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WATER CRISIS IN THE MURRAY-DARLING BASIN: AUSTRALIA ATTEMPTS TO BALANCE AGRICULTURAL NEED WITH ENVIRONMENTAL REALITY

by Joshua Axelrod*

Overuse, pollution, increased salinity, and drought are threatening the water resources of Australia's Murray-Darling River Basin ("MDB"), a drainage of twenty-three rivers that is home to more than two million people¹ and generates nearly forty percent of Australia's agricultural revenue.² To address these threats, the Murray-Darling Basin Authority ("MDBA") submitted the Guide to the Basin Plan ("Guide") for public comment in October 2010, sparking controversy between the government and MDB's agricultural communities.³ The Guide's comprehensive sustainable water management strategies seek to balance human and environmental water needs.⁴ In an attempt to minimize the socio-economic impact of policy changes, the Australian government is buying water allocations from farmers and investing in irrigation infrastructure improvements.⁵ Despite public opposition to these actions, aggressive sustainable water management strategies must nonetheless be implemented, and tied to environmental outcomes, if the MDB is to remain a key agricultural producer in the future.⁶

Efforts to implement sustainable water use policies are recent innovations in Australia.⁷ The Australian states and territorial governments took significant steps to reform the management of overused rivers in 2004 with the ratification of the National Water Initiative.⁸ Since the Initiative, the Australian government has moved quickly to preserve scarce water resources. The 2007 passage of the Water Act gave Australia's national government the legal authorization to create a centralized, independent agency⁹ to draft, implement, and enforce water use policy for the MDB.¹⁰ Soon after, the newly created MDBA began its work on the Guide.¹¹ The Guide provides the scientific,¹² economic,¹³ and sociologic¹⁴ rationale for a proposed Basin Plan that will be released in late 2011.¹⁵

The Guide sets forth comprehensive and aggressive water use policies with the goal of stabilizing and improving the health of the MDB's critical natural resources.¹⁶ To accomplish this goal, the Guide proposes four key management policies: sustainable diversion limits ("SDLs"), environmental quality benchmarks, state-level SDL compliance, and an efficient water market.¹⁷ SDLs will limit the volume of water that may be taken from a given river or aquifer;¹⁸ environmental benchmarks will measure river salinity, overall water quality,¹⁹ and wetland health;²⁰ monitoring state-level SDL compliance will localize enforcement of water resource allocation;²¹ and an efficient water market will allow farmers to buy and sell allocated water

resources to ensure a reliable revenue stream or increased water needs.²²

Critics of the Guide argue that there was a lack of public input during the planning process and that the proposed plan will have a disproportionate impact on the communities most dependent on the MDB's water resources.²³ Food processors,²⁴ farmers,²⁵ and irrigation organizations²⁶ contest the MDBA's reliance on economic models that show that the proposed water management changes will have minimal impacts on the overall MDB economy.²⁷ They argue that economic assessments should have focused on short-term impacts to local and regional communities instead of nation-wide impacts.²⁸ Individual citizens, meanwhile, suggest that the Guide's proposals will lead to the continued economic and cultural decay of MDB cities and towns as residents relocate and abandon the MDB in search of economic stability.²⁹

However, the fundamental issue remains: Action is required if Australia's scarce water resources are to be preserved. The MDB recently suffered the longest drought in recorded history and faces a predicted eleven percent decline in surface water availability by 2030.³⁰ At the same time, water use in the MDB has increased from 2,000 gegaliters annually in the early 1900s to more than 10,000 gegaliters in 2010.³¹ The escalation of human water use coupled with historic drought illustrates the need for Basin-wide adaptation to diminished water resources if these resources are to remain viable in the future.³²

Decision-makers must implement policies that require adaptation to declining water availability without compromising the overall economic vitality of the region.³³ Though irrigated agriculture in the MDB is vital to Australia's agricultural sector,³⁴ it represents only seven percent of the MDB's economy.³⁵ Thus, while reports to the MDBA suggest that there will likely be significant socio-economic impact on irrigation-dependent farmers³⁶ and communities,³⁷ actions can be taken to transition these communities to a more stable economic foundation.³⁸ Economic diversification of local communities³⁹ through flexible labor and capital markets seems to be the most viable option.⁴⁰

