, 2014). Indeed this has been the case with evaluations of the water buyback during the Millennium Drought, with government reports estimating the impacts of buying water from irrigators at a Basin-level, industry-wide scale judged them to be relatively low (NWC, 2010). However evaluations at this scale masked the significant impacts at a local level in a number of locations (Commonwealth of Australia, 2011). Justice evaluations are also dependent on who is the subject of justice (Sikor, 2013). An action that achieves justice for one group may leave another group worse off or unaffected. These considerations depend on how the evaluator decides their 'moral community' (Wenzel, 2004), i.e. those to whom justice is owed. A famous argument is provided by Stone (2010) who pondered what would happen if trees were given legal standing (and therefore be owed justice) the same as humans.

Different distributive principles can be followed in any decision (see Table 1) and while none is inherently fairer than any other, they are not all entirely compatible. Equity is one of the oldest justice criteria, the definition of which remains elusive. All of its definitions imply some sort of proportionality – that the reward is proportional to input, contribution or deservedness (Deutsch, 1975; Diekmann, et al., 1997; Nadler, 1999; Syme, et al., 1999). Distribution based on need refers to the minimum requirement necessary for survival (Harding, 1998). Efficiency can be described as distribution that produces the most gains in production or consumer satisfaction without imposing losses (Whitley et al., 2008). Implementation of efficiency was meant to be achieved through efficient water markets that will reveal the value of water to existing and potential users, and create incentives for users to seek improved technical productivity, innovate and improve water use efficiency (ACCC, 2009; Robinson, 2009). Distribution based on any one of these principles will thus benefit different sets of stakeholders; be they the most deserving, efficient or needy. Therefore following one or more of these principles is going to have justice consequences, especially if stakeholders evaluate decisions using a different principle.

Table 1. Definitions and empirical examples of three distributive justice principles

| <b><i>Principle</i></b> | <b><i>How it has been operationalized in water reform</i></b>   |
|-------------------------|---|
| Equity                  | Recognition of prior users' rights (water entitlements)<br><br>Recognition of the investments made (such as the development of towns around irrigation enterprises)               |
| Need                    | Basic needs (examples include critical human needs, quantification of water needs for environment, stock & domestic provisions)   |
| Efficiency              | Economic: Directing distribution to most "productive" (i.e. highest "value") use through the water market.<br><br>Technical: Favouring systems that don't waste or over-use water |

Source: based on Lukasiewicz et al. (2013a)

## **Research Method**

This paper is a continuation of work done by Lukasiewicz et al. (2013a), who analysed ongoing water reform from a social justice perspective. The original research applied a justice framework (developed by the authors through compiling justice principles from existing literature) to an actual policy process to establish the social justice principles which guided water reform.

This paper builds on the original research by exploring the consequences of implementing competing principles of distributive justice on three different subjects of a justice evaluation: the environment, floodplain landholders, and floodplain Aboriginal communities. Data used for this paper comes from a larger study, on which the original research of Lukasiewicz et al. (2013a;b;c) is based. The original study used a content analysis of key water reform documents and semi-structured interviews about water reform with government and non-government respondents. It has been supplemented with updated references from the web to clarify the current situation.

### *Content analysis*

The eight key water reform policy and legislative documents used in the content analysis were written in the period 1994-2008. These eight documents (see Table 2) were key policies or legislation in water reform at a Commonwealth, interstate or state level which set a new legislative or policy direction for water reform or were a major announcement of funding or government strategy. The original research was based on two case studies in NSW and SA and the water legislation of both these states was included in the selection of documents.

