European Commission

Danube Reference Data and Services Infrastructure

Danube_Net (D1)

State-of-play and organisational context of data infrastructure in Hungary

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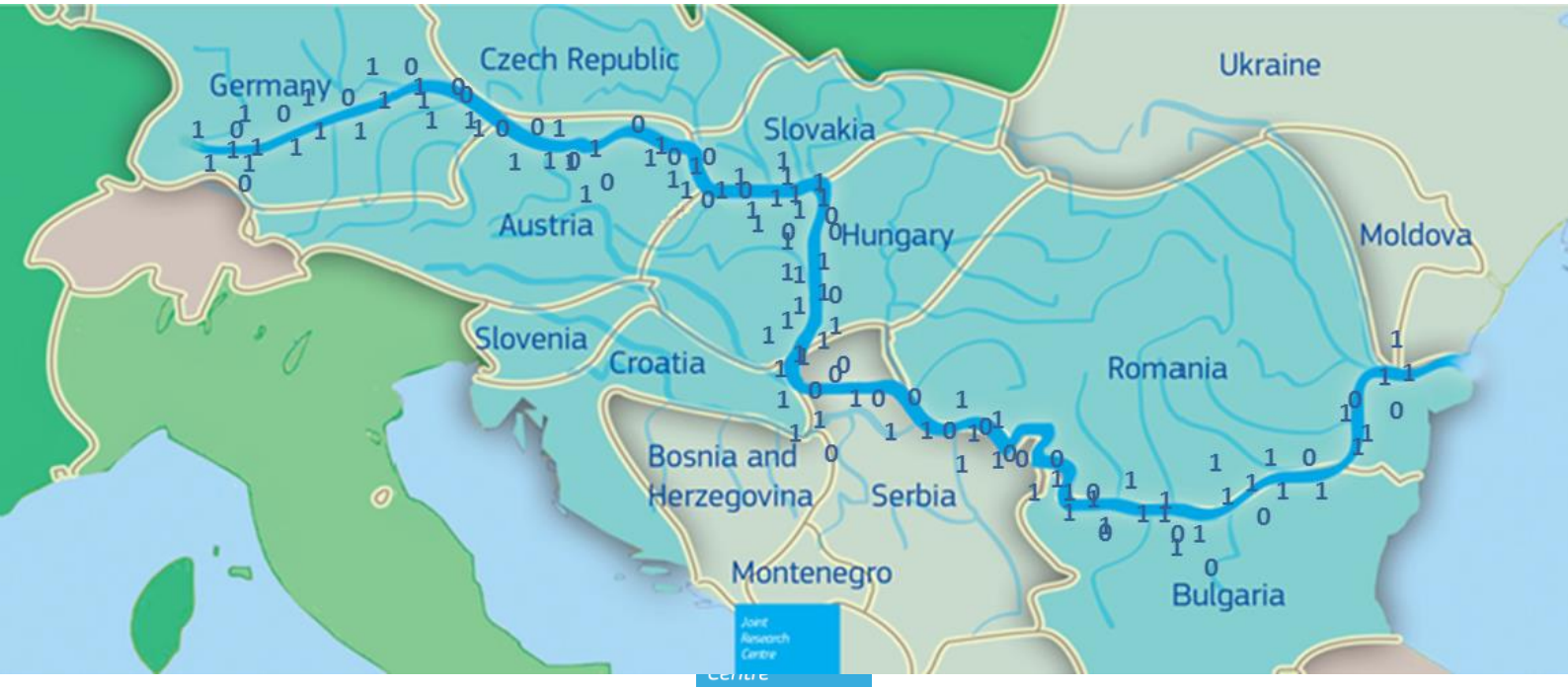

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1. Introduction

1.1. Background and progress

This Report is the 1st Deliverable of the activities of the Danube_NET Expert specified in Annex 2, Terms of Reference of the Danube_NET contract. The Report was originally prepared in August 2014 and revised in February 2015. Danube_NET Experts have been engaged by the JRC to provide inputs to developing the Danube Reference Data and Services Infrastructure (DRDSI), including an internet portal for data access and sharing in support of the European Union Strategy for the Danube Region (EUSDR). This Report aims to provide a work-in-progress information on the state-of-play of the national data infrastructure (NDI) in Hungary with respect to the DRDSI vertical priorities, specified initially in 2013, as follows : *irrigation and agricultural development; navigability; environmental protection and energy production*.

The Report presents a list of key public and private sector actors in the data domain in Hungary: government and its support institutions, research organizations, NGOs, etc.. As of February 2015, the number of organizations in the Hungarian data domain amounts to 35. Many of these actors are data owners, or data related service providers, others are research organizations active in ICT, or scientific areas relevant from the viewpoint of any of the priority areas of the EUSDR. The 11 EUSDR priority areas provides very broad coverage of policy making, economic development, environmental and social issues, etc. Therefore, the national data infrastructure is an ever evolving and developing concept with new actors and technologies entering the infrastructure, others re-defining themselves, or transferring functions to other organizations. The activity and work of the Danube_Net Expert is a continuous contribution to developing the DRDSI in view of the developing NDIs of the member states of the EUSDR, as well as the implementation of the EUSDR has been progressing.

