

# **SDI Development and Law-based Special Recordings: The Case of Soil Pollution Sites in the Netherlands**

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**Key words:** SDI-development, data sharing, legal status of data, cadastre, legislation

## **SUMMARY**

In the development of SDI's we can consider the desirability (or even need) of a legal base for the spatial data infrastructure. However, this paper will look at it from the other side. We will look at the situation that existing legislation is prescribing that a certain (subset of) information on a particular policy field has to be recorded in some way. The question then becomes whether this legislation is actually hampering attempts to integrate this policy field into wider geo-information arrangements and ultimately the NSDI.

Attempts to improve the access to information on soil pollution sites in the Netherlands is used as an example. A report from the early 1990s that advised to geometrically index as much documents containing information on the soil quality as possible was largely ignored. Legislation was introduced that mandated that decisions by the provincial government with regard to 'serious cases' of pollution had to be recorded in the cadastral registration. No provisions for further integration of or access to information on soil quality was taken for years, and different provinces and municipalities took very different approaches in how they dealt with such information, the way it was geometrically indexed and how easy it was for citizens to request the information to be released.

Just after the turn of the century a SDI-like initiative was launched to coordinate at least between the provinces (and the larger municipalities). The responsible Ministry also undertook a review of the cadastral recording. However, it turned out that it was very hard to come up with an optimal solution where the data only needs to be entered once and all parties share the data in the context of a SDI.

Especially the fact that a small part does have a legal mandate became a stumbling block for an integrated approach to the whole information chain related to soil pollution sites.

It is postulated that this will hold in general. The development of a SDI is negatively impacted when only a few data sets have a legal base. Contrary to this it is assumed that the development of a SDI is positively influenced by the existence of generic legislation and policy on e.g. copyright, privacy and pricing, since such a legal framework will contribute to a level playing field for the involved institutions.

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## **1. INTRODUCTION**

In the development of SDI's we can consider the desirability (or even need) of a legal base for the spatial data infrastructure. However, this paper will look at it from the other side. We will look at the situation that existing legislation is prescribing that a certain (subset of) information on a particular policy field has to be recorded in some way. The question then becomes whether this legislation is actually hampering attempts to integrate this policy field into wider geo-information arrangements and ultimately the NSDI.

Attempts to improve the access to information on soil pollution sites in the Netherlands is used as an example. Paragraph 2 starts with a historic overview of the soil pollution issue. Then a study from the early 1990s is described. The researchers of that study advised to geometrically index as much documents containing information on the soil quality as possible, but were largely ignored. Legislation was introduced that mandated that decisions by the provincial government with regard to 'serious cases' of pollution had to be recorded in the cadastral registration. No provisions for further integration of or access to information on soil quality was taken for years, and different provinces and municipalities took very different approaches in how they dealt with such information, the way it was geometrically indexed and how easy it was for citizens to request the information to be released.

Just after the turn of the century a SDI-like initiative was launched to coordinate at least between the provinces (and the larger municipalities). The responsible Ministry also commissioned an evaluation of the cadastral recording. The results of that evaluation are presented in paragraph 3. It turned out that it was very hard to come up with an optimal solution where the data only needs to be entered once and all parties share the data in the context of a SDI. Especially the fact that a small part does have a legal mandate became a stumbling block for an integrated approach to the whole information chain related to soil pollution sites.

In paragraph 4 it is postulated that this will hold in general. The development of a SDI is negatively impacted when only a few data sets have a legal base. Contrary to this it is assumed that the development of a SDI is positively influenced by the existence of generic legislation and policy on e.g. copyright, privacy and pricing, since such a legal framework will contribute to a level playing field for the involved institutions.

## 2. HISTORICAL DEVELOPMENT

### 2.1 Soil pollution policy and legislation

In the late 1970s Dutch society and government were woken up by the revealing of the first major soil pollution site in the town of 'Lekkerkerk'. Until today most people's first association with this town is soil pollution. It was the first of a number of newly developed suburbs that turned out to have been built on top of dumped chemical waste. Some of this dumping was done ignorantly, some of it was done illegally and some even criminally. Later on other cases of soil pollution were found, sometimes on former industrial sites or areas where the land had been raised or ditches had been closed. Very infamous became for instance the so called gas factories, usually just outside the historical city centers, and certain mills which run on hydropower of small brooks, which dumped chemicals in those brooks causing pollution all the way downstream.

