DELWP Issues Paper for the Improving Stormwater Management Advisory Committee

Responses to questions in the Issues Paper
by the

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WERG are a group of applied researchers (ecologists, hydrologists, chemists and geomorphologists) focused primarily on the protection and restoration of waterway ecosystems. As leading researchers in this field, WERG co-leaders, Tim Fletcher and Chris Walsh, have published seminal studies on urbanisation and stormwater impacts on stream ecosystems and are also international experts on catchment-scale interventions for the protection and restoration of waterway health. WERG has also worked closely with Melbourne Water on the application of spatially-explicit quantitative modelling and cost-effective action prioritisation to optimise the conservation and restoration of instream biodiversity in Melbourne Water's Healthy Waterways Strategy, and on strategies for the management of stream form and functioning in urban settings.

We appreciate the opportunity to provide written comments on questions raised in the DELWP Issues Paper for the Improving Stormwater Management Advisory Committee. We are very supportive of DELWP's focus on improving stormwater management to achieve better waterway health. We also strongly support DELWP's focus on targeting planning, development, design and construction policies and instruments as the most direct and immediate means of facilitating improved stormwater management.

Below, we provide our perspective and comments on selected questions in the Issues Paper and on additional material provided/raised at the stakeholder workshops [Chris Walsh attended the workshop on 26 June, Matt Burns and Geoff Vietz attended the workshop on 27 June, Yung En Chee attended the workshop on 2 July and Tim Fletcher attended the workshop on 3 July].

Section 2: Are there any other key issues or opportunities (directly related to the Committee's Terms of Reference) that the Committee should consider?

We appreciate the difficulty of the Committee's terms of reference in the absence of finalized, revised BPEM guidelines. The question of 'place-based' requirements should be addressed with primary concern for the receiving water to be protected (i.e catchment-based). The primary distinction should be between receiving water types (wetlands, streams, estuaries, coastal embayments or ocean), not perceived worth of individual receiving water. Such considerations are likely to be captured in the revised BPEM guidelines, but we urge the Committee not to assume that will be the case.

We strongly agree with the need to extend the requirement for stormwater management for environmental protection (as appropriate to the receiving water) to all classes/zones of urban development captured by the planning scheme.

We note that in addition to the lack of integration of flood and stormwater management in urban catchments, the degradation of the physical form of river channels and associated sedimentologic issues are rarely accounted for in stormwater management or controls. These issues represent escalating ongoing costs. The requirement to maintain the proxy 1.5 year ARI flow, if implemented, is unlikely to protect channels from degradation.

We urge the Committee to flag the legislative gap for developments that are not covered by the planning scheme (council roads, VicRoads, public schools and hospitals). We note such developments do need to adhere to the SEPP. Some policy instrument is clearly needed to guide them in doing so.

Section 2.1: What are your views on the conceptual planning control option?

The control option could be simplified greatly by focussing on the area of impervious surfaces being constructed as part of a development. Requirements could be triggered by any development increasing impervious area by more than 20 m^2 (or some other small number). The Little Stringybark Creek Environmental Significance Overlay (ESO, see bit.ly/2tNzKP6 and bit.ly/2KshPrI) is a good example of such a requirement. A planning tool or control incorporating such a requirement would negate the need for a complex set of exclusions as presented in the option.

Ideally a trigger of a requirement for a stormwater requirement for an extension to an existing development should also trigger a control for other parts of the development.

Section 2.2: What stormwater planning provisions, or other mechanisms, would help to deliver the broad benefits listed above?

"Erosion management" could be considered in a broader sense to cover geomorphic change to waterways (erosion, deposition and changes in sediment transport).

Section 2.3: Should stormwater standards vary spatially? If so, on what basis and at what scale?

Stormwater standards could vary spatially, but standard-setting for the catchment or area in question would need to have specific regard for the environmental context, the full suite of waterway values to be protected, and the standard required to protect them with an acceptable degree of confidence. For instance, targets for the protection of waterway physical form and function should consider place-based targets on stream sensitivity (not all streams respond in the same way to catchment changes). Hawley and Vietz (2016) outline an option for identifying channel specific degrading flows and how to link these to sub-catchment stormwater targets.

Section 2.6: Should offsets be used to improve stormwater management? If so, how should they be used?

There has been a good deal of theorisation and debate about the concept, principles, design and governance of offsets in the published literature (Bull *et al*. 2014, Chee 2015 and references therein) and it seems prudent to take heed of the lessons when considering whether and how offsets can be used to improve stormwater management.