Table 2. Details of documents used in the Content Analysis

| Full name  | Acronym | Level        | Year | Importance  |
|--|---------|--------------|------|---|
| The Council of Australian Governments' Water Reform Framework  | COAG    | Interstate   | 1994 | The first document that specifically addressed the need for water reform  |
| The Intergovernmental Agreement on a National Water Initiative | NWI     | Interstate   | 2004 | Still acknowledged as the blueprint for Australian water reform   |
| The Agreement on Murray-Darling Basin Reform                   | MDBA    | Interstate   | 2008 | Establishes the MDBA and Basin Plan, a very significant change  |
| Water Act  | WA      | Commonwealth | 2007 | The Commonwealth Water Act  |
| National Plan for Water Security                               | NPWS    | Commonwealth | 2007 | Groundbreaking national government policy, establishing the Murray-Darling Basin Authority                          |
| Water for the Future   | WfF     | Commonwealth | 2009 | The current government's water policy, continuing many themes of the previous policy but emphasising new directions |
| Water Management Act   | NSW WMA | State        | 2000 | The NSW Water Act   |
| Natural Resource Management Act                                | SA NRM  | State        | 2004 | The SA Water Act  |

Source: based on Lukasiewicz et al. (2013a)

All eight documents were coded using NVivo and categorised into analysis nodes based on the social justice framework. As each document was read, passages which included specific justice concepts were identified either through assigned keywords or implicit meaning and coded into nodes relating to that concept. The results were numerically listed in three categories, relating to the framework.

Numerous justice principles were identified in this process and it became necessary to assign weighting to them (see Stemler, 2001) as analysing principles simply on the frequency of a principle may either underestimate or overestimate its importance. In this case, the weighting was derived empirically by counting how many times a principle appears in the objectives section of a document. Each identified principle thus had a 'frequency' score (referring to the number of times it appeared within a document) and a weighting score (referring to how many times it appeared as an objective of the document). Multiplied together they revealed the importance of a particular justice principle relative to other principles in the document and gave each justice principle a numerical score that allowed a comparison of principles within an individual document and across different documents. This multiplication is referred to as a 'Relative Importance Score' (RI Score) and used in Figure 1 to establish the dominant distributive justice principles.

#### *Semi-structured interviews*

This paper also relies on extracts of interviews conducted with 36 government and non-government water stakeholders (see Table 3), from 2008 to 2010 (see Lukasiewicz et al., 2013b; 2013c).

The Commonwealth and NSW government interviewees were senior government officials with long-term positions of responsibility in water management. The Lowbidgee landholders were people who are recognised as spokespeople for the Lowbidgee floodplain while the Aboriginal respondents were elders from groups whose traditional lands includes the Lowbidgee floodplain. All interviewees were assured of confidentiality and anonymity and thus quotes used in this paper are attributed to broad interviewee categories such as Commonwealth government official or inter-state agency (indicating a member of the Murray-Darling Basin Commission, Authority or the National Water Commission).

Table 3. Groups of interviewee respondents

| <b>Respondent Group</b>                       | <b>Number</b> |
|---|---------------|
| Commonwealth government<br>Inter-state agency | 11            |
| NSW Government                                | 8             |
| Local government                              | 2             |
| Lowbidgee Landholders                         | 7             |
| Aboriginal Respondents                        | 8             |

Source: derived from Lukasiewicz et al. (2013b; 2013c)

An initial scoping study of the Lowbidgee was conducted in July 2008 when contact was made with several landholders. The interviews were in 2008-2009, at the height of the Millennium Drought.

Respondents were phoned or emailed and asked to participate in interviews. They then suggested other landholders. Most of the Aboriginal elders were approached through an intermediary, an Aboriginal liaison officer working for a government agency who had a good working relationship with the elders. The interviews lasted between thirty minutes and three hours, with the average interview lasting around one hour. Each interview began with a review of the consent form and an explanation of the respondents' rights and the author's responsibilities. All respondents quoted in this paper gave initial permission for their quotes to be used in subsequent publications.

The software package NVivo (Version 8) was used. Interview data was initially coded thematically to match coding from the content analysis. Then new codes were created to capture themes raised in interviews that did not appear in the content analysis, mainly explanations around how social justice principles were implemented, perceptions of these and explanations of what went right and what did not. The process followed analytic induction (explanation building) which is a form of pattern building that compares findings against an initial proposition and revises it as more findings emerge and offer alternative explanations (Gibbs, 2002).

#### *Case study: the Lowbidgee Floodplain*

This paper draws on only one of the two original case studies, since it more comprehensively shows the interaction of the three distributive justice principles.