In Hungary, there are 17 public data managers with assigned INSPIRE themes. Other actors in the data domain are scientific institutions (e.g. centres of the Hungarian Academy of Sciences, universities), professional organizations and NGOs. This number of institutions and coverage of the data domain in Hungary may broaden as the concept and implementation of the DRDSI program develops. Reference is made here to the priorities of the JRC EUSDR Support Program, specified in 2013, that may change, or broaden with the progress of implementation and as knowledge and inputs from the EUSDR member states' NDIs are accumulated.

The investigation, to a large extent refers to the INSPIRE Member State Report: Hungary, 2013 (made public recently in the INSPIRE portal of the European Commission, *http://inspire.ec.europa.eu/index.cfm/pageid/381*), as well as interviews with the representatives of the Hungarian INSPIRE Member State Contact Point (Ministry of Agriculture), its support organization (FÖMI) and other stakeholders in the data domain. It needs to be pointed out that at the time of writing this Report, national data infrastructure, as such, does not exist in Hungary, as the relevant government decree has not been drafted, yet. Likewise, the organization of the Committee on National Spatial Data Infrastructure, NTIB), supposed to coordinate and harmonize data related activities of ministries, ministerial and other organizations with spatial data infrastructure related responsibilities, has not yet been set up. Actors in the data domain, including public data, act independently from each other, without central coordination by the government. Therefore, data sets managed by various organizations are not harmonized and sometimes even overlap each other.

The Report discusses the legal context, institutional and funding aspects, in particular that relates to access to and sharing public data. It presents the data managers and owners that are key contacts for further investigations. The data sets managed by these actors are either the results of their regular activity, or output from projects financed from EU, or national sources. This Report can also serve as a basis for further, more in-depth investigation of the NDI in Hungary and its links with other NDIs in the region. In particular, in the next report (D2) of the Danube_NET program, identification of the data, datasets and related services

(metadata and metadata repository) managed by these institutions are planned with an aim to investigate their possible linkage to the DRDSI. It will also be an aim to identify conditions of access to and re-use of the identified data sets.

Overall, it can be stated that access to and re-use of public spatial data in Hungary are conditional to fee payment even among government institutions. The reason for this is that digitisation of public spatial information was financed by the government using funding from the private market, repayment of which is thought to be secured from revenues generated from data related services, even among public institutions and academia. By practitioners, this is experienced as a very serious obstacle to mass usage of public data for policy making, or business. Access and re-use of non public data is usually possible, up to the conditions by the data owners.

As the DRDSI is concerned, it can be foreseen that both public and non-public data owners are open to co-operate with DRDSI, except for maybe that regards data related to national security. It is believed that access to a large volume of data and related services can be made possible via the DRDSI portal. Interviews with representatives of data owners imply that these organizations would consider DRDSI as possible means to market their products and services and raise additional revenues to complement their allocated budget.

Regarding developing further the DRDSI, extension of the priorities of DRDSI is recommended to the domain of Culture and Tourism (Priority Area 3 of the EUSDR). It was found that digitization of cultural heritage and art collection have already commenced in many countries in the Danube region. Offering access to digitalized collections can attract attention to and enhance tourism in the region, as well as can generate new businesses and create jobs.

To disseminate information on DRDSI and the JRC EUSDR program it is recommended that a series of on-line lectures could be launced with the participation of science academies from the Danube Region. This project could be coordinated by the Andrassy University, an international institution established with a focus on humanities in the Danube Region.

1.2. DRDSI link to the EUSDR

In terms of the EUSDR, the national contact point for EUSDR in Hungary is István Joó, ministerial commissioner.

Contact:

Ministry of Foreign Affairs and Trade, Secretariat of the Ministerial Commissioner, European Strategy for the Danube Region
1027; Budapest, Bem rakpart 47.
Tel.: +3614581246
e-mail: dunastrategia@mfa.gov.hu

Within EUSDR there are 11 Priority Areas:

- A1A Mobility – Waterways
- PA1B Mobility – Rail-road-air
- PA2 Sustainable energy
- PA3 Culture & Tourism
- PA4 Water Quality
- PA5 Environmental Risks
- PA6 Biodiversity, landscapes, quality of air and soil
- PA7 Knowledge Society
- PA8 Competitiveness

PA9 People & Skills
PA10 Institutional capacity and cooperation
PA11 Security

Hungary is active in implementing EUSDR, co-coordinating PA2 (Sustainable energy) with the Czech Republic, PA4 (Water quality) with Slovakia and PA5 (Environmental risks) with Romania.

