



## JOINT MEDITERRANEAN EUWI/WFD PROCESS



## Mediterranean Wastewater Reuse Report

### Annex A : Glossary

*Produced by the*  
**MEDITERRANEAN WASTEWATER REUSE WORKING GROUP  
(MED WWR WG)**

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<http://www.emwis.net/topics/wastewater>

**ANNEX A GLOSSARY**

*The clarification notes in the table below are in italics. Recommended terms for treated wastewater reuse are shown in **bold font**.*

Name	EU Definition	WHO definition	Other definition
Appropriate treatment	<p>UWWTD Art 2(9) treatment of urban wastewater by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of this and other Community Directives.</p> <p>The term "appropriate" means that reusing treated wastewater is possible as far as it is not forbidden or restricted by any other EU legislations, does not compromise the implementation of international commitments or does not affect the achievement of the objectives set up in other EU laws. In addition, flexibility is left to the appreciation of Member States on a case by case basis.</p> <p>UWWTD Art2 (9): is to be applied under Article 7 , i.e. for agglomerations of less than 2000 p.e discharging in freshwaters and estuaries and agglomerations of less than 10000 p.e. discharging in coastal waters when these agglomerations are equipped with collecting systems.</p>		
Fertilizer, land application	<p>Definitions in NO3 directive (Article 2) :</p> <p>e- fertilizer</p> <p>h-land application</p>		
Aquifer or groundwater recharge (Australian National guidelines)			<p>Replenishment of groundwater naturally by precipitation or runoff, or artificially by spreading or injection. An aquifer is a geological area that produces a quantity of water from permeable rock. Groundwater recharge is the infiltration or injection of natural or reclaimed waters into an aquifer, providing replenishment of the groundwater resource or preventing seawater intrusion. Aquifer storage and recovery is the storage of water in a suitable aquifer though a well during times when the water is available and recovery of the water from the same well during times when it is needed.</p>
Blackwater		<p>Source-separated treated wastewater from toilets, containing faeces, urine and flushing water</p>	
Critical limit (Australian National Guidelines)			<p>A prescribed tolerance that must be met to ensure that a critical control point effectively controls a potential health hazard; a criterion that separates acceptability with unacceptability</p>

Name	EU Definition	WHO definition	Other definition
De facto reuse			The unplanned or incidental reuse of treated wastewater discharged into a surface body which after dilution is abstracted downstream for beneficial reuse or treatment to potable quality
Direct reuse			The beneficial use of appropriate treated wastewater without interim storage in a surface water body or aquifer. The conversion of wastewater directly into recycled water, irrigation water, process water or cooling water without any interim storage
Direct potable reuse (Australian national guidelines)			The introduction of highly treated reclaimed water either directly into the potable water supply distribution system downstream of a water treatment plant, or into the raw water supply immediately upstream of a water treatment plant <i>Only justifiable when there is no choice such as in Windhoek Namibia or outer space</i>
Disinfection		The process designed to kill most micro-organisms in water, including essentially all pathogenic (disease causing) bacteria. Chlorine is the disinfection method most frequently used in water treatment.  The inactivation of pathogenic organisms using chemicals, radiation, heat or physical separation processes (e.g. membranes)	The partial destruction and inactivation of disease-causing organism from exposure to chemical agents (e.g. chlorine) or physical agents (e.g. UV radiation).
Effluent		Liquid (e.g. treated or untreated wastewater )that flows out of a process or confined space	
Environmental buffer			An environmental buffer may consist of a stretch of river, a water supply reservoir or a soil aquifer system to which recycled water is added. The need for an environmental buffer is an important component of risk management.
Environmental enhancement			The restoration or creation of wetlands, water parks etc that enhance the local environment
Greywater (Australia National Guidelines)		Water from the kitchen, bath and or laundry, which generally does not contain significant concentrations of excreta.	Wastewater from household laundries, bathrooms and kitchens that generally does not contain significant quantities of excreta (but does contain significant concentrations of non-faecal bacteria of potential health hazard that live on our skin and mucoses, such as Pseudomonas, Chlamydia, Staphylococcus, etc with a health risks similar to faecal water)