Delaying reform because of community disappointment and apprehension presents a risk that the Australian government and local communities cannot afford to take.⁴¹ Still, it is important for the MDBA to consider community input in order to ensure

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adoption of the forthcoming Basin Plan and eventual compliance with its standards.⁴² The MDBA faces the challenge of redirecting policy toward a future of sustainable water use that recognizes the vulnerability of the communities that will be affected most.⁴³ As the Guide's proposals are integrated into the forthcoming Basin Plan, the MDBA must show MDB communities how their input

has been incorporated and how the central government's policy decisions have the communities' interests at heart.⁴⁴ As proposed by the Guide, the Basin Plan, and its implementation, must provide a viable framework for balancing these considerations in order to ensure future water resource security, economic stability, and necessary environmental rehabilitation.⁴⁵



WEAK PLANNING PROCESS FRUSTRATES PROTECTION OF PUERTO RICO'S THREATENED COASTLINE

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the development of an island-wide master plan has been in the works for many years, but has been repeatedly delayed.²¹ This legacy of poor planning has fostered the island's chronic sprawl, causing increased consumption of land even as population growth has slowed.²² By drafting and enacting a long-range master plan focused on resolving the island's inefficient land use patterns and prioritizing natural resource conservation, policymakers have

an opportunity to reverse this trend. Accompanied by transparency, public participation and gubernatorial accountability, the approval of a comprehensive master plan could represent the best hope of protecting finite natural resources and promoting sustainable economic development on one of the world's most densely populated islands.²³



THE ARCTIC COUNCIL: GATEKEEPER OR DOORMAT TO THE WORLD'S NEXT MAJOR RESOURCE BATTLE?

by Oded Cedar

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member-nations to establish the organization's binding powers. The permanent-observer nations should argue that the impacts of fossil fuel development are of global concern and affect all nations.³¹ Therefore, proper safety and environmental standards are needed to ensure stable and sustainable development of the Arctic's natural resources, a goal to which the AC is already committed.

The permanent-observer nations should also seek more influence on the affairs of the AC in relation to fossil fuel development. Without usurping the position of the member-nations, the permanent-observer nations should demand some limited voting rights when the AC wishes to enact binding resolutions. Providing the permanent-observer nations with voting rights would allow

more countries to voice their priorities and concerns, which may force the AC member-nations to consider the implications of their fossil fuel development plans on the global community.

If the AC member-states wish to take advantage of the benefits of climate change in the Arctic, they should do so in a manner that also honors their Ottawa commitments and the AEPS. The international community, then, should pressure the AC to make changes to its structure and provide effective oversight of fossil fuel extraction in the Arctic. In turn, the AC should respond by making the Ottawa Declaration binding and enforceable upon member-nations, allocating voting power to the permanent-observer nations, and effectuating the needed regulations.



¹¹⁵ See IPIS, *supra* note 19, at 71-72.

¹¹⁶ See MEIKE WESTERKAMP ET AL., REGIONAL COOPERATION IN THE GREAT LAKES: A CONTRIBUTION TO PEACEBUILDING? (2009), http://www.initiativeforpeacebuilding.eu/pdf/Regional_Cooperation_in_the_Great_Lakes_region.pdf.

¹¹⁷ See generally IPIS, *supra* note 19, at 53 (describing a dispute between artisanal miners and a Canadian corporation's rights under an exploration permit).

¹¹⁸ Stephanie Matti, *The Democratic Republic of Congo? Corruption, Patronage, and Competitive Authoritarianism in the DRC*, 56 AFR. TODAY No.4 (2010).

¹¹⁹ *Id.*

Endnotes WATER CRISIS IN THE MURRAY-DARLING BASIN: AUSTRALIA ATTEMPTS TO BALANCE AGRICULTURAL NEED WITH ENVIRONMENTAL REALITY

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¹ *Fact Sheet: Managing Australia's Water Resources*, THE MURRAY-DARLING BASIN AUTH., <http://mdba.gov.au/services/publications/managing-water-resources> (last visited Oct. 31, 2011) [hereinafter *Fact Sheet*].

² *About the Basin*, THE MURRAY-DARLING BASIN AUTH., <http://www.mdba.gov.au/explore-the-basin/about-the-basin> (last visited Oct. 31, 2011) [hereinafter *About the Basin*].