The DRDSI project was proposed as one of the flagship actions of *Priority Area 07 "To develop the Knowledge Society (research, education and ICT)"* of the EUSDR and is mentioned in the Roadmap for the implementation of this Priority Area. PA7 is coordinated by Slovakia and Serbia. The DRDSI project was launched by EC Joint Research Centre (JRC) with the support of scientific partners from the Danube countries with an aim to develop a Danube Data and Services Infrastructure that would facilitate access to comparable and harmonized data regionally. Thanks to its cross-cutting nature, this Infrastructure will contribute to the holistic scientific approach needed to tackle the interrelated and interdependent challenges which the Danube Region is facing.

The remainder of the report distinguishes key actors as data providers, policy-making organisations, research organisations and other stakeholders. For each of these categories, an overview and analysis of structure of organisations classified in category is given. Also, estimation of readiness for involvement in DRDSI building is given for each category. Finally, the section on Conclusions addresses overall estimation of state-of-play in Hungary, and recommendations on how to proceed with identified key players in the DRDSI.

2. Data providers

Data owners in the the data domain in Hungary can be split into the following categories:

1. Ministries (GOV)
2. Ministerial support organizations (SUP)
3. Corporations, owned, or controlled by the government (CORP)
4. Centres of the Hungarian Academy of Sciences (Academy, HAS)
5. Universities (UNI)
6. Other institutions (OTHER, professional organization, NGOs)

INSPIRE themes are covered by organization 1-3, assigned by the government. Organizations in 3-4 collect, manage and own various thematic data sets in various segments of the economy and science, including natural and social sciences, as well as the environment and health. Priorities of the JRC EUSDR program and DRDSI are addressed by institutions investigated and/or contacted by the Danube_Net Expert, to a large extent. Nevertheless, investigating the data domain in Hungary is an ongoing effort that is expected to result in identifying institutions with DRDSI relevant data sets, in addition to those disclosed in this Report.

The list of Data providers with their classification in accordance with the above list is given in Table 1.

Table 1. Data providers

Name of organization	Classification	Typical types of data provided	Aptitude to provide data on request (strong/moderate/week)

University of Miskolc H-3515 Miskolc-Egyetemváros http://www.uni-miskolc.hu/public/index.php?page_id=630	UNI	Flood, environment and soil related data sets generated through projects funded from EU sources	strong
Ministry of Agriculture Földművelésügyi Minisztérium http://www.kormany.hu/en/ministry-of-agriculture	GOV	National Information System for Environental Protection (OKIR) National Information System for Area Development and Area Classification Budapest city urban and suburban area classification	moderate
Institute of Geodesy, Cartography and Remote Sensing (FÖMI) Földmérési és Távérzékelési Intézet http://www.fomi.hu/portal_en/index.php	SUP	Manager of GEOSHOP a portal of map database, which is supposed to be developed into the national portal of public data. GEOSHOP serves as the national window of INSPIRE themes	moderate
HUPX Magyar Szervezett Villamosenergia-piac ZRt. **HUPX Hungarian Power Exchange Company Ltd.**	CORP	Portal of electric power trading data	not confirmed
Hungarian Transport Administration Közlekedésfejlesztési Koordinációs Központ http://www.kkk.gov.hu/	SUP	Portal of thematic road maps, toll roads, traffic and accident data, bridges,	not confirmed
Hungarian Central Statistical Office Központi Statisztikai Hivatal http://www.ksh.hu/?lang=en	SUP	Portal of data, maps, indicators coolected by HCSO, dataowner	not confirmed
MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zrt. **Hungarian Power Transmission System Operator** http://www.mavir.hu/web/mavir-en	CORP	Power system data portal	not confirmed

MBFH **Hungarian Office for Mining and Geology** (Ministry of National Development) Magyar Bányászati és Földtani Hivatal www.mbfh.hu	SUP	INSPIRE data manager Portal of map and public database: mining, geology,	not confirmed
MFGI **Geological and Geophysical Institute** (Ministry of National Development) http://www.mfgi.hu/hu	SUP	INSPIRE data manager Geoportal: Multipurpose geo-information system that can facilitate the policy-making, strategy-building and decision-making process related to the impact assessment of climate change and founding necessary adaptation measures in Hungary. geothermal sources, underground water, minerals gravitation and magnetic data	strong
MTA ATK TAKI Magyar Tudományos Akadémia Agrártudományi Kutatóközpont Talajtani és Agrokémiai Intézet Institute for Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research, Hungarian Academy of Sciences *http://mta-taki.hu/en*	HAS	Soil and agriculture related maps, data sets and services	moderate
Magyar Tudományos Akadémia Ökológiai Kutatóközpont **MTA Centre for Ecological Research (Hungarian Academy of Sciences)** http://www.okologia.mta.hu/en	HAS	Spatial ecological and environmental data sets	strong
Agricultural and Rural Development Agency (Ministry of Rural Development) Mezőgazdasági és Vidékfejlesztési Hivatal http://www.mvh.gov.hu/portal/MVHPortal_en	SUP	Portal of applications related to agricultural development and the Common Agricultural Policy of the EU	not confirmed