Name	EU Definition	WHO definition	Other definition
Groundwater			Water contained in rocks and subsoils. The subsurface water that occurs beneath the water table in soils and geological formations that are fully saturated and supplies springs and wells
Guideline value			The concentration or measure of a water quality characteristic that, based on present knowledge, either does not result in any significant risk to health of the consumer ( <i>or users</i> ) (health-related guideline value), or is associated with good quality water (aesthetic guideline value)
Hazard analysis critical control point (HACCP) system (Australian National Guidelines)		A systematic way to control safety hazards in a process, by first identifying hazards, their severity and likelihood of occurrence; then identifying critical control points and their monitoring criteria to establish controls that will reduce, prevent, or eliminate the identified hazards.	A systematic methodology to control safety hazards in a process by applying a two part technique: first an analysis that identifies hazards and their severity and likelihood of occurrence; and second, identification of critical control points and their monitoring criteria to establish controls that will reduce, prevent, or eliminate the identified hazard.
Indirect reuse			<p>The beneficial use of appropriate treated wastewater with interim storage in a surface water body or aquifer</p> <p>The use of reclaimed water for irrigation or other non potable applications after a period of storage in surface or a groundwater body.</p>
Indirect potable reuse UKWIR, Australian National Guidelines			<p>The use of reclaimed water for potable supplies after a period of storage in surface or a groundwater. The discharge of recycled water directly into groundwater or surface water with the intent of augmenting drinking water supplies (resulting in mixing and assimilation, thus providing an environmental buffer). <i>In the EU the recharge of surface water bodies with treated wastewater to enhance the resource available for the environment and further abstraction is covered by the Urban wastewater Treatment Directive. The subsequent abstraction of surface and ground water for treatment and potable production is covered by the Drinking Water Directive.</i></p>
Irrigation water (EUREAU definition)			The appropriate quality of water for the irrigation application and risk that, based on present knowledge, either does not result in any significant risk to health of the user or consumer (health-related guideline value), or is associated with good quality water (aesthetic guideline value). Alternative source waters being reclaimed, surface or groundwater. ( <i>Similar definitions apply for industrial process or cooling water, washwater, fire</i>

Name	EU Definition	WHO definition	Other definition
			<i>fighting water, etc)</i>
Multiple barriers		Use if more than one preventive measure as a barrier against hazards	
Non potable water (Water recycling in Australia 2004)			Water which does not meet drinking water standards but which may be safe for other specifically defined applications
Non-potable reuse <sup>10</sup>		Non-potable reuse <sup>10</sup>	The use of reclaimed water for other than drinking water, for example, irrigation.
Nutrients <sup>12</sup>			Reclaimed water contains nutrients beneficial for crops (nitrogen, phosphorous and potassium)
Onsite treatment		Onsite sanitation	The treatment at source such as on an industrial site as apposed exporting the wastewater for treatment offsite
Compliance/control point	Point of compliance		Critical control point <sup>11</sup>  Ref EU Drinking water directive and Ground water Directive A point, step or procedure at which control can be applied and that is essential for preventing or eliminating a hazard or reducing it to a reasonable level
Potable substitution <sup>14</sup>			Potable substitution <sup>14</sup> A replacement for uses where drinking water is currently used. A substitute for many traditional uses of drinking water ( <i>where potable quality is not required, i.e., street washing, garden irrigation</i> ) and water from sources that provides raw water for drinking water production that are needed to maintain the ecology.
Primary treatment	UWWTD Art 2(7)	Initial wastewater treatment process used to remove organic and inorganic solids by sedimentation and floating substances (scum) by skimming. Examples of primary treatment include primary sedimentation, chemical enhanced primary sedimentation and up flow anaerobic sludge blanket reactors.	The first stage of wastewater treatment which may consist of screening, grit removal and settlement.
Raw water		Water in its natural state before any treatment or the water entering the first treatment process of a water treatment plant	
Reclaimed water (Metcalf & Eddy 2007)		Wastewater reclamation – the treatment or processing of wastewater to make it reusable (Risks of aquifer recharge with reclaimed water 2003)	Municipal wastewater that has been treated to a specific water quality criteria so it can be beneficially reused. This is normally a higher quality than secondary treatment. The US 1995 Substitute Senate Bill 5605 “Reclaimed Water Act” states that reclaimed water is no longer considered wastewater. (EPA 2004)

Name	EU Definition	WHO definition	Other definition
Recycled water (Australian national guidelines)			Water generated from sewage, greywater or stormwater systems and treated to a standard that is appropriate for its intended use. (In industry recycled water can relate to cooling water recycling where there is minimum treatment)
Restricted irrigation		Use of wastewater to grow crops that are not eaten raw by humans	<p>Restricted irrigation (according to JS 893/2006) is the irrigation of all crops except salad crops and vegetables that may be eaten uncooked (including tomato, cucumber, Egyptian cucumber, pepper, cauliflower, onion, carrot, radish, lettuce, parsley, mint, watercress, herb, strawberry, water melon, melon, sugarcane, and others).</p> <p>General definition: Restricted irrigation also can be defined as: use of low quality effluents in limited areas and for specific crops only; restrictions are imposed based on the type of soil, the proximity of the irrigated area to potable aquifer, irrigation method, crop harvesting technique, and fertilizer application rate; simple and low cost, in general only applicable to small amount of treated wastewater, used in specific locations, where areas and crops are well defined and unlikely to change; impose crop limitation must be enforced and controlled; farmers must be trained to handle the low quality effluent.</p> <p>Use of water for irrigation applications with use restrictions with respect to access to the irrigation area, use of the irrigated products or irrigation techniques.</p>
Secondary treatment	UWWTD Art 2(8)	Wastewater treatment step that follows primary treatment. Involves the removal of biodegradable dissolved and colloidal organic matter using high-rate, engineered aerobic biological treatment processes. Examples of secondary treatment include activated sludge, trickling filters, aerated lagoons and oxidation ditches	The application of a biological treatment process, either activated sludge, trickling film (fixed film bioreactor), or waste stabilisation ponds to primary treated wastewater.
Sewage		Mixture of human excreta and water used to flush the excreta from the toilet and through the pipes; may also contain water used for domestic purposes.	
Sewerage		A complete system of piping, pumps, basins, tanks, unit processes and infrastructure for the collection, transporting, treating and discharging of wastewater.	

