

# Bottleneck in the adoption of bio-purification systems in Italy

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Dr. Maura Calliera  
Università Cattolica del Sacro Cuore  
OPERA Research Centre and  
OPERA Educational & Training



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del Sacro Cuore

# Background

An analysis of the national legislation has been started in order to understand how bio-purification systems are addressed at the national level, the problems related to their implementation, the limits that restrict their application

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For this purpose it has been considered:

Directive 2000/60/EC received into Italian law by means of Legislative Decree No 152 of 3 April 2006 focusing our attention especially on the analysis of the items:

- sustainability,
- prevention,
- definition of waste.

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National Action Plan for the sustainable use of plant protection products, article 6 of Legislative Decree No 150 of 14 August 2012, implementing Directive 2009/128/EC. In detail:

- annex VI.4 - Recovery or reuse of any leftover spray solution from the sprayer at the end of application and
  - annex VI.5 - Sprayer cleaning at the end of the application
- + other relevant legislation at Eu and national level

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# Others experiences

FP7 EU project BROWSE (PPPS exposure of operators, workers, residents and bystanders)

<https://secure.fera.defra.gov.uk/browse/index.cfm>

FP7 EU project HEROIC (Integrating Human & Environmental risk assessment)

<http://www.heroic-fp7.eu>

National projects/collaboration with regional phytosanitary services aimed to produce guidelines for sustainable use of pesticides

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About

Sustainability:

Background- Every action perturb the system

Needs for an holistic view of public health and wellbeing and their relationship to ecosystems, economies, and societies, the 3 pillars of sustainability

and

scientific tools able to measure the impacts of different scenarios in order to understand the future possible sustainable drivers and fields of intervention

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# A “shift” is needed

## Scientific paradigm

*“conclusions, values, methods shared by a scientific community and used as a base for defining problems and acceptable solutions” (Kuhn, 1962)*



## Social paradigm

*“concepts, values, **perceptions and behaviours** shared by a communities and used as a base for developing a common vision of reality and to define the organisation patterns of the community” (Capra, 1996)*

From: V. Castellani, S. Sala EPOS Conference, Brussels 15th-16th June 2009

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# Balance different sustainability goals



The complex environmental and economical balance is complicated by **behaviours, human perception, and ethical consideration**

Influencing elements are manifold: values, convictions, gender, experiences and factual knowledge

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# And for bio purification systems?

Be equipped with sprayer equipment conforms to legal and minimum technical requirements is not sufficient to mitigate the risk of point source pollution.

Where possible, in order to effectively prevent the point source pollution, good practices **technically viable and controllable** are preferable to those that rely on good practices that require compliance with behavioural rules.

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Starting with the assumption that

*the fractions of phytoiatric mixture to be disposed are those that can not be avoided to be produced*

all the practices leading to the reduction of the concentration of active ingredient in a controlled manner and to limit the volume are to be considered as good practices or **good management techniques to prevent contamination.**

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# Definition of waste

## Background

The Article 183 (LgD 152/2006) defines:

- waste: any substance or object which the holder discards or intends or is required to discard;
- hazardous waste : which displays one or more hazardous characteristics listed in Annex III.

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As regards the "Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing " we find the codes:

02 01 08 \* agrochemical waste containing dangerous substances (marked with asterisks and then classified as hazardous waste) and,

02 01 09 agrochemical waste other than those mentioned in 02 01 08.

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According to Article 184 paragraph 5-ter the reclassification of hazardous waste to non-hazardous waste can not be achieved by diluting or mixing the waste that results in lowering the initial concentrations of hazardous substances.

So it is not permissible to make a dilution of hazardous waste to reclassify it as not dangerous.



For the national legislation **diluted phytoiatric mixtures** that are not redistributed and reused are defined as **hazardous waste** because the dilution is carried out "a posteriori"

The residual phytoiatric mixture has to be considered as a substance or object which the holder is required to discard.

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However.....

good practice either provided in the National Action Plan then in the guidelines analysed, indicate that the appropriately diluted phytoiatric mixtures could be re-distributed in the field.

This could be interpreted as that "*re-use*" is permitted by law which, according to Article 183 paragraph 1.r is defined as "any operation by which products or components that *are not waste* are used for the same purposes' for which they were conceived"

accordingly the diluted phytoiatric mixtures are not to be considered waste (?)

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# And.....

Article 181 bis states that do not fall within definition in Article 183,(definition of waste) [...] the materials, substances and secondary products

- produced by a re-use, recycling or recovery of waste;
- of which the source, the type and characteristics of the waste from which it can produce, are identified;
- the re-use, recycling or recovery that produce them are identified.

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The definition of waste is therefore strongly linked to the subjective concept of the term "discard" and evaluation of the circumstances.

It is our opinion that the definition of diluted phytoiatric mixtures and its classification in hazardous or non-hazardous waste should be questioned and better assessed.

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# Prevention-background

The waste hierarchy (Article 3 of the Waste Framework Directive) ranks waste management options in terms of their environmental impact.

**Waste prevention** is “the first tenet of the hierarchy and represents the most efficient and sustainable use of resources”.



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Examples List of Measures that can affect the framework conditions related to the generation of waste of the European Commission web-site on **waste prevention**

(<http://ec.europa.eu/environment/waste/prevention/examples.htm> update 09.06.2016).

The promotion of research and development into the subject of achieving cleaner and less wasteful products and technologies, and the dissemination and use of the results of such research and development

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Prevention is defined as "measures taken before a substance, material or product becomes waste that reduce:

- the amount of waste also through the *re-use* of products or the extension of their life cycle;
- the adverse impacts of waste on the environment and human health;
- the content of harmful substances in materials and products"

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Bio purification systems would result in a very special form of "storage" that precedes any stage of the waste management (collection, transport, disposal or recovery).

Therefore.....

placing diluted phytoiatric mixtures in a system **intended as a technique used to prevent or reduce emissions and the impact on the environment** (such as bio purification systems) should fall outside the "concept of temporary storage" but rather, should be regarded as a good technical/structural practice in compliance with the **preventive phase** as planned by the priority criteria hierarchy and according to the principles of sustainability.

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The "bio-purification systems" can be seen:

- as "valid recovery technique " as required by Article 5, paragraph 1, lett. l-ter of Decree 152/2006 that is techniques [..] designed to prevent and, where this is not practicable, generally to reduce emissions and the impact on the global environment,
- as "self-disposal systems"
- as “best environmental option” in terms of the waste management hierarchy as described in the first articles in Part Four of It Decree 152, as it fully respects the priority criteria in particular the first criterion relating to prevention.

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THANKS FOR THE ATTENTION

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