NÉBIH **Forestry Directorate National Food Chain Safety Office (Ministry of Regional Development)** Erdészeti Igazgatóság Nemzeti Élelmiszerlánc-biztonsági Hivatal https://www.nebih.gov.hu/szakteruletek/szakteruletek/erdeszeti_igazgatosag wisnovszkyk@nebih.gov.hu	SUP	National registry of actors in the forestry, agriculture, food sectors	not confirmed
NEKI National Institute for Environment Nemzeti Környezetügyi Intézet http://en.neki.gov.hu/	SUP		assignment as data manager may change
National Transport Authority (Ministry of National Development) Road, Railway and Shipping Authority, Shipping Department http://www.nkh.hu/en/Pages/default.aspx	SUP		not confirmed
National Cadastral Programme Non-profit Ltd. (Owner: Hungarian state, Hungarian National Asset Management Zrt.) Nemzeti Kataszteri Program Nonprofit Kft. http://www.nkp-kft.hu/static.aspx?page=1	CORP		not confirmed
OKI **National Institute for Environmental Health** Országos	SUP	Health related data set	strong

Környezetegészségügyi Intézet http://oki.antsz.hu/eng			
Hungarian Meteorological Service Országos Meteorológiai Szolgálat http://www.met.hu/en/idojaras/	SUP	Meteorological data sets	strong
National Water Directorate (Ministry of Interior) Országos Vízügyi Főigazgatóság http://www.ovf.hu/en	SUP	Data sets related to water management, floods	moderate/ week
Pannon University, Georgicon Faculty Pannon Egyetem, Georgikon Kar	UNI		moderate
RSOE **National Association of Radio Distress-Signalling and Infocommunications** Rádiós Segélyhívó és Infokommunikációs Országos Egyesület http://rsoe.hu/	OTHER	data sets and information related to inland navigation	strong
Lechner Lajos Knowledge Centre (VÁTI Nonprofit Ltd.) http://www.vati.hu/index.php?langcode=hu	CORP		not confirmed
Zrinyi Maping Service Not-for-Profit Public Interes Llp. HM Térképészeti Közhasznú Nonprofit Kft. Zrínyi Térképészeti és Kommunikációs Szolgáltató Közhasznú Nonprofit Kft. *http://shop.hmzrinyi.hu/webshop/index.php*	CORP	Zrinyi is a support organization for the Ministry of Defence and exclusive manager of digital data sets that can be accessed at: *http://shop.hmzrinyi.hu/webshop/index.php?menu=2&kid=148* Data and maps can be downloaded and re-used for a fee. Inquiry: *urban.janos@topomap.hu*	not confirmed

Gyula Forster National Centre for Cultural Heritage Management http://www.forsterkozpont.hu/tartalom.php?idt=20130909131531	SUP	datasets related to national heritage, for example digital database of archeological sites	moderate

Key data providers are in the majority public authorities (Ministries etc.). How relevant is their data to the EUSDR/DRDSI?

Among key data providers relevant to DRDSI there are ministries, ministerial support organizations and companies, owned directly, or indirectly by the government. In addition to these organization, many of which are also assigned INSPIRE theme managers, there are a number of data providers of importance for the DRDSI priorities, including academy and other institutions, for instance professional organizations, NGOs and even museums.

In general, to what extent is data shared through INSPIRE network services (majority/minority etc.)?

Information on Hungarian data has been made accessible on the European INSPIRE portal by FÖMI, Institute of Geodesy, Cartography and Remote Sensing, a support organization of the Ministry of Agriculture, by the deadline set by European regulation, through its GEOSHOP portal, a would be national INSPIRE portal. Concurrently GEOSHOP covers a part of the INSPIRE themes, only (ANNEX I). As meta data to a number of INSPIRE data themes are not yet covered through GEOSHOP, these are not accessible through the European INSPIRE portal, either. It is expected that these INSPIRE Data Themes covering Annex II and III will be made available through GEOSHOP as it develops to a national INSPIRE portal and the European INSPIRE portal, as well.

Are their access control measures to services/data in place?

Access to public data are regulated by the ACT XLVI. of 2012.

Are some data available for free?

No. Data are made free in exceptional cases, only, for the purposes of government, academy or emergency management, e.g. environmental hazard.

What data in support of the EUSDR might possibly be missing?

Of the 6 vertical priorities of EUSDR energy (PA2), water quality (PA4), environmental hazard (PA5) and biodiversity (PA6) seem to be well supported by data sets managed by various public organizations. In the future, harmonized collection and availability of data are expected to further improve. Available data to support PA1a and PA1b (surface transport and inland navigation) seem to be limited, though, akin to PA3 (culture and tourism). Generating and managing data in these areas at the regional level might deserve focused attention.

