



Government of **Western Australia**
Department of **Water**



Urban Nutrient Decision Outcomes

Tool

Urban Nutrient Decision Outcomes (UNDO) is a conceptual decision support tool that evaluates nutrient reduction decisions for urban developments on the sandy Swan Coastal Plain in south-west Western Australia. It is designed for ease-of-use by urban development proponents and for assessment by local and state government authorities.

The UNDO tool is web-based, and provides users with the ability to implement a range of structural or non-structural design options to evaluate and reduce nutrients exported from an urban development.



Securing Western Australia's water future



The UNDO tool brings together current best-practice nutrient management options for Western Australia. Its user-friendly web-based design can be used to evaluate and reduce nutrients exported from urban developments.

Why do we need this?

Stormwater run-off contributes to elevated nutrient loads in estuaries, wetlands and lakes on the Swan Coastal Plain. In many cases this has resulted in toxic algal blooms, fish deaths, deoxygenation, release of noxious gases and odours, and water bodies that are not suitable for swimming, boating and recreation. Millions of dollars are spent each year to treat the symptoms associated with elevated nutrients in our water bodies.

It is difficult to prevent the pollution of waterways by stormwater, as the runoff is comprised mostly from diffuse sources, and catchment-wide approaches are required for successful nutrient reduction. Such an approach involves implementing structural and non-structural best management practices that can reduce nutrient export from the catchment to water bodies. To assess the effectiveness of combinations of best management practices in an urban setting, a tool is required to bring all of this information together.

The UNDO tool was developed to assess the nutrient impacts of urban development on the Swan Coastal Plain in a consistent and scientifically rigorous manner. The tool provides certainty amongst land development proponents and assessment officers, expediency in approval processes, greater scientific understanding relating to nutrient issues, and efficiencies in investment to manage nutrients.

Design criteria

The urban development industry and state and local governments have recognised the need to prioritise the development of a tool that can:

- determine the nutrient impacts of an urban development in a consistent manner that is supported by local, national and international scientific literature
- allow land development proponents to enter data about their development and assess its nutrient impacts in a logical and easy-to-use system
- allow land development proponents to design and put forward various management practices that would reduce the nutrient impacts of the development (and adhere to targets if outlined for the development area)
- report and summarise the development design, the proposed nutrient management practices and the nutrient exports clearly and concisely
- allow assessment by state and local government agencies to streamline the approval process in a consistent and logical manner.



The UNDO tool brings together current best-practice nutrient management options in four easy to use modules



Input module

The land use type and landscaping design is entered in the input module to calculate the amount of nutrient applied to the development.



Export module

The export module determines the quantity of applied nutrients that are exported to the drainage system with runoff, based on hydrological, geotechnical and drainage design.



Treatment module

The treatment module allows users to implement structural treatments (including biofilters, swales and wetlands) or a treatment train approach to remove nutrients from runoff.



Reporting module

The reporting module summarises all of the information in the previous modules and automatically prepares a simple report ready for assessment by decision making authorities.



Principles of the UNDO tool

Based on the priorities of the urban development industry, state and local governments, the UNDO tool was designed specifically to meet four basic requirements:



Scientific rigour

The UNDO tool explicitly considers Western Australia's nutrient export processes and pathways. The science behind the tool is transparent, well documented and based on best available science and local data.



Ease of access and use

The UNDO tool is web-based, with a focus on intuitive design. It's user friendly interface and easy to access help files mean that there are minimal training requirements.



Ease of review

The automatically generated report has a simple format. Decision making authorities can easily review the nutrient exports, and compare them to guidelines or targets (if targets are outlined for the development area).



Revision/update capability

The UNDO tool is easily updated with new knowledge or technology as the data becomes available.

UNDO tool support

If you have any questions or feedback about the UNDO tool, please contact the team directly.

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[www.water.wa.gov.au/
planning-for-the-future/
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