Spatial Data Infrastructures in The Netherlands:
State of play Spring 2005

Country report on SDI elaborated in the context of a study commissioned by the EC (EUROSTAT & DGENV) in the framework of the INSPIRE initiative

August 2005
Report meta-information

Title
Spatial Data Infrastructures in The Netherlands: State of play
Spring 2004

Creator
Catharina Bamps (SADL) & Peter Beusen (ICRI)

Date Issued
2002-11-17

Subject
INSPIRE State of Play – Activities 1, 3 & 4

Publisher
K.U.Leuven (SADL + ICRI) + Margaret Hall consultant (HALL)

Description
This report is summarizing the review of SDI in The Netherlands

Contributor
Jos Van Orshoven (SADL), Catharina Bamps (SADL), Katleen
Janssen (ICRI); Prof. B. Kok (RAVI, TU Delft), Prof. Henri
J.G.L. Aalders (Delft University of Technology), Bastiaan van
Loenen (TU Delft)

Format
MS Word 97/2000

Audience

Identifier
rcr05NLv81.doc

Language
EN

Coverage
Snapshot at 2005-06-30

<table>
<thead>
<tr>
<th>Version number</th>
<th>Date</th>
<th>Modified by</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2002-11-17</td>
<td>Catharina Bamps (SADL) &amp; Peter Beusen (ICRI)</td>
<td>First version</td>
</tr>
<tr>
<td>2.0</td>
<td>2002-12-20</td>
<td>Jos Van Orshoven (SADL)</td>
<td>Completion &amp; harmonization with 31 other country reports</td>
</tr>
<tr>
<td>3.0</td>
<td>2003-07-31</td>
<td>Catharina Bamps (SADL)</td>
<td>Consolidation and integration of comments received from:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Prof. B. Kok, (RAVI &amp; Delft University of Technology)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Prof. Henri J.G.L. Aalders (Delft University of Technology)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Addition of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Report meta-information</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Executive summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Abbreviations/acronyms</td>
</tr>
<tr>
<td>4.0</td>
<td>2003-08-25</td>
<td>Jos Van Orshoven (SADL)</td>
<td>Harmonisation with 31 other country reports</td>
</tr>
<tr>
<td>5.0</td>
<td>2004-06-20</td>
<td>Catharina Bamps</td>
<td>Integration of comments from Mr</td>
</tr>
<tr>
<td>Version</td>
<td>Date</td>
<td>Author</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6.0</td>
<td>2004-06-25</td>
<td>Katleen Janssen (ICRI)</td>
<td>General review, correction and update of legal framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(SADL)</td>
<td>Bastiaan van Loenen (Delft University of Technology) and from limited review of web sites</td>
</tr>
<tr>
<td>7.0</td>
<td>2004-07-01</td>
<td>Jos Van Orshoven (SADL)</td>
<td>Consolidation</td>
</tr>
<tr>
<td>8.0</td>
<td>2005-07-28</td>
<td>Katleen Janssen (ICRI)</td>
<td>General review, correction and update of legal framework</td>
</tr>
<tr>
<td>8.1</td>
<td>2005-08-08</td>
<td>Danny Vandenbroucke</td>
<td>Review of the 2005 update and consolidation</td>
</tr>
</tbody>
</table>
Change matrix 2005 versus 2004

Paragraphs in which information is reported which deviates in a significant way from what was reported in the Spring 2004 version of this country report are listed in the below table. They are indicated in red.

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Type of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Updated to reflect state Spring 2005</td>
</tr>
<tr>
<td>2.2.3</td>
<td>New information, updated to reflect state Spring 2005</td>
</tr>
<tr>
<td>2.2.4</td>
<td>Updated to reflect state Spring 2005</td>
</tr>
<tr>
<td>2.2.5</td>
<td>Updated to reflect state Spring 2005</td>
</tr>
</tbody>
</table>
Executive summary

The Dutch NSDI can be described as the result of various initiatives taken in a bottom-up approach for more than 10 years. Different stakeholders take initiatives and eventually reach agreements for collaboration and elaboration. Different actors are actively involved and the NSDI is of a very dynamic nature but without legal steering. Coordination of NSDI-initiatives was de facto with the Dutch Council for Real Estate Information (RAVI) but the Ministry of Public Health, Spatial Planning and Environmental Affairs (MinVROM) since recently assumes its formal position of geo-coordinator again. RAVI is now a preferential partner, a platform organisation, providing support, knowledge to and partly funded by MinVROM and serving the GI-community at large.

From its start at the end of the 1980ies, the NSDI-scene in NL has been shaped and dominated by RAVI. The early (1992) vision on the Dutch NSDI, i.e. the so-called NGII (National Geographic Information Infrastructure), is close to being achieved in a rather bottom-up approach. The NGII covers seven nation-wide large scale key-datasets, which are produced and managed in a coordinated and harmonised way by some 40 (semi-) public institutes. The “authentic registration” of part of these fundamental datasets can be considered as a unique and important success for the NSDI.

MinINTERIOR is now adding a top-down approach and a legal component to the NSDI. It is expected that soon 6 basic registrations will be recognized as so-called Authentic Registers, which would make its use by government and hence its maintenance compulsory.

RAVI launched in 1995 the initiative to build a ‘Nationaal Clearinghouse Geo-Informatie’ (NCGI) as part of the NGII. A first prototype of the clearinghouse, Idefix, was launched on the Internet in 1996. From 2001-2004, the - mainly supply-oriented - clearinghouse is being managed and exploitated by the private sector (a consultancy agency (Geodan)) taking care of the further development of the metadata services.