In general, how easy is it today for a user to find and access data in Hungary from these organisations and/or how easy is it likely to be in the near future?

As the national data infrastructure is not yet in place, navigation, finding and getting access to targeted information require substantial knowledge of government organizations. It needs to be emphasized, though, that information on and accessibility to public data has been improving, much information is made available on specific portals of institutions. Also, when the NDI is established by legislation, including organization, governance system, etc. both data owners and users will enjoy a much more harmonized, comprehensive and transparent data domain.

3. Policy-making organisations

Thematic topics have currently been examined from the point of view of environmental protection, Irrigation and agriculture development, navigability and Energy production, following classifications defined in the vertical priorities outlined by the JRC early in the process of supporting the EUSDR. The discussion considers examples in this context, including some of the data and systems involved, before looking at the NDI itself. As a result of recent reorganization in the Government of Hungary, some ministries and institutions have recently been re-named. In the Report the new names of these institutions are used, as of July 2014.

4. Thematic policies

The scope of these topics may change in the future but the details presented here already outline some of the key relevant organisations working in this area (see Table 2).

Note: This table is needed to be completed

Table 2. Ministries and policy areas

Name	Classification	Policy areas	Projects Completed and current, creating data or tools to support the EU Strategy for the Danube Region
Ministry of Agriculture	GOV	Environment, biodiversity, water management	
Ministry of Interior General Directorate for Water Affairs	GOV	Floods, environmental hazard, security	
National Transport Administration	SUP	Transport, Navigation	
Ministry of National Development	GOV	Transport, Navigation	
Hungarian Energy and Public Utility Regulatory Authority	SUP	Energy	

Hungarian transmission system operator, MAVÍR	COPR	Energy	
Forestry Directorate of the National Food Chain Safety Office	SUP	(Bio) Energy	
National Infocommunications Services Nemzeti Infokommunikációs Szolgáltató ZRt. http://www.nisz.hu/	SUP	Management of and services for the infocommunication infrastructrure of the government e-government e-health	
The Regional Environmental Center for Central and Eastern Europe Ady Endre ut 9-11, 2000 Szentendre, Regional environmental Centre Hungary Web: www.rec.org	OTHER	Environmental NGO Environmental information generated by international/regional project consortia Example: GREENINFRANET P*http://www.greeninfranet.org/index.php?page=the-regional-environmental-center-for-central-and-eastern-europe*	Strong

In terms of environmental protection the Parliament resolution 96/2009., discussed in Secion **Error! Reference source not found.**, rules on the *National Program for Environmental Protection* for the period 2014-2020, including collecting and managing data, as well as access to such information. Data are collected by assigned professional *organizations controlled by the government* body responsible for environmental issues (currenly the Ministry of Agriculture, *http://www.kormany.hu/hu/foldmuvelesugyi-miniszterium*). These data are compiled in the National System for Environmental Protection (OKIR, *http://okirteir.vm.gov.hu*), a comprehensive portal that supports monitoring the status and usage of the environment, collecting, processing and recording data thereof and providing users with information. For statistical data processing, these *data are integrated with the National Statistical Data Collection Program* pursuant to Government decree (288/2009. (XII.159).

The OKIR platform, comprising TEIR (National System for Area Development), has not been put into operation, yet. Developers of the platform:

VÁTI Magyar Regionális Fejlesztési és Urbanisztikai Nonprofit Kft. (*www.vati.hu*)
ESRI Magyarország Kft.(*www.esrihu.hu*).
HUMANsoft Kft. (*www.humansoft.hu*)
Quality control: IFUA Horváth & Partners (*www.ifua.hu*)
Project management: 4Sales Systems Kft (*www.4sales.hu*)

The *Ministry of Interior* (*http://www.kormany.hu/en/ministry-of-interior*), Directorate-General Water Affairs (BM Vízügyi főigazgatóság *http://www.vizugy.hu/*), along with 12 regional Directorates-General provide data

on waters, almost real time. From the viewpoint of the NDI, the General Directorate for Water Affairs (Országos Vízügyi Főigazgatóság, OVF (*http://www.ovf.hu/en*) needs to be mentioned. OVF has been engaged in various data related projects financed mostly from national development programs (operational programs). Access to these data need further investigation.

Data in this context includes

- Automated remote sensing of surface water data. *http://www.dataqua.hu/index.php?lang=en*
- Automation of hydrometeorological measuring stations *http://hidromet.vizugy.hu*

In terms of navigability, although not a legally binding document, The National Transport Strategy (NTS) has been prepared pursuant to the EU White Book for mid-term (2020), long-term (2030) and at a strategic framework level (2050). It formulates major mid-term objectives and project proposals for the period 2014–2020.