The first response was to fully clean up the polluted sites, and soon an interim act on soil sanitation was enacted. The provinces got the role to coordinate and undertake the cleaning projects, but the money was furnished from a central government fund. In some cases, like Lekkerkerk, the government even bought out all real estate owners that wanted to leave.

The number of sites that was 'discovered' kept growing, and the level to which the soil should be cleaned was set at a very high standard ('one should be able to safely grow lettuce there again' <sup>1</sup>). Both the funding and available capacity were not able to keep up with this growth of polluted sites, and soon the major effort was put in identifying possible polluted sites, investigating if they were really polluted, and if so, with what pollutants and to which level. A system of more and more detailed studies and reports was set up. Based on the more detailed reports, the provincial governments had to take official, legal decisions with regard to the question if this was a 'serious case of pollution', and if so, if cleaning was 'urgent', and in which priority category it fell. Many cases were deemed 'serious', but got a rather low level of 'urgency', meaning it could take up to 15 years before they would be cleaned. At the same time the 'lettuce' idea was abandoned and it became possible to 'clean' in relation to the intended use or with more innovate ways (isolating the pollution from the present use layer by for instance putting 1 meter of clean soil on top of a plastic film to be used as a garden (but don't grow real trees in it)).

In the early 1990s a bill was presented to parliament to include the provisions on dealing with the soil pollution from the past into the relatively new Act on Soil Protection (Wbb, after the abbreviation of the official Dutch name: *Wet bodembescherming*). After a lengthy political process most of this bill became law in 1995. The law kept the main activities at the provincial level, although the larger municipalities could perform most tasks themselves

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<sup>1</sup> The 'lettuce' became a symbol of the strict vision of Hans Alders, the Minister for Environment at that time, although he himself later denies he wanted to clean industrial areas to make it possible to grow lettuce there that one could safely eat.

(originally four, now about 30). In addition to the above policy developments, the law introduces the principle of ‘guilty ownership’. This means that the owner of a polluted site is primarily liable for the pollution and the sanitation<sup>2</sup>. For existing owners exemptions were possible, but anybody who buys real property rights in land from that time on should be aware of the possibility, and make sure he is not buying polluted land (‘caveat emptor’).

## 2.2 Information on soil pollution

During the discussion on the bill, more and more attention was given to the issue of registration and information related to soil pollution sites. There were several objectives to be served with this, which were treated more or less separately:

- Overview information on the central level; the number of all suspected, identified and studied soil pollution sites (and an indication of size and costs of sanitation) for each province (and large municipality) to allow for a sensible and fair distribution of the money from the fund to those jurisdictions;
- Detailed information at the provincial/municipal level; information supporting the steps for all sites during preparation of official decisions, and related procedures monitored by those authorities;
- Information on official decisions on soil pollution for (potential) buyers; to allow for easy checking if a real property is known as a polluted site in the transaction process, before the sale is finalized;
- Information on suspected sites, non ‘serious cases’, not fully sanitized cases; allows both potential buyers and (local) government in planning development projects etc.; much of this information is to be found at the municipal level, but often it is not ‘authenticated’.

The Minister saw a need for more structured registration and information related to soil pollution, but did not include it in the bill. Instead a study was performed by a group of staff members of TU Delft, including the author, commissioned and supervised by Ravi, Netherlands Council for Geo-Information in 1993 (Ravi 1993).