While the initial vision on NSDI has almost been realized through the construction of the key datasets and their imminent recognition as authentic registers and while the vision on improved data access through the NCGI is being tested, an ambitious 5 year and 68 MEUR research & development programme ‘Space for Geo-Information’ has been defined as the way forward for the NSDI. In November 2003, the Dutch Council of Ministers agreed to make 20 MEUR effectively available for the programme for which RAVI will be responsible. MinVROM will keep the chair of the board of supervision. This programme is expected to result in the NSDI being formally recognized by the Dutch government as part of the knowledge infrastructure and forming a solid foundation to strengthen and exploit the international position of the Netherlands in the GI-field. With the financing under this programme, the clearinghouse will be further developed.

Since the mid 80’s cost recovery has been the leading principle applicable to data supply by Dutch government bodies to third parties. In the public sector a general tendency towards self-financing and thus cost-recovery has become evident. A major challenge for the NSDI is to make the infrastructure accessible to public sector users at thematic and
local level and to users in the private, NGO and research sectors. Important cost barriers will have to be removed.
# Table of Contents

**CHANGE MATRIX 2005 VERSUS 2004** ........................................................................................................ 1

**EXECUTIVE SUMMARY** .......................................................................................................................... 2

**TABLE OF CONTENTS** .................................................................................................................................. 4

**ABBREVIATIONS AND ACRONYMS** ........................................................................................................ 5

1  **GENERAL INFORMATION** .................................................................................................................. 7

  1.1  **METHOD** ........................................................................................................................................ 7

  1.2  **THE NSDI-SCENE IN THE NETHERLANDS** ...................................................................................... 7

2  **DETAILS OF THE DUTCH NSDI (NGII)** .......................................................................................... 13

  2.1  **GENERAL INFORMATION** .............................................................................................................13

  2.2  **COMPONENT 1: LEGAL FRAMEWORK AND FUNDING** ............................................................ 13

  2.3  **COMPONENT 2: REFERENCE DATA AND CORE THEMATIC DATA** ........................................ 17

  2.4  **COMPONENT 3: METADATA FOR REFERENCE DATA AND CORE THEMATIC DATA** .......... 20

  2.5  **COMPONENT 4: ACCESS AND OTHER SERVICES FOR REFERENCE DATA, CORE THEMATIC DATA AND THEIR METADATA** ........................................................................... 20

  2.6  **COMPONENT 5: STANDARDS** ..................................................................................................... 23

  2.7  **COMPONENT 6: THEMATIC ENVIRONMENTAL DATA** ................................................................... 23

  2.8  **USE AND EFFICIENCY OF THE NSDI** ........................................................................................... 23

3  **ANNEXES** .......................................................................................................................................... 25

  3.1  **LIST OF SDI ADDRESSES / CONTACTS FOR THE NETHERLANDS** .......................................... 25

  3.2  **LIST OF REFERENCES FOR THE NETHERLANDS** ................................................................. 26
**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKR</td>
<td>Automated Cadastral Register</td>
</tr>
<tr>
<td>BBR</td>
<td>Register of enterprises/companies</td>
</tr>
<tr>
<td>BGI</td>
<td>Bedrijvenplatform Geo-Informatie</td>
</tr>
<tr>
<td>BGR</td>
<td>Register of buildings</td>
</tr>
<tr>
<td>BRA</td>
<td>Register of standardised addresses</td>
</tr>
<tr>
<td>BSIK</td>
<td>Besluit Subsidies Investeringen in de Kennisinfrastructuur</td>
</tr>
<tr>
<td>bnSP</td>
<td>de Beroepsvereniging van Nederlandse Stedenbouwkundigen en Planologen</td>
</tr>
<tr>
<td>CBS</td>
<td>Centraal Bureau voor de Statistiek</td>
</tr>
<tr>
<td>CT</td>
<td>Core Thematic Data</td>
</tr>
<tr>
<td>DLG</td>
<td>Dienst Landelijk Gebied</td>
</tr>
<tr>
<td>DURP</td>
<td>Digitaal Uitwisselbare Ruimtelijke Plannen</td>
</tr>
<tr>
<td>SC-DLO</td>
<td>DLO-Staring Centrum</td>
</tr>
<tr>
<td>GBA</td>
<td>Register of persons</td>
</tr>
<tr>
<td>GBKN</td>
<td>Grootschalige Basiskaart Nederland</td>
</tr>
<tr>
<td>GI</td>
<td>Geographical Information</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>IMRO</td>
<td>Informatiemodel Ruimtelijke Ordening</td>
</tr>
<tr>
<td>IMWA</td>
<td>Informatiemodel Water</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>INfrastructure for SPatial InfoRmation in Europe</td>
</tr>
<tr>
<td>IPO</td>
<td>Interprovinciaal Overleg</td>
</tr>
<tr>
<td>LBG-RIVM</td>
<td>Laboratorium voor Bodem- en Grondwateronderzoek van het RIVM</td>
</tr>
<tr>
<td>LKI</td>
<td>Cartographic Information system</td>
</tr>
<tr>
<td>LSV-GBKN</td>
<td>Landelijk Samenwerkingverband - National Cooperation GBKN</td>
</tr>
<tr>
<td>MinVROM</td>
<td>Ministry of Housing Spatial, Planning and the Environment</td>
</tr>
<tr>
<td>NCGI</td>
<td>Nationaal Clearinghouse Geo Informatie</td>
</tr>
<tr>
<td>NGII</td>
<td>National Geographic Information Infrastructure</td>
</tr>
<tr>
<td>NIROV</td>
<td>Nederlands Instituut voor Ruimtelijke Ordening en Volkshuisvesting</td>
</tr>
<tr>
<td>NITG</td>
<td>Nederlands Instituut voor toegepaste Geowetenschappen</td>
</tr>
<tr>
<td>NMA</td>
<td>Topographical Service</td>
</tr>
<tr>
<td>NSDI</td>
<td>National Spatial Data Infrastructures</td>
</tr>
<tr>
<td>OWS</td>
<td>OpenGIS Webservices</td>
</tr>
<tr>
<td>PPP</td>
<td>Public-Private Partnerships</td>
</tr>
<tr>
<td>PSI</td>
<td>Policy and legislation on access to public sector information</td>
</tr>
<tr>
<td>RAVI</td>
<td>Dutch Council for Real Estate Information</td>
</tr>
<tr>
<td>RD</td>
<td>Rijksdriehoeksstelsel</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Name</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>REF</td>
<td>Reference data</td>
</tr>
<tr>
<td>RGD</td>
<td>Rijks Geologische Dienst</td>
</tr>
<tr>
<td>RIVM</td>
<td>Rijksinstituut voor Volksgezondheid en Milieu</td>
</tr>
<tr>
<td>SAG</td>
<td>Samenwerking Aardkundige Gegevens</td>
</tr>
<tr>
<td>SDI</td>
<td>Spatial Data Infrastructures</td>
</tr>
<tr>
<td>SVI</td>
<td>Structure Outline for Geographic Information</td>
</tr>
<tr>
<td>TDN</td>
<td>Topografische Dienst Nederland (Topographical Service of the Netherlands)</td>
</tr>
<tr>
<td>TNO GG</td>
<td>TNO Grondwater en Geo-Energie</td>
</tr>
<tr>
<td>VNG</td>
<td>Vereniging van Nederlandse Gemeenten</td>
</tr>
<tr>
<td>VROM</td>
<td>Ministerie van Volkshuisvesting, de Ruimtelijke Ordening en het Milieubeheer = Ministry of Public Health, Spatial Planning and Environmental Affairs</td>
</tr>
<tr>
<td>WBP</td>
<td>Wet Bescherming Persoonsgegevens</td>
</tr>
</tbody>
</table>
1 GENERAL INFORMATION