In line with the EU guidelines, the NTS has been compiled based on comprehensive transport concepts observing the interaction between the different segments of transport. Demand regarding mobility, outlining development objectives, has been assessed aligned with national and foreign economic trends, statistical data on population, impacts by territorial development, etc. using traffic modelling and functional analysis methodologies. Summary of the National Transport Strategy is available in the homepage of KKK, the National Transport Administration (*www.kkk.gov.hu/index.php/en*).

Navigation related data and information in Hungary are governed by the following legislation:

- Act XLII of 2000 on waterway transport
- Decree 57/2011. (XI.22.) (Ministry of National Development) on waterway transport
- Government Decree 219/2007 on River Information Services (RIS)
- Ministry of National Development Decree 45/2011. (VIII. 25.) on the professional and operational rules of river information services
- Government Decree 312/2011. (XII. 23.) on the monitoring of dangerous cargo transport done by the professional disaster management organization on rail and inland waterways

The Ministry of National Development is in charge for issues related to navigation.

National Transport Authority (Nemzeti Közlekedési Hatóság, NKH, *http://www.nkh.hu/en*), supervised by the Ministry of National Development is the entity executing all administrative and supervision activities related to transport. NKH is the owner of navigation related data pursuant to ACT XLII of 2000 on Waterway Transport, mentioned above.

Hungarian Transport Administration (Közlekedésfejlesztési Koordinációs Központ, KKK, *http://www.kkk.gov.hu/index.php/en/*), supervised also by the Ministry of National Development, is the asset manager of the national road infrastructure. In addition, it provides support to transport related scientific and research activities at the ministry, as well as other institutions. That regards navigation, KKK collects and manages data related to bridges, including those crossing rivers: *http://www.hidadatok.hu/*. KIRA is a project related to this database. (*kira.gov.hu/kira/* - username is required for signing in).

National Association of Radio Distress-Signalling and Infocommunications (Rádiós Segélyhívó és Infokommunikációs Országos Egyesület – RSOE (*http://rsoe.hu/*) is a professional organization that provides information services for inland navigation. River Information Services (RIS *http://www.pannonris.hu*) provides harmonised information services to support traffic and transport management in inland navigation, including, wherever technically feasible, interfaces with other transport modes. RIS do not deal with internal commercial activities between one or more of the involved companies, but are open for interfacing with commercial activities. RIS comprise services such as fairway information, traffic information, traffic management, hazard abatement support, information for transport management, statistics and customs services and waterway charges and port dues. The PannonRIS system is permanently developed and operated in cooperation with the Ministry of National Development and the National Transport Authority. The PannonRIS website offers support for the Danube navigation 24 hours-a-day. RSOE is not a data owner, it is a licensed service provider, using data owned by NKH.

Managing energy production related data and information involve several actors. The electric power sector in Hungary is regulated by the Act on Electricity (86/2007, Villamosenergia Törvény, VET), including compulsory data provision by energy licenciers for the Hungarian Energy and Public Utility Regulatory Authority, MEKH (*http://www.mekh.hu/en/*). MEKH publishes data, as well as statistics with open access on its homepage.

Ministerial decree 6/2008. (VI. 18.) KHEM rules on data services related to the operation of the national electric power system by the TSO and the distribution system operators, primarily for the purposes of settlement of payments.

MAVÍR (*www.mavir.hu*), the Hungarian state owned transmission system operator, TSO, provides real time data on the Hungarian electric power transmission grid on its homepage. HUPX (HUPX Hungarian Power Exchange Company, the subsidiary of MAVIR operates the Hungarian power exchange (*http://www.hupx.hu/home/index*).

The *Forestry Directorate of the National Food Chain Safety Office* (NÉBIH, Ministry of Regional Development, *https://www.nebih.gov.hu/szakteruletek/szakteruletek/erdeszeti_igazgatosag* is in charge for forest data, source of information related to bioenergy. Data related to hydropower locations are handled by the (Országos Vízügyi Főfelügyelet, OVF (*http://www.ovf.hu/en*), (*http://www.ovf.hu/en*) – hydropower locations.

The *Hungarian Office for Mining and Geology* (MFBH, *www.mbfh.hu* supervised by the Ministry of National Development) manages data regarding hydrocarbons and geothermal sources.

The *Regional Environmental Center for Central and Eastern Europe* (REC) is an NGO with offices in many countries of the Danube Region. REC is a very influential organization in policy making in many aspects of the environment. REC secures funding for its operations from grants from covernments and funding organizations globally, as well as participating in projects funded from various EU and national financial instruments, as well as global project donors.

NDI organisation

The NDI in Hungary (in Hungarian referred to as Nemzeti Térinformációs Infrastruktura, NTI) is of key interest to the DRDSI, with the organisational and legal setting presented in Table 3.