The advice of the study group was to geometrically index as much documents containing information on the soil quality as possible. A lot of money was used for undertaking the different (and consecutive) studies and producing the related reports. Such studies were commissioned both by the private sector and by the public sector. The reasons for commissioning the studies included not only possible real estate transactions, but also related to environmental and building permit applications, to the preparation of physical plans and development schemes and to local unrest and health scares because of suspected soil pollution. It was reported for instance that the largest supermarket chain would immediately back out of a site for a new branch under consideration as soon as even a suspicion for soil pollution was ousted. Only a part of the reports of these studies came in the hands of the

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<sup>2</sup> Political statements have been made that suggest that those rules will not be used against people who own their own house and have not contributed to the pollution, but the law does not make exceptions for such cases. In reality the State has only sued a few polluters (and with limited success) and even less land owners. The provisions, however, do help to stimulate for instance small and medium enterprises to participate in (subsidized) government schemes to clean up certain types of business sites (like gas stations).

municipal or provincial governments, although this was more than just the reports they commissioned themselves. However, the reports did end up at different departments within each of them. The rest of the privately commissioned reports really remained 'secret'.

The advice of the study group to geometrically index as much of these documents as possible was not entirely accepted by the advisory commission with representatives of all stakeholders Ravi had formed to supervise the study. The official report by Ravi suggested a phased approach to the documents that would be registered. The first phase would limit itself to the official decisions (and the underlying documents) only, which neatly coincided with the legal provision that was proposed in an amendment to the bill in the same period (see 3.1). Later on a feasibility study should be undertaken to extend this to other reports the authorities had commissioned, or that had been mandatory presented to them. A third phase could be the inclusion of other privately commissioned reports. The first phase will be discussed in more detail in the next paragraph. No action was taken by Ravi or any other national body with regard to the second or third phase during the following ten years.

Some provinces and municipalities did, however, take initiatives on their own to set up 'soil information systems', in which they brought together as much information on soil quality as they had at their disposal. But big differences can be found in how they dealt with such information, in the way it was geometrically indexed and in how easy it was for citizens to request the information to be released. In a few cases the information can be requested online and will be delivered for free within minutes. In other cases one has to make a written request, pay a fee (of up to € 175) and wait several weeks for the answer. Some municipalities do not release any information, most likely because they are afraid of being held liable when the information is incomplete or wrong. Others take the position that the information from the reports as such is so complicated that one can only ask an official advise from the municipality, which of course is more expensive and takes longer. The number of requests for this type of information by real estate agents and valuers increased a lot a few years ago when the rules for mortgage-valuations were tightened in respect to soil pollution. This seems to have stimulated initiatives for improved access, together with the latest possibilities from the present day Information and Communication Technology (ICT), as well as several national attempts to get a better picture of the actual size of the soil pollution problem.

### **3. THE LEGAL RECORDATION OF SOIL POLLUTIONS SITES**

In the beginning of the new millennium, there was not only an increased attention for information on soil quality in general, but a major revision of the soil sanitation chapter of the Act on Soil Protection was being prepared as well. In the context of the latter, and also inspired by criticism on the practice of the cadastral recordation, an evaluation study was commissioned by the Ministry of Housing, Physical Planning and Environment. This was performed in 2003-2004 on behalf of Ravi, Netherlands Council for Geo-Information, by the author and two of his colleagues from TU Delft. This paragraph is based on the summary of the evaluation report (Ravi 2004).

### 3.1 Law and Guidelines

Since January 1, 1995 a note has to be placed in the cadastral registration with every parcel that is affected by certain decisions based on the Act on Soil Protection (Wbb). The base for this can be found in article 55 Wbb, which was introduced to the bill (draft law) by amendment<sup>3</sup> as article 27o-1. It is not possible to trace the exact objective of this cadastral recordation that the legislator had in mind. The article is also not very elaborated and only describes some main features of the procedures to apply and does not provide a base for more detailed regulations on these. The most involved parties have elaborated the procedures to applied together under the auspices of Ravi, Netherlands Council for Geo-Information. Ravi published a report containing these procedures (Ravi 1995), usually referred to as the 'Guidelines' (and which have been incorporated in the general 'Guide on Soil Sanitation'). The Guidelines have not been updated since.

In practice one is deviating from the Guidelines in different ways. This is due to the knowledge and experience gained with the legal regime since 1995 in general and the cadastral recordation especially, combined with advancements in the soil policies and increased understanding about the soil as well as increased possibilities of information and communication technology (ICT). Due to the lack of a legal base for the Guidelines the provinces and involved municipalities have each developed their own, different way of operating. Even the 15 offices of the Cadastral Agency<sup>4</sup> apply their internal operating manual with local accents.

