

Pitfalls and challenges

Some of the challenges to managing public land organically are similar to those of managing agricultural land organically: higher labor and investment (machinery) costs to manage weeds, different competence needed from gardeners to manage plant pests and diseases. To keep within the same budget, an increased presence of weeds may be tolerated, but this can also pose other problems than purely esthetical problems. For example the emergence of small lumps in the road surface (e.g. asphalt, gravel, sand) can cause some road safety issues.

Many towns that have gone pesticide-free have realized that it is difficult to keep a zero-weed policy on pavements, roads and coatings with organic methods (flame weeders, brushes, steam) because it is expensive to do it on a very regular basis. Therefore, efforts should also be done on a communication level, to explain to citizens the health benefits of the new approach and for them to accept visual changes such as more weeds in the street, or a lawn with more plant diversity.

Sufficient investments should be made on capacity building (professional development) of public gardeners and land managers, on new machines and equipment for weeding, and on investigation/planning to find plants that require less maintenance with organic methods. Often, budgets need to stay within the same limit, so those investments need to be compensated by budget savings in other areas such as using less water (accepting drier lawns in summer), changing to less costly annual flowers or to perennial ones, etc.

m. Prohibition of agro-chemical use in sensitive areas

Political justification

Incentives and support for organic agriculture, as those covered in earlier sections, can facilitate conversion and produce environmental benefits across a wide territory. However, this may not be enough to achieve certain environmental objectives in particularly sensitive natural areas, such as water catchment areas or national parks where public interest would require all farmers in the area to transition to organic practices. In such cases, it can be appropriate for national or local government to impose legal restrictions on the use of chemicals in agriculture, or to require that farmers farm organically.

In water catchment areas, a local decree creating protection zones where the use of inorganic fertilizers and agrochemicals is prohibited or where conversion to organic agriculture is compulsory may be the most effective way to ensure drinking water quality. As shown by various case studies¹⁰², a compulsory conversion to organic

¹⁰² E.g. Grolleau, G., & Mccann, L. M. J. (2012), *Designing watershed programs to pay farmers for water quality services : Case studies of Munich and New York City*; Jäger A. et al (2004), *Modellgestützte Analyse des ökologischen Landbaus als Instrument des Wasserschutzes*; Pedersen N. et al (2016), *Legacy pesticide contamination in Aarhus – groundwater protection and management*.

practices associated with corresponding financial compensations for farmers can be more cost-efficient than complicated water treatments to depollute water contaminated by conventional agriculture.

In national parks and other high conservation value areas, whenever agriculture is practiced, prohibiting the use of agrochemicals is a way to protect biodiversity - the core value of such areas. Compulsory organic management in such areas can also be a way to support diverse and attractive farming landscapes, integrated in the surrounding natural environment.

Besides naturally sensitive areas, certain zones can also be considered sensitive from a social impact point of view. For examples, urban areas, or areas in the immediate surrounding of schools, nurseries and hospitals, may be considered sensitive for public health reasons. Prohibition of certain or all agrochemicals in such areas can be decided upon by local or national governments to protect their population's health.

Suitable contexts

Prohibiting agrochemical use or imposing conversion to organic agriculture in sensitive areas is a measure that is suitable to all contexts (all stages of development of the organic sector, all regulatory contexts, and all government cultures). Even if the national government has a culture of low intervention level in the agricultural sector, it is often possible for local governments such as municipalities to pass such a directive. At the national level, the measure may also be taken outside of the scope of agriculture policies, e.g. in environmental legislation related to protected areas.

This type of measure is most relevant to the political objective of increasing societal benefits (primarily in terms of environment and health). It will not be relevant to the objectives of earning foreign currencies, and may not bring a major contribution to the objectives of increasing self-sufficiency in organic production or access to healthy food for domestic consumers, unless the areas concerned are vast.

Possible modalities of implementation

The most common level of banning agro-chemical in sensitive areas is in municipalities, especially in contexts where they are responsible for drinking water. Such bans can be decided in the form of municipal decrees and similar instruments.

It is also possible to impose bans in specific categories of sensitive areas through national laws, for example through national legislation on nature-protected areas.

National legislation can also provide a framework that will provide municipalities with the mandate to implement such measures at their levels. For example, a national law can give municipalities the authority to implement the necessary restrictions to achieve drinking water quality, or to protect pupils' health in schools, according to principles defined at the national level.

Country examples

In **Denmark**, the Municipalities of Aarhus, Aalborg and Egedal have decided to ban the use of pesticides on both publicly owned and privately owned land in order to protect drinking water. See more details about the city of Aarhus in the Best Practice Example box.

In the **Czech Republic**, the Nature Protection law 114 of 1992 prohibits the use of agrochemicals in agriculture in protected areas and nature parks. Around 9% of agricultural land in the Czech Republic is included in protected areas under this law, which is a significant proportion. Derogations can be granted only in very special cases (such as herbicide application for invasive species elimination) and need to be granted by the nature protection authority. Farmers in those areas usually receive subsidies to compensate for the restrictions imposed on them.

The region of Brussels-Capital in **Belgium** banned the use of glyphosate in its entire territory. This applies to both publicly and privately managed lands, including farmland.

In **Germany**, the city of Leipzig has been supporting organic agriculture since 1992 as a mean to improve water quality. The city has made organic agriculture compulsory in the area critical for water protection (next to the river). To accompany the obligation to convert to organic in the critical area, the city established a compensation scheme for farmers.

The Island of Cicia in **Fiji** banned the importation of inorganic fertilizers and agricultural chemicals in 2006 as a prelude to the conversion of the entire island to organic agriculture, which was achieved in 2013. The decision was taken by the Cicia Island Tikina Council, a council composed of local Chiefs with the support of government agencies.