Table 3. Support for the national data infrastructure

Name	Legal acts responsible for relating to data	Initiatives	Funding sources
National Infocommunications Strategy 2014-2020	not legally binding document		
Land surveying and mapping	ACT XLVI/2012	on servicing basic public data (regulating re-use of public sector data)	Availability of public data free of charge can be secured for educational and research purposes

			Payment of service fees is required even between government institutions and ministries
Establishing the National Environmental Spatial Information System	Government Decree No 241/2009	INSPIRE	There is not dedicated funding in the central government budget to generate and maintain INSPIRE related data, to fund projects and the NDI
National Program for Environmental *Protection*	Parliament resolution 96/2009. (XII. 9.)	• access to information on the status and issues related to the environment, • collection of data on the environment and managing the related information systems	

Although, not a legally binding document, The *National Infocommunications Strategy 2014-2020*, approved by the Government of Hungary, sets the main directions for communications infrastructure development in Hungary for the coming period, that is of primary importance for the NDI, too. It was prepared pursuant to government resolution 1121/2013. (III. 11.), an ex-ante conditionality for using EU development funds during the 2014-2020 period.

As far as the legal framework of the NDI in Hungary is concerned, several acts, decrees and resolutions at various levels of legislation can be mentioned. The most fundamental ones are listed in this section, while others, mostly specific for certain sub-segments of the NDI are referred to later in the document.

ACT XLVI/2012 on land surveying and mapping lays the legal foundations for:

- following the global changes in information technology,
- modernizing the uniform, comprehensive controlling of real-estate registry, based on a data approach,
- tasks of the state regarding land, land survey and mapping based on a data approach,
- public (state) data sets,
- the basic rules regarding collecting public data and providing services related to public data

The Hungarian legal system adopted the INSPIRE Directive with *Government Decree No 241/2009, which also ruled on establishing the National Environmental Spatial Information System*, assigning the Minister for the Environment to be responsible for related issues. While the minister responsible for environmental affairs is currently the Minister of Agriculture, public spatial data belong to more than one ministry or ministerial support institution. As of Q2 2014, the harmonisation of these spatial data owned by various institutions is incomplete, improvement of the situation is foreseen, however, as soon as the National Spatial Data Infrastructure, pursuant to the INSPIRE directive, has been established, including its institutions and governing bodies. In order to assure efficient use and harmonisation of national spatial data sets and the national

spatial information systems, the spatial data community in Hungary has been pursuing the *National Commission for Spatial Data Infrastructure* to be established.

Parliament resolution 96/2009. (XII. 9) on the National Program for Environmental *Protection* regulates:

> access to information on the status and issues related to the environment,
> collection of data on the environment and managing the related information systems

The resolution rules on

> establishing a comprehensive information system on environmental health, needed to support policies that address environmental impacts on health

This Parliament resolution is relevant, in particular, to the JRC Program priority: Environmental Protection.

5. Research organisations

A list of key organisations in research system is given in **Error! Reference source not found.**.

Table 4. List of key organisations and research projects in Hungary

Name of organisation Please add other examples from the data providers list	**Classification** GOV/SUP/ UNI/ HAS/OTHER	Completed and current **projects** referenced to EUSDR	**Direct linkage to EUSDR** (Yes/No)
University of Miskolc *http://www.uni-miskolc.hu/public/index.php?page_id=630*	UNI	Soil map and flood related projects and data sets (Visegrad Soil Database, GS Soil Portal, FLOODLOG)	yes
Hungarian Academy of Sciences, Centre for Ecological Research *http://okologia.mta.hu/*	HAS	ECOINFLAB *http://ecoinflab.okologia.mta.hu/* *http://okologia.mta.hu/node/6280*	yes
Hungarian Academy of Sciences, Centre for Agricultural Research, Institute for Soil Sciences and Agricultural Chemistry , *http://mta-taki.hu/en*	HAS	• Various soil database and projects • *http://mta-taki.hu/hu/osztalyok/kornyezetinformatikai-osztaly/terkepi-adatszolgaltatas* • *http://mta-taki.hu/hu/osztalyok/kornyezetinformatikai-osztaly/agrotopo* • *http://mta-taki.hu/hu/osztalyok/kornyezetinformatikai-osztaly/dktir*	yes
Óbuda University Alba Regia Technical faculty Institute of Geoinformatics	UNI		yes
Pannon University, Georgicon Faculty H-8360, Keszthely, Deák Ferenc u. 16.	UNI		yes
Szent István University FACULTY OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES	UNI	Soil related projects	yes

Gyula Forster National Centre for Cultural Heritage Management *http://www.forsterkozpont.hu/tartalom.php?idt=20130909131531* (Consortium member: Hungarian National Museum/National Heritage Protection Centre)	SUP	ARIADNE – integrated archeological research data infrastructure *http://www.ariadne-infrastructure.eu/*	yes
MaNDA - Hungarian National Digital Archive and Film Institute (plus 8 institutes) Knowledge House and Library of Békés County Békés Megyei Tudásház és Könyvtár **Hungarian Theatre Museum and Institute**		EUROPEANA – portal of cultural/art collections around Europe http://www.europeana.eu/	yes

6. Stakeholder engagement organisations and networks

The DRDSI needs to undertake outreach activities and there are some organisations in Hungary who could potentially support the activity (See Table 5).