The Lowbidgee Floodplain covers an area of approximately 347,300 hectares between the towns of Maude and Balranald (DEWHA, 2008). Regulation of the Murrumbidgee River has profoundly changed its natural flows over the past 140 years. The landholders on the Lowbidgee have historically fought against upstream development, setting up the Lower Murrumbidgee Defence League in 1901 to campaign for the rights of the floodplain, which were threatened by proposals to divert the river for irrigation (Eastburn, 2002).

Flooding was a regular occurrence in the 1990s but disappeared almost completely with the onset of the Millennium Drought which broke in October 2010. However, both the Commonwealth and NSW governments have made environmental water available to the Lowbidgee for environmental purposes during the Drought, as it is listed as a Wetland of National Significance (Robinson, 2010).

The Lowbidgee has two distinct agricultural and ecosystems, Nimmie-Caira and Redbank. Most of Redbank has been a National Park since 2005, so this analysis focuses on the Nimmie-Caira part of the Lowbidgee. Nimmie-Caira used to be primarily a grazing area but cropping has become dominant in the late 1990s (Murrumbidgee CMA, 2008). Cropping in Nimmie-Caira is done through ponding, a unique method whereby the land is flooded in spring in order to sow winter crops the following year. This method seals moisture in the soil; prevents weed infestation and evaporation and means that the crop does not rely on rainfall. Ponding is dependent on overbank flooding and allowed the Lowbidgee to become the largest Australian producer of organic wheat (Murrumbidgee CMA, 2008). The landholders on the Floodplain have built banks and levies to hold floodwaters and had a unique arrangement with the NSW water provider where they paid annual 'water rates' based on the hectares of arable land, rather than volume of water (amounting to AU\$40,000 and AU\$50,000 per year for two of the croppers; pers. comm. 12 November 2009). These arrangements existed despite the fact that the landholders never owned any type of water licences. While this arrangement was beneficial in the decades prior to the Millennium Drought, during the drought landholders found themselves paying large amounts of money annually without water being delivered to them and therefore, without the ability to plant crops.

The Lowbidgee Floodplain is subject to the Murrumbidgee Water Sharing, however due to the uniqueness of its arrangements, the Lowbidgee landholders were not included in the Murrumbidgee Water Sharing Plan that was negotiated before the Drought and finalised in 2003 (Bowmer, 2007). The landholders campaigned for a supplementary license throughout the Drought, which was finally granted in 2012 and existing arrangements. However this supplementary license was then sold to the government through the water buyback program in 2013, effectively ending cropping activities on the floodplain.

## Results and discussion

The content analysis of key water reform documents demonstrates that distribution according to need emerges as the overwhelming principle of distributive justice, followed by efficiency and, to a much lesser extent, equity (the principles of equality and fairness are relatively minor and will not be discussed in this paper). Given that need is the most important distributive justice principle, whose needs are recognised and catered for? The embedded table in Figure 1 shows the percentage breakdown of the Relative Importance Score for need. It identifies the types of needs that were specified in policy and legislative documents. Overall, 74% of the RI Score for the need principle referred to needs of the environment, indicating that in distributing water according to need, the environment is to be prioritised. Other needs were categorised into economic and social and each constitute 13% of the RI Score for need.

