

The NSW Environment Protection Authority (EPA) is seeking feedback on the future use of household waste and mixed waste organic outputs (MWOO), along with a proposed transition funding package to support the alternative waste treatment (AWT) industry to move to sustainable uses for household waste.

The EPA's overarching responsibility is to protect the community and our environment. It is committed to engaging with the waste and recycling sector to increase resource recovery rates and encourage innovative, sustainable solutions that help achieve this goal.

The EPA does not intend to grant any general exemptions or issue any related orders allowing MWOO to be used as a soil amendment

In October 2018 the EPA revoked the general and specific Resource Recovery Orders and Resource Recovery Exemptions for the application of MWOO to land due to risks associated with chemical and physical contaminants. It also introduced phase one of a transition package for the alternative waste treatment (AWT) operators to minimise the risk of disruption to kerbside collection services and ensure that any additional transport and landfill costs were not passed on to councils or ratepayers.

Since then the EPA has undertaken substantial further work and commissioned a range of additional research to consider if further controls could allow the material to be safely applied to mining and forestry plantation sites.

After reviewing previous and new assessments of human health and ecological risks of applying MWOO to land, and considering further controls, the EPA's position is that it does not intend to grant any general exemptions or issue any related orders allowing MWOO to be used as a soil amendment on agricultural, mining rehabilitation or forestry land.

It will, however, assess applications for new or alternate uses on a case-by-case basis.

The EPA reached its position following years of research

Analysis of multiple peer-reviewed scientific studies conducted over seven years found that MWOO contains physical and chemical contaminants that persist in the environment. It also found that any significant benefit derived from the application of the material as a soil amendment would require its application at a rate of 100t/ha, 10 times the previously permitted rates on agricultural land.



MWOO is no longer used on agricultural land in NSW

An assessment of the risks to human health of applying the material at a rate of 100t/ha, where land is subsequently used for grazing, showed risks from several substances. These included polybrominated diphenyl ethers (PBDEs) — generally used as a flame retardant in everyday household items and a persistent organic pollutant, and the chemical perfluoro octane sulfonate (PFOS). Both were higher than recommended by the United States EPA and Food Standards Australia and New Zealand, respectively.

This assessment also identified potential for unacceptable ecological risks to soil at 100t/ha from many chemicals including pesticides, herbicides, PBDEs, phthalates, and metals such as copper, cadmium, lead and mercury.

Mine sites that have applied MWOO will be required to demonstrate that sites are suitable for the intended final land use following the normal lease relinquishment process of the Resources Regulator, which will involve consultation with the EPA.

No technology available to reduce small physical or chemical contaminants

To reduce risks of applying MWOO to land as a soil amendment, the amount of physical and chemical contaminants would need to be reduced.

The EPA commissioned additional research to identify whether any technical options were available to reliably remove known physical and chemical contaminants, including persistent contaminants such as glass, plastic and PBDEs. This work included consultation with AWT operators as well as technology and equipment suppliers.

It found that there is no commercially available technology to remove small physical contaminants, including glass, metal and rigid plastics less than 2mm and flexible or film plastics less than 5mm. Similarly, there is no technology available to specifically target chemical contaminants, such as PBDEs, PFOS, phthalates and heavy metals.

Without available technological solutions, there is no evidence to suggest that operators could meet stricter controls requiring the removal of persistent physical and chemical contaminants from MWOO.

Therefore, the EPA does not intend to develop new resource recovery orders and exemptions to allow general land application of the material as a soil amendment.

Scientific research has informed the position

A major research program to assess the benefits and risks of applying the material to land was commissioned by the NSW Government to inform the EPA position.

A key component of the research program was a seven-year, independent research investigation conducted by the CSIRO, the Department of Primary Industries, the University of Sydney, the University of New England and the Office of Environment and Heritage. The research results have been peer-reviewed by local and international experts.

The EPA's position on MWOO has also been informed by human health and ecological risk assessments that were in turn informed by new research undertaken by an expert panel overseen by the Office of the Chief Scientist and Engineer.

Mixed waste organic outputs

- Mixed waste organic outputs (MWOO) is the end product of a practice which aims to separate the organic waste in household red-lid bins from other waste. It was previously allowed to be applied as a soil amendment under strict controls.
- In October 2018, the EPA stopped the use of this material on agricultural land and ceased its application on plantation forests and mining rehabilitation land, until further controls could be considered.
- The decision followed findings from extensive independent research, and an initial assessment of the health and environmental risks, which showed that the potential risks outweighed the limited benefits.
- Additional research has since been undertaken to investigate whether further controls on MWOO could allow its application in mining and forestry.