Name	EU Definition	WHO definition	Other definition
Sewer mining (Australian national Guidelines)			Process of extracting treated wastewater directly from a sewer (before a sewage treatment plant) for treatment to an appropriate standard for reuse.
Source water		Water in its natural state <i>(but that may have received treated wastewater discharges upstream)</i> , before any treatment to make it suitable for drinking	
Tertiary treatment - more stringent treatment (Australian National Guidelines)	(Art 5 of UWWTD requires more stringent treatment than secondary treatment in sensitive areas)		Advanced wastewater treatment beyond secondary level to produce water that is safe for the subsequent uses. In most cases it will consist in an intense disinfection and some pre-treatments may be needed to remove SS and turbidity in order to make disinfection efficient.
<b>Treated wastewater</b>			Primary treated wastewater, secondary treated wastewater or tertiary treated wastewater or to a higher standard.
<b>Treated wastewater reuse</b>		<b>Treated wastewater (or water) reuse: the beneficial use of treated water</b>	Beneficial use of an appropriate quality of water. <i>Reuse is the term used in the EU regulations, such as UWWTD, IPPC and Water Scarcity working group- Water scarcity management in the context of WFD, to describe the beneficial use of appropriately treated wastewater. In industry recycled water can refer to cooling water being recycled in a cooling tower with minimum treatment. The Australians and Californians have selected recycled water to describe water of appropriate quality for beneficial reuse as this supports the public experience of recycling paper and glass etc. Texas and Florida prefer reuse with reclaimed water. USEPA refers to environmental and recreational, indirect potable, direct potable, urban, industrial or agricultural reuse with reclaimed water.</i>
Unrestricted irrigation <sup>14</sup>		The use of treated wastewater to grow crops that are normally eaten raw	
Urban landscape irrigation			The irrigation of parks, road margins sports facilities etc
<b>Urban wastewater</b>	Art 2(1) of UWWTD: domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or run-off rain water		

Name	EU Definition	WHO definition	Other definition
<b>Wastewater</b>	<b>Waste water</b>	Liquid waste discharged from homes, commercial premises and similar sources to individual disposal systems or to municipal sewer pipes, and which contains mainly human excreta and used water. When produced mainly by household and commercial activities, it is called domestic or municipal wastewater or domestic sewage. In this context, domestic sewage does not contain industrial effluents at levels that could pose threats to the functioning of the sewerage system, treatment plant, public health or the environment	Wastewater that has not received any treatment = raw wastewater or Liquid waste derived from communities and industry.
Wastewater or used water treatment		Wastewater or used water treatment	Wastewater treatment is the treatment applied to wastewater so it can comply with the Urban Directive and be discharged in surface water bodies. The process produces secondary) effluent or biologically treated wastewater.  The process that produces reclaimed water is the reclamation treatment and it starts with a secondary effluent.
Water use (WFD)	Water use (WFD)		- WFD Water use: means water services together with any other activity identified under Article 5 and Annex II having a significant impact on the status of water.
Water portfolio management  (Securing Australia's Urban Water Supplies, Opportunities and Impediments. Marsden Jacob Associates ABN 66 663 324 657 November 2006)			The Australian and Chinese Governments have been promoting Integrated Water Cycle Management which recognises that water also recycles locally rather than just flowing down the river to the sea. Best water management practice now emphasises a diversity of water sources in a portfolio selected not simply on least cost and timing, but also on the reduction in the covariance between sources. This is the concept of managing multiple water resources. Each resource has different availabilities, quantities, qualities and locations and can be tailored for different applications ranging from ecological management, cooling water, irrigation or potable production.
<b>Water recycling</b> (Australian National Guidelines)			A generic term for treated wastewater reclamation and reuse. It can also be used to describe a specific type of "reuse" where water is recycled and used again for the same purpose (e.g. recirculating systems for washing or cooling), with or without treatment in between.