In a substantial number of cases the code WB or WBD<sup>5</sup> is noted on a cadastral parcel after a province or involved municipality has send the appropriate document to the Cadastral Agency. In this document the affected parcels have to be indicated. These are determined by 'translating' the area shown on the map in the report that forms the base for the decision, with the cadastral map. Early 2004 the code was noted at least once on 213,000 cadastral parcels (including condominium properties). This relates to about 3% of the parcels in the Netherlands.

### 3.2 Public perception

The fact that such a code is noted on a parcel, is in general not appreciated much by the owner of (or other right holder in) that parcel. Therefore it happens that the owner appeals against the decision on which the note is based, because of his unhappiness with the note as such, or the number of parcels that it affects. Quite often the decision (and thus the notes) affect more parcels than just the parcel containing the source of the soil pollution. Of course this increases the feeling that one is 'unjustly disadvantaged' by the owners of these other

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<sup>3</sup> It concerns the type of amendment to a bill that can be made by one or more Members of Parliament, and which will be voted separately during the article-by-article voting of the bill.

<sup>4</sup> The Cadastral Agency (officially in English "Cadastre, Land Registry and Mapping Agency") has announced in February 2005 it will reduce the number of offices to five in the coming years.

<sup>5</sup> The code is taken from the Dutch abbreviation of the Act on Soil Protection, Wbb. The D stands for 'partial', meaning that only a part of the parcel is affected by the decision.

parcels. An important role plays the stigmatizing effect that the code has. The presence of a code does not automatically mean that it concerns a (seriously) polluted parcel, and the absence of the code neither means automatically that the parcel is 'clean' or even that no information on (suspicion of) pollution is available within a public institution. Nevertheless the presence of a code is seen as a large 'stain' on the parcel.

One assumes that this stain reduces both the marketability of and the possibility to get a mortgage on the parcel, and thus leads to a lower value. To a certain extent this is the case, although the severity of the reaction to the code is usually exaggerated. However, real property transactions are highly influenced by subjective factors, and it is highly understandable that the presence of a WB-code creates negative vibrations. There is, after all, a real chance that one will have to apply certain restrictions in using the property, which leads to a smaller functionality than 'normal'. And in certain cases one might even be forced to perform soil sanitation. And finally there always is (correctly or not) the fear for health risks.

From a parallel performed study into the perception of the cadastral recording among real estate agents and valuers it turned out that the code was not the main reason for them to look for (further) soil quality information. Looking for this additional information is not so easy, since only a few provinces and municipalities have made such information assessable in a swift, easy and simple way. Partly due to that, they will not look for additional information in all cases, and sometimes the property is even valued 'assumed clean'. In general transactions involving a parcel with a code are a bit delayed (or the property is on sale a bit longer), but the cadastral recordation does not make the property unsaleable. There is some influence on the sales price, but this is not as serious as one would expect based on the severity of the reactions and the stigmatizing effect experienced.

### **3.3 Other information on soil pollution**

One needs to keep in mind that since 1995 a gradual increase took place of availability and accessibility of information on the soil quality in general, and on (suspicion of) pollution at specific locations in particular. One could see this scattered information as an iceberg, with the cadastral recordation only as the tip<sup>6</sup>.

The multitude of information just mentioned can not be ignored by the parties, since it plays a role in the mutual information and inquiry obligations they have under Dutch law during the negotiation phase. The availability and the ease of accessibility of this kind of information varies a lot from local government to local government. Taking the interests of the parties to a possible real estate transaction into account, there is ample room for improvement here. These improvements will not automatically emerge when the new country wide overview of soil quality information will become operational (this is primarily meant for assigning the budgets from the central government to the provinces and involved municipalities). However, the information therein, as well as the underlying ICT system GLOBIS, can form a good base

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<sup>6</sup> The report -of which the paper's author was the main author- that was presented by Ravi, Netherlands Council for Geo-Information to the Ministry of Housing, Physical Planning and Environment, is called "About the tip and the iceberg" (Ravi 2004).

for this, especially once the web portal ‘soil-counter.nl’ (www.bodemloket.nl) will become really operational.