³ See generally *View Feedback Received in 2009 and 2010*, THE MURRAY-DARLING BASIN AUTH., <http://www.mdba.gov.au/have-your-say/view-feedback/feedback-received-2009-2010> (last visited Nov. 2, 2011).

⁴ *Fact Sheet*, *supra* note 1.

⁵ See *Fact Sheet*, *supra* note 1 (specifically the Water for the Future program which includes \$9 billion (Aust.) for the Australian government to invest in the Restoring the Balance in the Murray-Darling Basin program and the Sustainable Rural Water Use and Infrastructure program).

⁶ See generally Brian D. Richter et al., *Ecologically Sustainable Water Mgmt.: Managing River Flows for Ecological Integrity*, 13 ECOLOGICAL APPLICATIONS 206, 206-224 (2003) (advocating for the important benefits that healthy freshwater ecosystems confer upon human society and the need for water management solutions that balance quantitative human water needs with the needs of the ecosystem the water is being taken from).

⁷ DENIS FLETT ET AL., THE MURRAY-DARLING BASIN AUTH., REVIEW OF CAP IMPLEMENTATION 2008-09 8 (2009), <http://www.mdba.gov.au/files/publications/MDBA-REVIEW-OF-CAP-08-09-Nov09-web.pdf>.

⁸ *Fact Sheet*, *supra* note 1.

⁹ *Water Act 2007* (Austl.), <http://www.comlaw.gov.au/Details/C2011C00621>.

¹⁰ *Id.*

¹¹ See *About the Murray-Darling Basin Authority*, THE MURRAY-DARLING BASIN AUTH., <http://www.mdba.gov.au/about> (last visited Oct. 31, 2011) [hereinafter *Murray-Darling Basin Authority*].

¹² See *The Science Used in Developing Water Requirements for the Basin Plan*, THE MURRAY-DARLING BASIN AUTH., <http://mdba.gov.au/draft-basin-plan/science-draft-basin-plan/science-used-water> (last visited Oct. 31, 2011).

¹³ ABARE, ENVIRONMENTALLY SUSTAINABLE DIVERSION LIMITS IN THE MURRAY-DARLING BASIN: SOCIOECONOMIC ANALYSIS 3-4 (2010), http://www.mdba.gov.au/files/bp-kid/1071_Eviron_MDBA_2010_report.pdf.

¹⁴ See generally MARSDEN JACOB ASSOCIATES ET AL., ECONOMIC AND SOCIAL PROFILES AND IMPACT ASSESSMENTS FOR THE MURRAY-DARLING BASIN X (2010) <http://www.mdba.gov.au/files/bp-kid/1074-Marsden-synthesis.pdf>.

¹⁵ See *Draft Basin Plan*, THE MURRAY-DARLING BASIN AUTH., <http://mdba.gov.au/draft-basin-plan>.

¹⁶ *Murray-Darling Basin Authority*, *supra* note 11.

¹⁷ *Fact Sheet*, *supra* note 1.

¹⁸ MARK HAMSTEAD ET AL., WATER PLANNING IN THE MURRAY-DARLING BASIN: CURRENT PRACTICES AND OPTIONS FOR DIVERSION LIMITS 4 (2009), <http://www.mdba.gov.au/files/bp-kid/1205-water-planning-mdba.pdf>.

¹⁹ *Fact Sheet*, *supra* note 1.

²⁰ ALLUVIUM, KEY ECOSYSTEM FUNCTIONS AND THEIR ENVTL. WATER REQUIREMENTS 92 (2010), <http://www.mdba.gov.au/files/bp-kid/1187-Alluvium-2010-final-published-report.pdf>.

²¹ See FRONTIER ECONOMICS, STRUCTURAL ADJUSTMENT PRESSURES IN THE IRRIGATED AGRICULTURE SECTOR IN THE MURRAY-DARLING BASIN vi (2010), <http://www.mdba.gov.au/files/bp-kid/392-Frontier-Economics-2010-adjustment-report-Final-for-public-release.pdf>.

²² *Id.*

²³ See EBC ET AL., CMY. IMPACTS OF THE GUIDE TO THE PROPOSED MURRAY-DARLING BASIN PLAN. VOLUME 1: EXECUTIVE SUMMARY 5 (2011), <http://www.mdba.gov.au/files/bp-kid/257-EBC-Vol1-exec-summary.pdf>.