Phase two transition package for the alternative waste industry to transform disposal of household waste

A proposed transition package has been developed to help the AWT industry transition to sustainable resource recovery practices that will provide solutions for household waste for local government and the communities they serve while protecting the environment and human health.

This proposed transition package offers support to the AWT industry to develop alternatives to land application of MWOO. Applications for new resource recovery exemptions or environment protection licences can be submitted by the industry at any time.

The package will be refined through public consultation.

The proposed transition package includes funding for AWT operators to undertake research and development into alternative products and end markets for household general waste and to make required infrastructure changes to their facilities to produce these products. It also includes funding for AWT operators to introduce a processing line for

source separated food and/or garden organics (FOGO) collections.

As alternatives for improved organic waste recovery, more than 40 NSW councils are already providing source separated FOGO kerbside collections to households, or food-only collections in multi-unit dwellings.

The EPA is extending the funding being provided under phase one of the transition package by a further four months, until 28 February 2020. This will mitigate the risk of additional financial costs being passed on to councils (and ratepayers) in the short term while the industry moves to sustainable uses for household waste.

The EPA position is consistent with national and international best practice

The EPA's position is consistent with the NSW Government's energy from waste and circular economy policy statements and aligns with the Waste Less Recycle More initiative.

The EPA's position aligns with national and international best practice, with many other jurisdictions reaching the same conclusions on the application of MWOO to land. In Europe, the material is largely used to generate heat and energy as a refuse-derived fuel, or through anaerobic digestion. The European Union is mandating source separation of organics by 2023. By 1 January 2027 stabilised organic

outputs from AWT-type facilities will no longer count towards recycling targets.

Have your say

A period of public consultation has been opened to seek feedback on the position and on the design and operation of the proposed transition package.

Impacted stakeholders and other members of the community are encouraged to participate so that all views, advice and information can be considered.

A feedback form and fact sheets are available at: engage.environment.nsw.gov.au/consult.

Contacting the EPA

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Photo

Agricultural land/photo supplied/EPA

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Supporting documentation

Document	Purpose
Transition package consultation document	Outlines three proposed streams of funding under phase two to transition the alternative waste treatment industry to higher order resource recovery outcomes for household general waste. Includes feedback questions to guide the consultation process.
General MWOO fact sheet	General fact sheet on the EPA's position, support available and consultation.
Independent research fact sheet	Summary of findings from the six independent MWOO research projects and human health and ecological risk assessments.
EnriskS – HHERA for agriculture	Human health and ecological risk assessment for agriculture. Includes the Office of Chief Scientist and Engineer report.
EnriskS – HHERA for mines and forestry	Human health and ecological risk assessment for mines and forestry, looking at past and potential future application rates.
Jacobs – Process and Technology options for treatment of Municipal Solid Waste	Research on process and technology options commercially available to further remove physical and chemical contaminants from MWOO produced at AWT facilities in NSW.

Talis – Food Organics and Garden Organics (FOGO) and Energy from Waste in WA	Provides a snapshot of the status of mechanical biological treatment facilities in states other than NSW, primarily in Western Australia, including issues impacting the generation of MWOO.
Technical Advisory Committee - report to the EPA on AWT MWOO research program	Technical advisory committee report to the EPA on the findings of the AWT research program and recommendations regarding the land application of organics produced from mixed household waste.
Various authors - research reports for each of the six projects under the 2011-2017 AWT Research Program	<p>Individual scientific reports for each of the six independent research projects undertaken under the multi-year AWT research program funded by the Environmental Trust.</p> <p>1a - Spatial distribution of physical contaminants in a topsoil after mixed waste organic output application</p> <p>1b - Can physical contaminants (glass) in mixed waste organic outputs adversely affect the soil habitat?</p> <p>1c - Microplastics in mixed waste organic outputs: Soil chemical fate and ecotoxicology assessment</p> <p>2 - A field evaluation of composted mixed waste organic output (MWOO) tables for use as a soil amendment</p> <p>3 - Assessing the toxicity of mixed waste organic output leachates</p> <p>4 - Effects of mixed waste organic outputs on NSW soils.</p>
WCA - Review of scientific literature on compost produced from FOGO waste	Scientific review of literature and other information from across the globe on the compost derived from source separated food organic and garden organic (FOGO) waste.