### **3.4 Overview of evaluation outcomes**

The most important conclusion of the evaluation study is that the issue of the cadastral recordation based on article 55 Wbb is multi-faceted; everybody has a different perception, which depends on the role one performs. One has to be careful not to come up with an argument based on one perception (for instance that of the responsible authorities), which ignores the other perceptions. Furthermore it is needed to systematically address public awareness and/or (re) training of the users of the information and especially their advisors.

The evaluation has led to the following picture of the present situation. In practice the implementation of article 55 Wbb is performed reasonably well, and the responsible authorities do not experience really large problems with it. A question is in certain cases of pollution, whether any, and if so which, parcels should get the code noted on them. It is clear that different authorities are making different choices in such cases, which is undermining the reliability of the cadastral recordation as a whole. This can not be solved by the Ravi Guidelines for two reasons. On the one hand because the Guidelines are outdated, and on the other hand because they have no formal status and can be (and are) ignored when this suits the authorities better.

The Cadastral Agency manages reasonably well with article 55 Wbb in practice, although this could be made easier and more systematic when the normal system of inscribing the documents in the public registers would be applied (as is the case with most other public law restrictions which can be found in the cadastral registration, see 4.2). The legal regime of the Cadastre Law (including recordation in the cadastral registration) would then automatically apply.

At this moment the authorities are not completely consistent in whether in a certain case a note is made or not. The present reading of the law, however, more or less forces them to do so. The severity of the reactions and the stigmatizing effect are enough reason not to make a note lightheartedly. Cadastral recordation is justified in the cases that one is ‘guilty owner’ (and thus can be held liable for the soil sanitation) and/or when use restrictions or special maintenance measures apply; not in other cases. This should also be the guiding principle for the redrafting of article 55 Wbb.

The severity of the reactions and the stigmatizing effect is also the reason why one should get a first idea of the kind of complication with the soil that exists, even without further investigation. Use of four or five codes (or direct online access to the underlying decisions) is therefore a necessity.

To improve the implementation of article 55 Wbb in line with the above, it is necessary to amend the law. The pre-mentioned guiding principle on when to make a note and when not

to, should be the base for this. Furthermore the relevant decisions should be inscribed in the public registers, the law itself should not contain too many details and it should give a base for detailing implementation aspects in a ministerial regulation.

Article 55 Wbb (rightly) limits itself to the cadastral recordation of government decisions based on the Act on Soil Protection (Wbb). The accessibility for the public of wider (factual) soil quality information is still substandard and therefore needs improvement. A number of authorities has already taken this up, and there are also some national projects leading into that direction (e.g. soil-counter.nl). Once the latter one has reached nationwide coverage, a new evaluation of article 55 Wbb should be undertaken. The added value can then be weighted against the (additional) efforts.

Momentarily there is no doubt that the cadastral registration based on article 55 Wbb should be continued. Some points for improvement in the implementation and the legislation have been suggested above.

#### **4. LESSONS FROM NARROW LEGISLATION**

##### **4.1 Effect of article 55 Wbb on integration of soil quality information**

As a member of the study group designing a comprehensive information system related to the soil quality in 1993, even then I felt that the move to include article 55 Wbb into the Act on Soil Protection was damaging the chances for a wider information system. By bringing the most extreme cases of serious soil pollution under a legal obligation to record, it would be much harder to convince people that more information on soil quality needed to be systematically registered. And that is what basically happened in the Netherlands. At the national political level they could say they had done something about it. The provinces (and larger municipalities) had to implement it, and therefore could claim they were working on it, and when prompted for a (voluntary) wider national system, they could hide behind the national legislator if they wanted.

On the other hand the ideas we had in 1993 were rather revolutionary at that time. It would have been quite hard to set it up efficiently with the ICT readily available at that time. Furthermore at that time the thinking within government on serving clients and sharing information was by no means at the level it is now.