1.1 Method

This report is summarizing the review of SDI in The Netherlands, and reflects the degree to which the SDI situation in The Netherlands is similar to the ideas set out in the INSPIRE position papers1 and in the more recent INSPIRE scoping papers. The report is based on the analysis of various documents, project references and web sites readily accessible (for full list of references, see Section 3.2). Comments were received from representatives of the Technical University Delft and RAVI.

Since in the Netherlands a well defined NSDI-initiative is in place for more than 10 years, attention was focused on documents outlining this:

- Structure Outline for Geographic Information (SVI, 1992);
- National Geographic Information Infrastructure (NGII, 1995);
- RAVI policy plan 1997-2000 (RAVI, 1996);
- Draft Future Visions of the coordinating minister on GI (MinVROM, 1998).

The report has been completed by integration and consolidation of comments received from different stakeholders and experts. Those comments were provided either in written form 2003 (spring and fall 2003), either through interviews organized in the framework of the Activity 2 of the State-of-Play project in April-May 2003. For the review of 2005, no input from the Dutch experts was received. It was however confirmed that within the NSDI of The Netherlands, important discussions are going on regarding the way the SDI should be organized. According to Prof. Bas Kok, these discussions are still ongoing and premature to be integrated in the report. Based on some other information sources, some of the legal paragraphs were modified to reflect changes that took place over the last year.

1.2 The NSDI-scene in The Netherlands

1.2.1 RAVI and the NGII

From the end of the 1980ies an NSDI-scene exists in the Netherlands. It has been shaped and dominated by RAVI, the Dutch Council for Real Estate Information. Now, besides RAVI, the foundation NCGI (in which RAVI has a leading role) is coordinating the further NSDI-developments.

---

1 INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).
Before 1992 RAVI was a formal consultative body on geo-information matters of the Minister for Housing, Spatial Planning and the Environment (MinVROM), the latter being the formal responsible for GI-related matters. In this position RAVI elaborated the first vision documents for the NSDI. Later, RAVI became an independent GI-sector/platform body (non-profit organisation) in which also MinVROM participates.

In 1993, the Dutch Council of Ministers (with MinVROM as the coordinating Minister for GI) adopted the national structure scheme for geo-information as elaborated by RAVI. The main target of this scheme was to increase the compatibility and exchange between the main core spatial datasets through an NSDI. The creation of awareness, the development of further political support and the coordination of the execution of the NSDI-initiative was de facto left with RAVI. RAVI however had no formal powers to compel public agencies to participate. Since recently MinVROM assumes its formal position of geo-coordinator again. However, part of the NSDI-initiative has always been left to self-regulation by the GI-sector.

RAVI is now operating as a preferential partner, a platform organisation, providing support, knowledge to MinVROM and serving the GI-community at large (interface to education, standardization bodies, ...).

The so-called structure scheme on GI (or NSDI-model), published in 1992, is by the end of 2002 almost put in place as the NGII: a collection of standardized and integrated fundamental geodatasets, produced by some 40 different data producers in a rather bottom-up approach:

- Register of persons (basisregistratie personen) – GBA;
- Register of enterprises/companies ‘Basisbedrijvenregister) – BBR;
- Register of buildings (Basisgebouwen register) – BGR;
- Base map 1:10.000 (Geografisch kernbestand; Top10-vector bestand);
- Register of standardised addresses (Basisregistratie adressen) – BRA;
- Cadastral register (Kadastrale registratie);
- Large scale base map (GBKN).

Registers (3), (4), (6) and (7) are explicitly geographic in nature. Register (5) will be georeferenced. Through (5), (1) and (2) can be georeferenced. These databases can be considered as the core of core spatial databases.

The NGII focuses nation-wide key datasets only. The datasets remain with the producers and may be subject to very different price settings and access regulations.