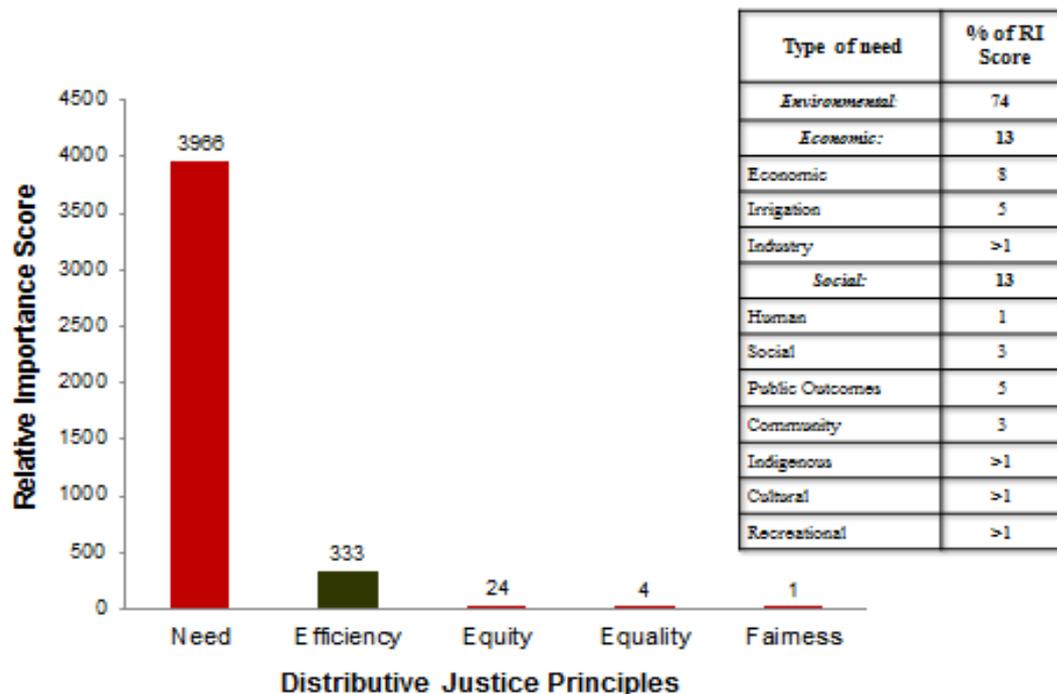


Figure 1. Content analysis results for distributive justice principles in water reform. Source: Adapted from Lukasiewicz et al. (2013a)

### *The Environment*

The environment is thus recognised as a legitimate water stakeholder, whose needs must be met as determined by science. This recognition of environmental needs had clear, positive benefits for the environment, with the Commonwealth Environmental Water Holder managing 1,719,470 mega litres worth of water licenses

(Commonwealth of Australia, 2014), most of which has been bought back during the Millennium Drought.

Prioritisation of need as a principle of distribution meant that the needs of different stakeholders had to be assessed. This clearly benefited the environment in the early years of the Drought when the extent of environmental degradation was realised (Bowmer, 2003). However, as the Millennium Drought continued, town water supplies in the southern MDB were threatened by unprecedented low dam levels and the need to secure water supply for urban centres partially replaced concerns over environmental needs (Craik & Cleaver, 2008). As a result, in December 2008, the 2007 Water Act was amended to prioritise 'critical human needs' over the environment. The progression of the Drought thus dictated a change in the prioritisation of needs and political will to act on behalf of the environment faltered.

Satisfying environmental need is in itself problematic because the environment is not an easily identifiable entity; how much water does the environment need is a question dependent on what the environment is and who decides its identity (Lukasiewicz et al., 2013c). While currently the Basin Plan specifies a Sustainable Diversion Limit of 10,873 giga litres per year (MDBA, 2014), which is the amount of water that can be taken out of the river system for consumptive uses (such as agriculture, town water supply or industry needs); determining this level has not been without controversy as industry, environmental and community interests bitterly fought for years over what the amount should be (Commonwealth of Australia, 2011). Tying the use of water for the environment to science also means that it is held up to higher scrutiny by other stakeholders: "*The environment always has to justify every single drop of water it uses . . . 'how are you going to use it, what are the objectives?' . . . whereas the same hurdles aren't placed on the irrigators*" (Inter-state agency official).

The fact that the environment is now a water stakeholder whose needs are recognised and prioritised has been highlighted by Commonwealth government water managers: '*we're playing on the same field, rather than being at the end of the queue*' (Commonwealth government official). Recognition of environmental needs has been legally framed so that the environment has '*equal standing*' (Commonwealth government official) to consumptive water users. However, making the environment an 'equal' stakeholder is that it is not a 'special' stakeholder. As an equal stakeholder, the environment has to get water through the same processes (the water market), and be subject to the same constraints, as other water users. This is where the consequences of efficiency as a distributive principle are evident: since the environment is not a productive producer, its ability to obtain water hinges on government funding. During and immediately after the Drought, governments have been committing money to purchase water for the environment, but this could change. Floodplain landholders have expressed concern for the future of their environment in the water market '*They've got this mantra: 'water efficiency', you*