²⁴ See generally MACQUARIE RIVER FOOD & FIBRE, SUBMISSION TO THE MURRAY-DARLING BASIN AUTH. ON THE GUIDE TO THE PROPOSED BASIN PLAN 3 (2010), <http://www.mdba.gov.au/files/submissions/Macquarie%20River%20Food%20and%20Fibre%201%20of%202.pdf>.

²⁵ NAT'L FARMERS' FED'N, NFF SUBMISSION TO GUIDE TO THE PROPOSED BASIN PLAN 6 (2010), http://www.mdba.gov.au/files/submissions/National_Farmers_Federation.pdf.

²⁶ See MACQUARIE RIVER FOOD & FIBRE, *supra* note 21, at 3; NAT'L FARMERS' FED'N, *supra* note 23, at 6; NAT'L IRRIGATORS' COUNCIL, SUBMISSION TO THE "GUIDE TO THE PROPOSED MURRAY-DARLING BASIN PLAN" 4 (2010), http://www.mdba.gov.au/files/submissions/National_Irrigators_Council.pdf.

²⁷ ABARE, *supra* note 12, at 25-28.

²⁸ MACQUARIE, *supra* note 25, at 4.

²⁹ See KAREN ROBERTSON, OPINION SUBMISSION LETTER ON MDBA PLAN, <http://www.mdba.gov.au/files/submissions/Karen%20Robertson.pdf> (last visited Nov. 6, 2011).

³⁰ ABARE, *supra* note 12, at 6.

³¹ ABARE, *supra* note 12, at 6

³² See generally Janet C. Neuman, *Drought Proofing Water Law*, 7 U. DENV. WATER L. REV. 92, 92-110 (2003) (discussing the impact of current water use law and policy on drought-prone western states and the need for a rethinking of water use policy that addresses water allocation rights, crop planning, subsidies, efficiency, conservation, data collection and monitoring, with a goal of "greater appreciation of water as a precious and finite resource").

³³ EBC ET AL., *supra* note 20, at 4-5.

³⁴ *About the Basin*, *supra* note 2.

³⁵ EBC ET AL., *supra* note 20, at 7.

³⁶ MARSDEN JACOB ASSOCS. ET AL., *supra* note 13, at xv.

³⁷ EBC ET AL., *supra* note 20, at 4.

³⁸ *Id.* at 11.

³⁹ *Id.* at 4.

⁴⁰ *Id.* at 11.

⁴¹ See generally Alon Tal, *Seeking Sustainability: Israel's Evolving Water Management Strategy*, 313 SCIENCE 1081, 1081-1084 (2006) (examining Israel's ongoing water use management challenges due to a fundamental lack of water resources and the innovations and policies that have allowed per capita water usage to remain flat for forty years despite a continuing rise in the standard of living).

⁴² EBC ET AL., *supra* note 20, at 12.

⁴³ See generally WENTWORTH GROUP OF CONCERNED SCIENTISTS, THE URGENT PROVISION OF WATER TO THE COORONG AND LOWER LAKES (2008), http://www.wentworthgroup.org/uploads/1.%20Urgent_Provision_of_Water.pdf (urging significant reductions in water usage within the Murray-Darling Basin to minimize the environmental and economic damage from overuse of water resources).

⁴⁴ See generally Robin Gregory et al., *Bringing Stakeholder Values into Environmental Policy Choices: A Community-based Estuary Study Case*, 39 ECOLOGICAL ECONOMICS 37, 37-52 (2001) (examining past environmental policy failures due to a lack of community input or involvement, controversial science, and the promise to use minimal funding wisely and proposing a model for future success in community involvement in development and implementation of water management policy).

⁴⁵ See Generally Dan A. Tarlock & Lora A. Lucero, *Connecting Land, Water, and Growth*, 34 URB. LAW. 971, 971-980 (2002) (discussing the need for future water management policies that recognize that the limits of water resource usage have been reached and that future planning will require a comprehensive water use policy that includes a centralized planning and enforcement scheme, greater community input, informed decision-making, and constant monitoring with the goal of improving water resource allocation, land-use policy, and water conservation).