The Topografische Dienst Nederland (Topographical Service of the Netherlands) (http://www.tdn.nl) is the Dutch national mapping agency. It was part of the Ministry of
Defense but has now been merged with the Cadastral Agency. It contributes to the NGII through the TOP-10 vector dataset but produces many other spatial data products. The Dutch Cadastre is involved in the NGII through the Cadastral register.

MinINTERIOR is now adding a top-down approach and a legal component to the NSDI: It is expected that soon 6 basic registrations will be recognized as so-called Authentic Registers, which would make its use by government and hence its maintainance compulsory.

1.2.2 National Clearinghouse for GI

As a part of the NGII (i.e. the SDI built around the integrated fundamental datasets), the NCGI-project, Nationaal Clearinghouse Geo Informatie, was launched in 1995 by RAVI. The NCGI-project can be seen as a core service with respect to the NSDI. A first prototype of the clearinghouse, Idefix, was available on the Internet from 1996 onwards. In March 1997, a consultancy agency (Origin) was selected as partner for further development of the NCGI with finalisation of the work in 1997. The NCGI-project has now been taken over by the foundation ‘National Clearinghouse for Geo-Information (NCGI)’, in which RAVI and other major GI-players participate.

The NCGI promotes:

- The access to (public) GI;
- The standardisation of metadata;
- The use of geo-information;
- The use of Open GIS technology.

The metadata relate to data produced by different (public)organisations like:

- The Cadastre;
- Statistical Bureau (Centraal Bureau voor de Statistiek CBS);
- Institute for public health and environment (Rijksinstituut voor Volksgezondheid en Milieu RIVM);
- Department of Rural areas (DLG- Dienst Landelijk Gebied);
- Ministry of Housing Spatial, Planning and the Environment (Ministerie van Volkshuisvesting, de Ruimtelijke Ordening en het Milieubeheer VROM);
- Province of Gelderland;
- Province of Friesland;
From 2001-2004, the NCGI, although being part of the governmental infrastructure, has been exploited and managed by a consultancy agency and has been mainly supply-oriented: data-owners that wanted to publish their metadata on the NCGI-portal were charged for it.

Due to the recent financing by the Bsik Dutch programme "Space for Geo-Information", the foundation NCGI aims to further develop and extend the NCGI-infrastructure in a mainly demand-oriented manner in which the supply of geo-datasets will be based on the user-needs. A new national portal will be developed and will function as a crossroad of thematical, project and regional portals, each of them managed by a ‘portal-owner and that enable the viewing of the specific datasets via an OpenGIS Compliant (OCG-) webmapping viewer. Hence, the businessmodel for the portal is based on financing via different thematical, project and regional portals.

Based on the needs of the primary target group, the owners of geodatasets will be contacted to offer their metadata via the portal using (1) information models like Informationmodel Spatial Planning (IMRO) and Water(IMWA), (2) exchange formats like NEN and ISO, (3) functional standards like GML. The portal aims to connect with NGII and with INSPIRE and GSDI. In April 2004, the Ministry of Housing Spatial, Planning and the Environment (MinVROM) has confirmed the agreements between MinVROM, RAVI and the NCGI about the development and management of the clearinghouse function in the context of the Bsik-programme ‘Space for Geo-Information’. The MinVROM acknowledges that the clearinghouse has an important function as to make geo-information of the Dutch government available, accessible and transparent and as to function as a node of the future European geoportal.

The clearinghouse will functions as:

- A catalogue: to give an overview of the available geo-information;
- A web mapping and legenda-service: to offer geo-information in a transparent way;
- An overlay service: to offer fixed basic maps.

For the next three years, the MinVROM will finance the management of the NCGI for 50% whereas the development of the NCGI will be financed by means of the ‘Space for Geo-Information programme’.

1.2.3 Other initiatives and actors

Besides this core infrastructure, a huge amount of organizations produce a large number of geodatasets without explicit guidelines or coordination. Many regional, thematic or project-based SDI with geo-portals are available without interconnection. GIS is
abundantly present but –for an outsider- not evident to discover. In addition right of use is limited or costly.

An initiative that builds on the NGII is the DURP project, the project for the digital exchange of maps of city planning (DURP: Digitaal Uitwisselbare Ruimtelijke Plannen). It aims to stimulate the local (municipalities), regional (provinces) and national authorities to produce their maps digitally in order to ease the access and exchange of the maps and data. The project is financed by the Ministry for Housing, Spatial Planning and the Environment and five other organisations:

- The Netherlands Institute of Housing and Planning (NIROV : het Nederlands Instituut voor Ruimtelijke Ordening en Volkshuisvesting) - [http://www.nirov.nl](http://www.nirov.nl);
- Association of Dutch Municipalities (VNG - de Vereniging van Nederlandse Gemeenten (VNG)) - [http://www.vng.nl](http://www.vng.nl);
- Organisation for Interprovincial Concertation (IPO - het Interprovinciaal Overleg) - [http://www.vernieuwingsimpuls.nl/pubipo.htm](http://www.vernieuwingsimpuls.nl/pubipo.htm);
- Association of Dutch Urban Designers (bnSP - de Beroepsvereniging van Nederlandse Stedenbouwkundigen en Planologen ) - [http://www.bnsp.nl](http://www.bnsp.nl);
- The network for Geo-Information (RAVI) - [http://www.RAVI.nl/index.htm](http://www.RAVI.nl/index.htm).

Up to 2001 the Bedrijvenplatform Geo-Informatie (BGI) (company platform geo-information) was an integral part of RAVI. As from 1 January 2001 the BGI chose to become an independent organisation, thereby being able to better represent the interest of the private sector ([http://www.bgi-nl.com](http://www.bgi-nl.com)). Early 2003 35 companies were a member of BGI. The BCG and RAVI cooperate at a strategic level.