*know, 'water for the best use'. Well the best economic use at the moment is not on flood plains, it's not in the environment'. If future government commitment to financially secure water for the environment wanes, the environment may not be in a position to obtain enough water for its needs.*

Equity has been operationalised through recognising and protecting existing water licenses and the way they operate (Robinson, 2010). Water licenses have certain provisions and these provisions cannot be changed, even if the license is bought by a different stakeholder. So in NSW, an irrigation license cannot be used for overbank flooding. However, when bought to satisfy environmental needs, the most efficient way to do that would be to create a small flood by spilling the water over the bank (pers. comm. 13 July 2012) Existing rules thus prevent environmental proxies to use irrigation water in ways that would be most beneficial for environmental needs.

The concurrent implementation of need, efficiency and equity has mostly been beneficial to the environment as a water stakeholder since its needs were recognised and prioritised over the needs of irrigation. However, three consequences have emerged from this analysis. First, need as a distributive principle does not guarantee that the environment will always be prioritised as circumstances change and other stakeholders' needs may be judged as being more urgent. Second, determining environmental needs is contested and has been based on scientific understanding, which places stringent standards on water use for the environment, potentially constraining management actions. Finally, making the environment an equal stakeholder in water distribution makes it dependant on government commitment, which has been strong during the Drought but is uncertain into the future. This is compounded by the efficiency principle, where the water market channels water to the most economically productive use, which is difficult for the environment to demonstrate. The equity principle, operationalised through the water licensing system, also constrains the use of water licenses to achieve best environmental outcomes.

### *Croppers of the Lowbidgee Floodplain*

The operationalization of equity and efficiency during the Drought entrenched existing distribution of wealth in NSW. The two main types of water licences in NSW are high security (where seasonal allocation is almost always guaranteed) and low security (where seasonal allocation is dependent on water availability and given after high security license holders are catered to). The holders of high security water licenses tend to grow more financially profitable crops, with greater capital investments and arguably greater risks, whereas holders of low security licenses tend to grow annual crops which require little upfront investment, and bring in less financial profit.

The NSW government chose to protect high security license holders more than low security ones out of equity concerns – their contributions to the industry and their

local communities were judged to be more deserving: *'The political decision has been taken that we didn't want permanent plantings to die because that would be basically a serious blow to most of the rural economies . . . Whereas we haven't really been seeking to protect annual cropping to that extent'* (NSW government respondent). Thus, while all types of agricultural producers faced hardship during the Millennium Drought to some extent, the recognition of licenses combined with formation of water markets meant that high security license holders benefitted more than low security license holders who benefitted more than those without any licenses.

As the Lowbidgee croppers did not hold water licenses, the continuing Millennium Drought put them in a relatively more precarious position since they faced the same pressures as their upstream irrigator counterparts, but without the benefit of water licenses: *'Well I have no sympathy for them [license holders], whatsoever, because they have assets to sell'* (Lowbidgee Landholder). The historical use allocation meant that existing licenses were recognised, new licenses were harder to obtain.

The implementation of the efficiency principle through the water markets also denied water to the Lowbidgee landholders. First, one must have a license to trade and second, due to the way the ponding system worked, the large amount of water needed to be bought and then delivered to the Lowbidgee system made participation in the water market financially prohibitive.

The final decision by the NSW government of granting a special type of supplementary license to the landholders in 2012 and then buying it from them (Coutts, 2012) to provide environmental flows thus met the distributive goals of ensuring environmental needs and equity while allowing the market to distribute water to its highest value use (since the government was willing to pay for the water). Significant environmental gains were achieved and the landholders' history of use was recognised (belatedly) through the granting of licenses which then were able to be sold through the water market. However, the way that equity and efficiency were implemented in NSW, put the Lowbidgee croppers at a disadvantage with their irrigator counterparts during the financially difficult period of the Millennium Drought and majority of them have ceased farming (pers. comm. 28 June 2014).

#### *Aboriginal floodplain communities*

The environment is not the only recently recognised water stakeholder. The NWI emphasised the involvement of Aboriginal peoples in water management and recognised their social and cultural needs (see Figure 1; COAG, 2004). Also, NSW water sharing plans are obliged to include consideration of the spiritual, social, customary and economic values of water to Aboriginal people as well as Native Title rights relating to water (NOW, 2014).