And finally, some provinces and municipalities set up wider information systems on soil quality, even in the mid 1990s. The city of Amsterdam for instance already developed a digital soil quality map in the first half of the 1990s. And the last few years coordination and cooperation of such information systems has led to certain national outputs, although one of the driving forces behind those are the criteria set by national government for the provinces and larger municipalities to get a share of the national funding.

The present projects on getting a nation covering overview of soil pollution sites, GLOBIS and soil-counter.nl are making progress, but have to acknowledge that every province and larger municipality is responsible and liable for its own soil quality information, and that important steps or features of the project need approval of all of the involved local

governments or councils. The conclusions in the last two sections of 3.4 can be mainly contributed to that fact. We can not stop the implementation of a specific legal recordation, even if similar information is available through other means, as long as those other means have a more or less informal character and can not be guaranteed in a similar way. I think it would be wise to create a legal base for those wider information systems on soil quality, but it is hard to predict if this is possible from the point of view of decentralization policies.

## **4.2 Soil pollution decisions as a form of public law restrictions**

Another interesting feature of the present situation related to the cadastral recordation of article 55 Wbb is that it deviates from the normal administrative processes related to comparable cases. The decisions from the Act on Soil Protection that have to be noted in the cadastral registration can in most cases be considered as public law restrictions, with which we mean limitations in the admissible use of real estate or encroachments on the property-rights of real estate caused by government decisions which are based on specific statutes (see Zevenbergen/de Jong 2002). A limited number of such public law restrictions can be found in the present Dutch land registry and cadastre system. In those cases the specific statutes prescribe that the document vesting the public law restriction has to be inscribed in the public registers at the Cadastral Agency. Based on the Cadastre Law a note mentioning the type of restriction is then placed on every parcel that is affected by the restriction. Somehow this approach was not chosen in the amendment that included the cadastral recordation of decisions related to soil pollution into the bill in 1993. The procedure introduced there stands on its own and puts the emphasis on placing the notes in the cadastral registration, whereas the underlying documents are only kept at the Cadastral Agency in a separate archive. This causes all kinds of complications, since there are virtually no formal rules on how to deal with this recordation. Furthermore the underlying documents, not being part of the public registers, were not included in the scanning operation of the more recent documents in the public registers. Those scanned documents can now be accessed directly online. This forms a prelude to the introduction of the digital public register and the subsequent electronic lodgement of documents (esp. by notaries). The law to allow for this was approved by the Parliament in February 2005.

In 2004 a law was passed to come to a more comprehensive registration of public law restrictions, but the law has not entered into force yet. In the draft bill for the amending of existing laws due to that law, the present procedure given in article 55 Wbb is revoked, and the decisions from the Act on Soil Pollution are brought under the general principles that are going to apply for all public law restrictions that are mentioned in the relevant government regulations (of which a draft is also circulating). For a description of the principles underlying the 2004 law, see (Zevenbergen/de Jong 2002).

## **4.3 General SDI-development and partial legal bases**

The development of (N)SDI's can in general be seen as a growth process. Numerous sets of spatial or geographical data are being collected, maintained and kept by different institutions for many different purposes and under many different mandates. The real development of the

(N)SDI comes when these efforts are being coordinated and the institutions start to cooperate. Although in the end all the institutions, and society as a whole, will benefit from the establishment of the (N)SDI, first those involved will have to go through a long processes of talking, negotiating, giving and taking, rethinking, etceteras. Such a process is never easy, but will be extra complicated when different institutions have a very different starting point. And that of course is especially the case when one (or more) data sets of an institution are regulated by law (especially when the rules are rather detailed). This means that without changing the law, there is little room for changing that data set and the way it is being handled. Therefore it will either stay on its own outside the SDI proper, or the SDI will have to be designed 'around' it, usually forcing other institutions to change extra. Although I have not really looked into other cases similar to the one described in this paper, I would like to postulate that such partial legal bases for a few data sets have a negative impact on the development of a (N)SDI. This contrary to certain more generic legislation and policy that provides a framework for issues like freedom of information, intellectual property rights (copyright, etc.), privacy protection, liability and policies related to costing and pricing (like cost recovery or free access). That kind of framework legislation is actually contributing to a level playing field for all institutions involved.

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## BIOGRAPHICAL NOTES

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