The Statistical Agency (Central Bureau for Statistics, CBS) is another major provider of GI.

### 1.2.4 Future

While the initial vision on NSDI has almost been realized through the construction of the key datasets and their imminent recognition as authentic registers and while the vision on data access through the NCDI is being tested, an ambitious 5 year and 68 MEUR research & development program ‘Space for Geo-Information’ has been defined as the way forward for the NSDI. In November 2003, the Dutch Council of Ministers agreed to make 20 million available for the proposed programme. RAVI will be responsible for the programme. MinVROM will be the chair of the board of supervision. Major challenge is to extend the infrastructure to thematic and local level users.

Space for Geo-information was selected out of five proposals within the cluster ‘High Level Use of Space (Hoogwaardig Ruimtegebruik)’. It is represented by the following Dutch partners: (1) Ravi (National geo-information association), (2) Adviesdienst Geo-
information (public department of works and waterways), (3) TNO-NITG (National Technical Research Institute), (4) Universiteit Wageningen (Wageningen University), (5) Alterra (Green World Research), (6) Het Kadaster (The Dutch Cadastre). The first projects have been launched in early 2004.
2 Details of the Dutch NSDI (NGII)

2.1 General information

The coordinating body for the Dutch NSDI is RAVI. In 1993 RAVI (www.RAVI.nl) was established as an independent consultative body for organisations with a public task in the field of geo-information. RAVI can also be described as a collaborative undertaking of governmental bodies concerned with geo-information. RAVI has a scientific advisory board, a Platform for Public Agencies and Platform for Companies. All initiatives for development are confirmed with both platforms.

RAVI’s mission with respect to the NSDI is to organise and promote the provision of geo-information required for the performance of public tasks at a minimum cost for society as a whole. RAVI stays in close contact with the business world, stimulating private companies to innovate and come forward with solutions that fulfill social needs.

2.2 Component 1: Legal framework and funding

2.2.1 Legal framework and organizational issues

There is no formal legal basis for the activities of RAVI. MinVROM is the formal responsible for GI-related matters in The Netherlands. Recently it has concluded long-term agreements with RAVI and the NCGI in the context of the BsiK-programme ‘Space for Geo-Information’.

The results of the NSDI-initiative are partially integrated in legal instruments:

A key element of the NGII are the “authentic registers”. The Minister of Interior is expected to present a legislative text to the Dutch parliament by mid 2004. Authentic registrations are registrations with a uniquely defined core dataset, which government agencies are obligated to use. The collection and maintenance of the data is regulated in legislation, the data certified as accurate and current, and the producer assumes all liability for its use by others. Access to data in authentic registers should be conformal the guidelines presented in the memorandum towards accessible government (transparency on data policy). Its users are obliged to report incorrect information to producers, and there is a stringent policy on quality assurance.

A key issue is to decide which geodatasets can be considered as authentic registrations, and hence incorporate them in law and legislation. The registrations in the Cadastre are for example regulated by law and are intended to provide legal certainty.

In the future, the intention is to provide a legal basis for the topographic dataset 1:10.000, given the repositioning of the Topographical Service (NMA) in the Law on the Cadastre. This would mean that topography would also be regulated by law.
2.2.2 Public-private partnerships (PPP's)

In 1975, by Royal Degree, the Large Scale Base Map of the Netherlands (GBKN - Grootschalige Basiskaart van Nederland) was established. After a long period of development, in 1992 the LSV-GBKN (Landelijk Samenwerkingsverband - National Cooperation GBKN) was established which finished the production of the GBKN in 1999. The LSV-GBKN is a national joint venture with 11 regional joint ventures. The production costs are €200 million and nationwide fully covered. It is a PPP of the municipalities, utility companies, water boards, the Dutch Cadastre and the Dutch administration. The GBKN is used for planning, building activities, road management, managing of rural estate and assets. It is possible to access the data via Internet. The GBKN is thus a PPP-initiative, but one of the few.

Now agreements for updating of the GBKN between the partners, i.e. the Dutch Cadastre, the municipalities and the utility companies, are being negotiated.

The private company Geodan has taken over the exploitation and the management of the NCGI for the period 2001-2004.

2.2.3 Policy and legislation on access to and re-use of public sector information (PSI)

The legal basis for access to public information is the Government Information Public Access Act of 31 October 1991. This act replaced the Act on Public Access to Information of 9 November 1978. It creates a presumption that documents created by a public agency should be available to everyone. The law provides for access to information that is crucial in the decision making process of the administration. The price to be paid for this information is based on dissemination cost. It is reasoned however that the electronic geographic data cannot be obtained through a request based on this Act. Government agencies can claim copyright or database right on their data and most of them do so. Moreover, citizens or businesses cannot access entire databases because - according to current interpretation- the Government Information Act does not apply to complete databases.

Directive 2003/4 on access to environmental information was implemented in Dutch law by the Act of 30 September 2004, modifying the Government Information Public Access Act, the Act on environmental management and other Acts.

The Government Information Public Access Act is currently under revision to include the implementation of Directive 2003/98 on the re-use of PSI. The draft legislation was approved by Cabinet and has been sent to the Parliament.

A survey done by the State Secretary of Interior Affairs on the nature, number and use made of public sector data files (Proceedings Seminar 'Free accessibility of GI in the Netherlands, the United States and the European Community', 2 October 1998) reveals that:
• Approximately half of the geodatasets are used by other parties. 80% of that use is by other public sector bodies;

• Copyright is reserved on datasets provided to third parties in 70% of those cases;

• In all cases, care is taken to ensure protection of data relation to personal privacy;

• More than 70% of the files made available are provided free of charge. The remaining 30% are charged, sometimes in part and sometimes in full;

• When data are provided, conditions for use are set in 60% of the cases. These conditions are mostly concerned with internal use and restrictions to ensure that data is used only for the aim the data set has been collected for.