Offsets should only be used as a genuine last resort

The notion of environmental offsets is controversial and one of the most potent objections is that offsets simply allow payment for a 'license to trash' (Fern 2013, Hrabanski 2015). Offset schemes and frameworks that regulate offsets address this objection by requiring adherence to the mitigation hierarchy that is, an obligation to first avoid, minimize, mitigate, and only finally, after exhausting those measures, offset the residual impacts that remain (e.g. BBOP 2012, DSEWPaC 2012). It is the adherence to a mitigation hierarchy that lends credibility and 'social license' to offset schemes.

In our recently published paper, 'Alternatives to biodiversity offsets for mitigating the effects of urbanization on stream ecosystems' (Coker *et al*. 2017), we argue that the highly connected nature of stream ecosystems and urban drainage networks can transfer impacts of urbanisation across wide areas, complicating the notion of like-for-like exchange and the prospect of effectively mitigating biodiversity loss. Instead, we identify in-catchment options for stormwater control, which can avoid or minimize the impacts of development on downstream ecosystems, while presenting additional public and private benefits (e.g. reduced flooding).

Offsets should only be used where there is a genuine downstream/offsite solution to protect the receiving water

First of all, a clear and explicit statement of the purpose(s) and objective(s) of offsets is essential. For instance, the Business Biodiversity Offsets Program (BBOP) defines biodiversity offsets as,

> "*measureable conservation outcomes* of actions designed to compensate for significant *residual* adverse biodiversity impacts arising from project development after *appropriate prevention and mitigation measures* have been taken. The goal of biodiversity offsets is to achieve *no net loss* and *preferably a net gain* of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity" (BBOP 2009, italics ours).

In contrast, the definition of a stormwater offset cited in the Issues Paper (p.5) lacks the necessary specificity with regards to purpose and objectives.

We cannot emphasise enough how crucial it is to be clear, transparent and specific about what the 'desired outcomes' of stormwater offsets are. We hold that it is *insufficient* for desired outcomes to be framed solely in terms of water quality parameters such as loads of nitrogen, phosphorus and sediments. Stormwater runoff adversely impacts waterway habitat, biota, and ecological functions and processes, and so these attributes should be the focus of desired outcomes of stormwater management or offsets.

Given that offsets are compensation for adverse impacts, the objective of any offsets scheme (e.g. no net loss or net gain) should be clearly stipulated. In our view, significant extents of waterways throughout the Greater Melbourne region have *already incurred* varying degrees of degradation, loss of species and ecosystem functions as a result of sprawling urbanisation and conventional approaches towards stormwater management. We therefore argue that the *minimum* acceptable objective for any stormwater offset scheme should be 'no net loss'. According to BBOP (2009), the most common objective is 'no net loss and preferably a net gain'.

In addition to requiring adherence to the mitigation hierarchy, early upfront identification of the limits of what can be offset is another vital feature of a credible offset scheme (see Chee 2015). In other words, where are the 'no-go zones' because the biota or ecosystems are irreplaceable or endangered or very high value. In Workshop 3, this was addressed in the questions posed to stakeholders about 'What rules and constraints should apply?' and 'When should you not be allowed to use an offsite mechanism?'

We agree that this is critical and should ideally be tackled with a strategic, systematic assessment of biodiversity value across the focal region. There are useful precedents for these types of strategic analyses. Two relevant examples of regional-scale strategic identification, assessment and prioritisation of biodiversity value in Victoria are:

i) DELWP's Strategic Biodiversity Score map, which depicts biodiversity importance across the state of Victoria based on modelled distributions of native vegetation species and communities and rare or threatened species (accessible via NatureKit);
ii) Melbourne Water's instream biodiversity priority rank map, which depicts instream biodiversity value across the MW region based on modelled habitat suitability of 52 macroinvertebrate families, 13 native fish species and platypus (WERG, unpublished data, see also Coleman *et al*. 2018)

These sorts of biodiversity modelling and prioritisation methods can and should be used in determining the limits of what can be offset.

To recap, offsets should only be used as a genuine last resort, and only where there is a genuine downstream/offsite solution that can effectively protect the receiving water. We anticipate however, that such circumstances are likely to be uncommon.

For instance, in Sunbury, the IWM plan is to harvest adequate water from downstream wetlands at the head of the escarpment, to protect Emu and Jacksons Creeks, and their tributaries. The very high performance of the entire IWM system in this case means that small-scale stormwater control treatments within the Sunbury development area will likely not be necessary. It must be noted that this example has not yet been implemented and is unprecedented in conventional practice. Such opportunities are highly unlikely in existing urban areas (due to space constraints and other factors).

Conclusion

Thank you for the opportunity to comment on this important initiative for improving stormwater management in Victoria. WERG would be pleased to engage in further discussion on any of the points in our submission, or to assist the Committee in any other way to support this work.

Yours sincerely,

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