In **Armenia**, environmental legislation on protected areas allows organic agriculture as the only form of agriculture allowed as an economic activity within the national park territories of the country.

Best practice example(s)

Best Practice example: compulsory conversion to pesticide-free agriculture in the Municipality of Aarhus in Denmark¹⁰³

With a total of 300,000 inhabitants, the Municipality of Aarhus is the second largest in Denmark. For decades, Aarhus has worked to protect groundwater from pesticide and nutrient contamination. This was undertaken through a long-term, holistic effort involving water service providers, management agencies and stakeholders. After achieving only partial results through voluntary programs, Aarhus resorted to implementing and enforcing pesticide bans, which is proving more effective in changing landowners' behaviors towards pesticide-free agriculture and land management.

¹⁰³ Vogwill R., 2016, *Solving the Groundwater Challenges of the 21st Century*.

The policy framework originated from Denmark's investments in detailed hydrogeological mapping and groundwater contamination monitoring starting in the 80s and 90s. The results showed that in many parts of the country the groundwater was contaminated by pesticides above permissible levels. As a result, in 1994 the Danish Government introduced a 10-point plan for future protection of groundwater, implemented in a new groundwater protection act adopted by the Danish Parliament in 1998. Through this Act, the municipalities were given the authority to implement the necessary restrictions to achieve drinking water quality, including the possibility to impose mandatory restrictions on the use of pesticides. It also specified that any loss suffered by landowners (e.g. farmers) due to either voluntary or mandatory restrictions should be compensated in full by the water service providers.

Consistent with the rest of Denmark, the production of drinking water in Aarhus is based exclusively on groundwater treated through aeration and filtering. Contamination monitoring carried out in Aarhus in the 1990s had shown that approximately one third of its abstraction wells were contaminated with pesticides. In 1997, the City Council decided to stop using pesticides on areas owned by the municipality located within high priority areas for water usage. This includes roads, some municipal property and farmland that the municipality leases with agreements stipulating that no pesticides may be used on the land. It also became obvious that the municipality should find a way to encourage farmers to shift to pesticide-free agriculture in order to restore and preserve the quality of the water reservoirs in the area.

In 1998 the municipality started a program based on voluntary agreements where farmers committed to undertake pesticide-free agriculture. In accordance with the national legislation, farmers were to be compensated by the water service providers. The water service providers organized voluntary agreements that compensated farmers for production losses due to the implementation of the new system. To increase the initially low rate of conversion, the water service providers also started to offer advisory service for farmers willing to convert to organic agriculture. Farmers were offered either perpetual agreements or agreements with a 5, 10 or 20 year validity period, which can subsequently be mutually extended. This program continued until 2013.

Groundwater protection through conversion of farmers to pesticide-free production has been analyzed as the most cost-effective way to achieve uncontaminated drinking water without any form of water treatment. The cost of groundwater protection represents less than 5% of the total cost of production of drinking water. This is what has motivated 24 of the 25 municipal water service companies in Aarhus to join forces to secure funding for the farmer conversion compensation program. However the uptake of voluntary agreements was relatively low: after 13 years of efforts, only one-sixth (1000 ha) of the target area had been protected.

Due to the limited uptake of voluntary agreements, in 2013 the municipality moved to a scheme that includes binding requirements. Water providers have two to five years to attempt to establish voluntary agreements. Subsequently the municipality imposes binding requirements on landowners and farmers that did not join the voluntary agreement in the form of injunction to start organic agriculture. This had a positive effect, and by the beginning of 2015 a total of one-third of landowners had agreed to enter into the voluntary agreement. In 2016 the Municipality Council began issuing injunctions to landowners who had not joined the agreement.

Pitfall and challenges

As such a measure is regulatory rather than simply incentivizing, a typical challenge is the resistance to it amongst the farming community. This can become a source of important conflicts and divisions at the community level. When such measures are discussed on a higher level such as regional, national or supra-national level, there can also be a strong political lobby from the agribusiness sector against the measure.

Such decisions have more chances of acceptance if they are embedded in long-term policy efforts and in-depth monitoring activities to address specific objectives with clear targets, e.g. in terms of pesticide residues levels in water bodies. Hence the prohibition of chemical use does not appear as a sudden or arbitrary measure, but as an essential step in the progress towards politically legitimate objectives and targets. Experience also shows that prohibition alone is often not sufficient. It needs to be accompanied by measures to support farmers in transitioning to organic (e.g. compensation and technical advice) and preferably also access the premium organic markets (e.g. support for certification or PGS development).

3. “Pull” measures

a. Consumer education and promotion campaigns

Political justification

Increasing household consumption of organic products is one of the main “pull” measures to increase demand for organic products. The main bottlenecks to increase household purchase of organic products are: 1) product availability in various market channels, 2) consumer awareness of organic benefits, and 3) product attractiveness including quality and price.

Consumer education campaigns are an important mechanism in increasing consumer awareness about organic products across the board. Especially in emerging sectors, the organic industry itself does not have sufficient resources (and is often not sufficiently linked) to fund mass public education campaigns, which can be very costly. Also, since this is a matter of education and public health, as well as environmental public goods, there is political rationale for the government to put public funds into such campaign.

In a market economy, incomplete information on the side of the buyer is a main reason for what is called “market failure”. Without all consumers understanding the benefits behind the organic label, the organic market operates at a sub-optimum level. This may justify government intervention on the level of consumer education.

An experiment from the Netherlands implemented in 2006, whereby certain municipalities subsidized selected organic products to reduce their sales price to a