2.2.4 Legal protection of GI by intellectual property rights

Copyright is primarily regulated by the Copyright Act of 1912. In principle, copyright is applicable to all government information -with the exception of official texts of legislation, judicial decisions and administrative decrees-, although copyright must be claimed explicitly by the government for the protection to be effective and a copyright sign (©) has to be placed on the work. Commercial use of the data for which copyright is claimed by an administrative agency is only allowed when the agency concerned gives its consent.

Due to their factual and standardized character geographic information often does not meet the requirements of originality required by copyright. However, common law shows that geo-information with a personal view can still be protected by copyright.

Based on the European Directive on the legal protection of databases (96/9/EC), the 1912 Copyright Act was amended and a Dutch version of the Directive, the Database Law, enacted in 1999. The new law protects the producer of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents. Government agencies explicitly have to reserve their rights.

The 2001 directive on copyright in the information society has been included into national legislation.

2.2.5 Restricted access to GI further to the legal protection of privacy

The Netherlands Data Registration Act was passed in 1989 and applies to all collections of personal data, regardless of residency status in the Netherlands. It also applies to foreign files having a Dutch file controller and containing personal data about Netherlands residents. A new Personal Data Protection Act (Wet Bescherming
Persoonsgegevens – WBP) was approved by the parliament in June 2000 and implements EU Directive 95/46/EG. It came into force on 1 September 2001.

Although geographic data primarily focuses on geographic objects and not on natural persons, and even might be presented in an anonymous way, an operator can often easily relate these data to natural persons. In most cases the law concerning privacy protection is therefore applicable to geo-information. Hence, each organization or business should notify persons that they have been registered and for what purpose.

Directive 2002/58 on privacy and electronic communications has not been transposed into national legislation yet.

2.2.6 Licensing framework

No information has been found nor provided.

2.2.7 Funding model for SDI and pricing policy

Funding

NCGI was financed until 2000 by its founding members, the RAVI and the MinVROM. Between 1997 and 2000 1.5 million ECU, not including costs for metadata and conversion, have been invested in the project. As from 1 July 2001 the private company Geodan has taken over the exploitation and the management of NCGI. Financing comes now from project- and theme ‘owners’.

The general funding (€ 1 million each year) of the coordinating role of RAVI in building the NGII comes from its participating parties and the MinVROM. Contribution of the latter is decreasing. Funding is targeted mainly towards:

- Standardization of GI;
- Legal aspects and arrangements;
- Toning data sets and establishing relationships between the fundamental data sets;
- Raising political awareness;
- Further developing the Knowledge Infrastructure.

Cost-recovery is the leading principle applicable to data supply by Dutch governmental bodies to third parties, and thus an important source of financing. A potential policy change in the Netherlands towards more open access to public geographic data thus poses a serious financing challenge. Some fear that other sources of financing maintenance will not be found, therefore reducing data quality and service provision.
The three main providers of geographic information are the Dutch Cadastre, the Topographic Service and the Statistical Bureau. The Dutch Cadastre is required by law to recover its operational costs through data sales, but is forbidden from making profits from its core activities. Both the Topographic and Statistical Agency receive core funding for their activities but are required to increase revenues from sale of data.

Pricing

The NCGI, the Dutch metadata service, provides metadata free of charge. The data sets themselves are contained at the owning organization, being among others government agencies, provincial and local authorities.

Since the mid 80’s cost recovery has been the leading principle applicable to data supply by Dutch government bodies to third parties. In the public sector a general tendency towards self-financing and thus cost-recovery has become evident (e.g. the Dutch Cadastre must be totally cost-recovering, the Topographic Service has to recover the costs for 50%).

The memorandum “Towards Optimum Availability of Public Sector Information” by the MinVROM (April 2000) sparked the discussion by promoting the availability of government information by stating that all government information should be disseminated at a maximum of the cost of dissemination. The Netherlands could thus be moving towards the open access policies of the United States.

Currently however, the lack of consistent national guidelines on pricing and/or availability of government information has resulted in pricing and access policies varying from one government department to another. Policy regarding trading information owned by the public sector is decided at Ministry level or even departmental level within a Ministry. Information is thus generally sold to citizens at cost (i.e. the cost of distribution, not the cost of collection). The price is much higher for resellers, sometimes four times the cost of distribution, with value-added information returning to the originating department at cost price.

2.3 Component 2: Reference data and core thematic data

2.3.1 Scale and resolution: European, National, Regional, Local, Other

It is estimated that there are 36,000 datasets in the public sector of potential use to others. All scale levels are supported.
2.3.2 Reference data and core thematic data by resolution or scale range

In the 'Structure Outline for Geo-information' (SVI, 1992) the information concerning parcels of land, people, companies, buildings and addresses, have been identified as the fundamental building blocks for the NGII.

Parcels of land are available in the Automated Cadastral Register (AKR) for the alphanumeric data on parcels, rights and owners and in the Land Information and Cartographic Information system (LKI) for the geographical data. The fundamental geodataset for buildings has partially been developed in a tax-law for the assessment of real estate and will be further developed in the near future.

Two other nationwide fundamental geometric/topographic datasets are:

- Large Scale Base Map of the Netherlands (GBKN) ([http://www.geodan.nl/nl/project/lsvgbknsite/](http://www.geodan.nl/nl/project/lsvgbknsite/));
- Top 10-Vector data set, a 1:10.000 core database made by the Topographic Service of the Netherlands (TDN – Topografische Dienst Nederland).