However, the satisfaction of the broad range of Aboriginal needs cannot be fulfilled through water reform alone. One of the biggest obstacles that some NSW Aboriginal elders identified during interviews is lack of physical access to water resources caused by landholders fencing off their lands: *'Well the biggest justice issue for aboriginal people is that they don't have access to water'* (Aboriginal elder). Not being allowed to walk on country means that the elders cannot pass on their knowledge to younger generations, hunt and fish to obtain healthy food sources or visit important sites. This issue is not addressed by reform documents like the NWI and Commonwealth and state governments are constrained by laws protecting private property to act on behalf of Aboriginal communities.

The implementation of equity as recognition of historical use focuses on recognising existing water users through the licensing system. Few Aboriginal groups or individuals owned water licenses prior to the Millennium Drought, which made it hard for them, as newly recognised stakeholders, to gain water licenses during a period dominated by water shortages and a continuing fight against over-allocation. The amended NSW Water Management Act does allow special water licenses for Aboriginal cultural flows (see Weir, 2010 for an explanation) or commercial purposes (Jackson, 2009). However the utilisation of this legislative provision has been limited. At the time of data gathering (2008-2010) the only Aboriginal cultural access licence that was granted in NSW went to the Nari-Nari Tribal Council near Hay in 2005 to water a culturally significant wetland to restore fish life (Jackson, 2009).

The implementation of efficiency through the water markets also did little to benefit Aboriginal communities as stakeholders. Theoretically, Aboriginal communities are able to buy water as anyone else is. However, as a group that has been historically disposed of land and resources in the MDB, most Aboriginal communities lack financial capital to compete in the market or to establish efficient and productive irrigation enterprises. For example this has been the reason cited by Jackson (2009) as to why none of the commercial water licenses for Aboriginal people have been utilised to date. In the interviews conducted with Aboriginal elders during 2008-2010, none mentioned any type of involvement with water-dependent economic production. The lack of financial resources has been acknowledged by the NSW government to some extent, as it decreed that applicants for cultural access licences are exempt from the standards application fees (Jackson, 2009). The recent Aboriginal Water Initiative set up by the NSW Office of Water to monitor how NSW water sharing plans are meeting their statutory requirements in incorporating Aboriginal water needs (NOW, 2014) is another indication that Aboriginal water needs are a) recognised, and b) unfulfilled.

Need as a principle of water distribution thus enabled the recognition and consideration of Aboriginal communities as a water stakeholder, through legislative provisions and the granting of special licenses for cultural and commercial purposes. However the historical dispossession of Aboriginal peoples, leading to lack of access

to land and other financial resources means that Aboriginal communities are generally locked out of a system that, protects established water users and prioritises productive enterprises for which Aboriginal communities lack the start-up capital to engage in.

## **Conclusion**

This paper explored how the implementation of three prominent distributive justice principles affected different stakeholders during water reforms in the MDB through the period of the Millennium Drought. The purpose of this exploration is not to determine which principle is fairest but to show how the interaction of all three led to different justice consequences for different stakeholders at different times and at different scales. While the introduction of water markets and recognition of existing users have been favourably judged at the Basin scale and is thought to have set up positive changes for the long-term future of agriculture in the Basin, the reforms did so largely by protecting those who already benefitted from (and therefore contributed to) the agricultural system (irrigators more than croppers). This distribution was balanced by the expressed recognition of basic needs for previously excluded stakeholders (like the environment and Aboriginal peoples). While the recognition of their needs potentially puts these stakeholders in better stead for the future, the implementation of efficiency and equity provides little means for these stakeholders to compete on equal terms with established water stakeholders.

Ultimately, the readers must decide whether water reform has been 'fair' (and to whom). Such a decision will depend on what kind of an environment and what kind of agriculture Australians want in the MDB and to what extent certain vulnerable stakeholder groups should be protected from inevitable changes.

## **Biography**

**Anna Lukasiewicz** has worked at the interface of social justice and water governance. Her social justice work focuses on resource distribution, decision-making processes and stakeholder-decision maker interactions in the context of water governance.

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