Examples of other available good, sophisticated fundamental datasets are the nationwide:

- Land cover database of the Netherlands made by the DLO-Staring centrum (now Alterra);
- Land cover ecological database of the Netherlands made by the DLO-Staring centrum (now Alterra);
- Waterways geodataset made by the Survey Department of the Directorate General of Public Works and Water Management;
- Geology geodataset made by the National Geological Survey (NITG-TNO);
- Archeology geodataset made by the Institute for Archeological Soil Exploration;
- Cadastral map made by the Cadaster;
- Digital elevation model.

Besides these fundamental data sets hundreds of other core data and thematic data sets have been produced.
2.3.3 Geodetic reference systems and projections

The spatial reference systems used are:

- Rijksdriehoeksstelsel (RD) with the Bessel Ellipsoid of 1841 and a azimuth stereographic projection with ± 4000 higher order points;
- Lambert conformal conical;
- Geographic.

For GPS observations, ETRS is used.

2.3.4 Quality of the reference data & core thematic data

No information has been found nor provided about the data quality procedures for the NGII and other reference and core thematic datasets.

2.3.5 Interoperability

OpenGIS-standards are sometimes used to ensure interoperability between datasets and information services.

2.3.6 Language and culture

Metadata, documents are provided in Dutch. The websites of the different authorities are in Dutch and often also in English.

2.3.7 Data Content

No information has been found nor provided.

2.3.8 Geographical names

Geographical names are managed in Dutch.

2.3.9 Character sets

No information has been found nor provided.
2.4 Component 3: Metadata for reference data and core thematic data

2.4.1 Availability

Metadata are produced for a significant part of the geodatasets. NCGI has a coordinating and stimulating role.

2.4.2 Metadata catalogues availability + standard

NCGI manages the metadata catalogue in a centralized way. The standard used is CEN TC 287's ENV 12657:1998 with some minor changes.

The NCGI-metadatacatalogus describes currently around 300 spatial information datasets which can be selected using keywords, area and/or producer of the dataset. The NCGI plans to update and extend the metadata catalogue and has developed an installationwizard for organisations that are connected by a node and provides a metadataform for the others.

2.4.3 Dublin core metadata standards for GI-discovery

The Dublin core metadata standards are not applied.

2.4.4 Metadata implementation

No information has been found nor provided.

2.5 Component 4: Access and other services for reference data, core thematic data and their metadata

2.5.1 On-line access service for metadata of reference data & core thematic data

Metadata can be consulted free of charge through the NCGI on http://www.ncgi.nl/ncgi/. The foundation NCGI is planning for making other (thematic, enterprise) metadata catalogues available through one geo-portal.

2.5.2 On-line access service for reference data & core thematic data

The foundation NCGI is planning for such services.
2.5.3 Inter-linkages of on-line access services for metadata and reference data resp. core thematic data

These are planned by the foundation NCGI and the ‘Space for Geo-Information initiative’.

2.5.4 OpenSource software for access services

There is a tendency in the foundation NCGI to turn to this type of software-solutions.

2.5.5 Availability of web mapping service(s) and of a WebMap server interface

The metadata access service on [http://www.ncgi.nl/ncgi/](http://www.ncgi.nl/ncgi/) has a graphical component, enabling a visual appreciation of the geodataset. A more modern web mapping service is considered for development by the foundation NCGI.

Different sector-specific or thematic Web Mapping Services are being developed or operational:


The implementation of the EC Water Framework Directive raises a number of shared technical challenges. In order to support the delivery of (Geographical) Information to the EC, the NCGI is developing an OpenGIS Webmapping service based on the NCGI-infrastructure ([http://www.ncgi.nl/ncgi/](http://www.ncgi.nl/ncgi/)) which enables users to exchange ESRI-shapefiles (future exchange format will be GML). Metadata are in XML. End 2003, the first version of the KRW-portal went on-line.
2. Educational Portal Cadastre (Educatie geo-portaal in opdracht van Kadaster)

Mandated by the Cadastre, an Educational Geo-portal is being developed where users of educational institutes can analyse and download the available GI.

3. Digital exchange of maps of city planning

The DURP-portal offers via a username and password on-line the possibility to exchange digitally maps of city planning.

4. Pilot project DINO-Hydro-OpenGIS Webservices (OWS)

With this project, the NCGI aims to provide OpenGIS services around groundwater information by means of an OpenGIS WebMapping Service and an OpenGIS Web Feature Service (end of the project: June 2004).

5. IMRO planviewer

The NCGI will host the ‘IMRO planviewer’ of RAVI which is developed using a UMN webservice (OGC compliant).

6) ‘Cross-border Geodata Infrastructure project (X-border GDI)

The X-border GDI project between The Netherlands-North-Rhine/Westphalia basically conducted a feasibility study on the array of open and standardized Internet technologies, common policies, and institutional arrangements that facilitate the availability and accessibility of geo-information across administrative borders and jurisdictions. The project is meant to pave the way towards an envisaged Interreg III project funded by the European Union. The results of the feasibility study were presented at the 2nd GeoConference NL-NRW in June 2003. Practical cross border applications were shown from the domains of disaster management, spatial planning, nature & recreation, traffic & transport. A demonstration of the first prototypical implementation of geographic web services was presented to show how it can be made possible to cooperatively use the spatial data being distributed on both sides of the border. At present the X-Border GDI - WMS Client Cross Border GDI is operational and Web Map Services can be added.

2.5.6 Availability of catalogue services to regulate access

This type of services are envisaged for the NCGI.

2.5.7 Availability of catalogue services that perform payment operations

This type of services are envisaged for the NCGI.
2.5.8 Availability of catalogue services to extract and send data to a user application

This type of services are envisaged for the NCGI.

2.5.9 SDI user applications

Partly under the umbrella of the R&D initiative (‘Space for Geo-Information initiative’), the foundation NCGI is developing and testing a vision on an advanced service of interconnected regional and thematic geoportals and web-based geo-services (see 2.5.5).

2.5.10 Availability of geo-processing services

See Section 2.5.9.

2.6 Component 5: Standards

Information on the adopted standards is included in the previous components.

2.7 Component 6: Thematic environmental data

The NCGI provides to a limited extent metadata about thematic environmental geodatasets (e.g. noise intensity maps). Thematic environmental data are clearly covered by the future NSDI as conceived in the ‘Space for Geo-Information initiative’, the Inspire compatible society-oriented R&D programme.

2.8 Use and efficiency of the NSDI

Organisations implementing the NSDI (MinVROM, RAVI, Foundation NCGI) state that strong visions were needed to establish the current NGII which is perceived as being successful. The basis of the success of the NGII is perceived to lie in the following elements:

- The GI community organised itself as a sector and created a vision in the “Structure Plan for Land Information” in 1992, the basis for NGII;

- There is a formal political leadership in GI: the minister for Housing, Building, Spatial Planning and Environment, who is responsible for the coordination of GI;
- A commitment was created bottom-up with professionals setting up a coherent standardisation system as part of NGII;

- GI professionals implemented the standardization activities;

- The core data of NGII was introduced as part of the e-government policy plan (“authentic registrations”);

- Early 2000 the program “Space for geo-information” was initiated stimulating NGII innovations. In this way the right balance was found between presenting a top-down vision and bottom-up commitment in the execution and improvement of the vision for multiple use and innovation;

- Close interaction between the geo-information sector and the broader political arena.

In the dynamic, partially coordinated and data-rich environment in the Netherlands, cost of GI hampers the full deployment of SDI-related applications and initiatives. The R&D programme is however making provision to study necessary adaptations of related laws.

Current and near future government policy is directed towards efficient, transparent and legitimate public administration, focusing on care, safety and education. Geo-related initiatives have to fit in this view in order to be continued and officially supported.

The ‘Space for Geo-Information initiative’ and the foundation NCGI are now paving the way forward. The former integrates the early players (RAVI and its members, MinVROM, research organisations) with most other GI-producers and users in an ambitious, INSPIRE compatible society-oriented R&D programme, also focusing on environmental applications. Part of the funding (20 MEUR of the budgeted 68 MEUR for 4 years) is now secured.

An important element -from the perspective of the future development of an SDI at the European level- is that initiatives have been taken to develop cross-border SDI projects. An example is the cross-border exchange of information between the Netherlands and North Rhine/Westphalia.
3 Annexes

3.1 List of SDI addresses / contacts for The Netherlands

<table>
<thead>
<tr>
<th>Table: SDI contact list</th>
<th>Web address</th>
<th>Organisationa l mailing address</th>
<th>Over-all contact person: tel./fax/e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCGI – National Clearinghouse Geo-Information</td>
<td><a href="http://www.ncgi.nl/ncgi/">http://www.ncgi.nl/ncgi/</a></td>
<td>President Kennedylaan 1, 1079 MB Amsterdam</td>
<td>E-mail: <a href="mailto:info@ncgi.nl">info@ncgi.nl</a> Tel: +31 20-5711 311 Fax: +31 20-5711 333 Peter van de Crommert – Manager NCGI</td>
</tr>
<tr>
<td>RAVI</td>
<td><a href="http://www.ravi.nl">www.ravi.nl</a></td>
<td>RAVI, Koningin Wilhelminala an 41, 3800 AM Amersfoort</td>
<td>Prof. Bas Kok</td>
</tr>
<tr>
<td>MinVROM</td>
<td></td>
<td>Rijnstraat 8; Postbus 20951; 2500 EZ Den Haag; Internal postcode 150</td>
<td>Mr. Noud Hooyman and Mr. Rob Kragt</td>
</tr>
</tbody>
</table>
### 3.2 List of references for The Netherlands

<table>
<thead>
<tr>
<th>Web sites:</th>
<th><a href="http://www.ncgi.nl/ncgi/">http://www.ncgi.nl/ncgi/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="http://www.ec-gis.org/reports/policies.pdf">http://www.ec-gis.org/reports/policies.pdf</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.gbkn.nl/downloads/beleidsplan.pdf">www.gbkn.nl/downloads/beleidsplan.pdf</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.kartoweb.itc.nl/top10nl/index2.htm">www.kartoweb.itc.nl/top10nl/index2.htm</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.stroomlijningbasisgegevens.n">www.stroomlijningbasisgegevens.n</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.digitaal-bestemmingsplan.nl">www.digitaal-bestemmingsplan.nl</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.spatial.maine.edu/~onsrud/gsdi/Netherlands.pdf">http://www.spatial.maine.edu/~onsrud/gsdi/Netherlands.pdf</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.eurogi.org/index_1024.html">http://www.eurogi.org/index_1024.html</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.euronet.nl/users/ravi/proceed210.html">http://www.euronet.nl/users/ravi/proceed210.html</a></td>
</tr>
<tr>
<td></td>
<td>X-border GDI: <a href="http://www.gdi-nl-nrw.info">http://www.gdi-nl-nrw.info</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://geo-hermes.uni-muenster.de:8080/CrossBorderClient/pages/ClientInfo.jsp">http://geo-hermes.uni-muenster.de:8080/CrossBorderClient/pages/ClientInfo.jsp</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Newsletters NCGI: <a href="http://www.ncgi.nl/ncgi/">http://www.ncgi.nl/ncgi/</a></td>
</tr>
<tr>
<td></td>
<td>F. van Berkel-Coumans: ‘Clearinghouse wordt backbone van nationale geodata infrastructuur’, VI Matrix 77, 2003</td>
</tr>
</tbody>
</table>