Table 5. List of stakeholder engagement organisations and networks

Name of organisation	**Geographic area** of operation	Area of interest
Hungarian Association for Geoinformation (HUNAGI) *http://www.hunagi.hu/new/*	Hungary	• promote generation, access to and usage of spatial data • reinforce international institutional cooperation • support professional activities of government and local covernments • member of EUROGI
Hungarian Society of Surveying, Mapping and Remote Sensing (MFTTT) *https://www.mfttt.hu/mftttportal/*	Hungary	• organizing conferences • publishing professional periodical • international cooperation (membership: FIG, ISPRS, ICA, CLGE) • member of the Hungarian Chamber of Engineers
Hungarian Association of Entreprenuers of Surveying and Geoinformatics *http://mfgve.hu/*	Hungary	• new technologies • cooperation with peer associations internationally • promote industry transparency • promoting legislation in conformity with EU aquis

		• joint professional thinking in order to meet changing customer demand
Association of Informatics for the Society *http://www.infoter.eu/*	Hungary and Central-Eastern Europe region	• research and providing information related to information and knowledge based development of Hungary • provide professional opinion on ICT development in the public sector • providing professional opinion regarding legislation • regional cooperation to provide assistance to disadvantaged populations to get access to information society, regionally

Promotional activities and upcoming meetings that could be of interest to the DRDSI

Table 6. Events in 2015 with possible interest to disseminate information on DRDSI

Event title	Date	Information
Conference on Spatial Information	May 28-29, 2015	Organizer: University of Debrecen Venue: Debrecen town *http://www.geogis.detek.unideb.hu/drupal/?q=en/node/152* Abstract deadline: March 1, 2015
Informatics for the society	November 2015	Yearly conference organized by the Association of Informatics for the Society (*http://www.infoter.eu/informatika_a_tarsadalomert_konferencia*) – in Hungarian, only.
GISOPEN2015	March 25-27 2015.	Legal and professional actualities for professionals of land and spatial informatics *http://www.geo.info.hu/gisopen/2015/* - in Hungarian Venue: Székesfehérvár town Organized by Óbuda University, Institute of Geoinformatics
EUGEO Budapest 2015	Aug 30-Sept 2 2015	The 5th EUGEO conf The aim is to facilitate the exchange of new ideas and to offer opportunities for networking within an informal atmosphere. Main topics: Changes in Space and Time Geography, Politics and Policy-making GIScience *http://eugeo2015.com/* Venue: Budapest Organizer: ELTE, Eötvös Lóránd University

Organizers of the above events are thought to welcome a presentation on DRDSI.

7. Conclusions

Please state 1-2 sentence each topic

Completeness of the investigation

Although, the national data infrastructure, as such has not been officially (or legally) established yet in Hungary (including governing bodies, organization, etc.), institutions assigned by the government, responsible for managing and providing data sets pursuant to the INSPIRE directive, proved good contacts to explore resources to cover DRDSI priorities. Datasets, meta data, etc. are not harmonized, i.e. data owner institutions manage their own data sets independent from other organizations and therefore such datasets managed by different organizations may sometimes overlap. From the point of view of DRDSI, three types of dataset have been identified depending on the origin of data generation. Datasets:

- corresponding to an INSPIRE theme, national public data set,
- outside INSPIRE, national public data set,
- data set generated within the framework of specific projects, funded from European, or national grants

The investigation to cover public data can be considered close to complete, but due to the complex system of government and support institutions, some sources of potential data sets might have been left uncovered. Identifying additional data sets has been ongoing.

Recommendations on how to proceed with key players

Regarding the priorities of the JRC Danube Strategy support program the following institutions are recommended as key partners:

Environment:

Centre for Ecological Research, Hungarian Acedemy of Sciences, *http://www.okologia.mta.hu/en* ; *http://ecoinflab.okologia.mta.hu/*

"ECOINFOLAB (Ecoinformatics and GIS Laboratory) is a common infrastructure and internal service for the Centre for Ecological Research through an integration of hardware and software solutions with existing spatial ecological and environmental datasets and leading-edge research methodologies. " (Source: website of ECOINFOLAB).

The lab provides new capabilities to:

- spatial analysis and predictive modeling of species, habitats and ecosystems of the Carpathian basin,
- assessment of ecosystem services in relation with biodiversity, land use change and climate change,
- risk assessment of alien invasive species
- ecological remote sensing methodology development.

The Hungarian Academy of Sciences and the Centre for Ecological Research would become an open, close cooperating partner to the DRDSI. The Danube_Net Expert maintains good rapport with the management of the Centre.

Irrigation and agriculture:

General Directorate of Water Management, OVF (Ministry of Interior)

http://www.ovf.hu/en/

As the public datasets managed by the Directorate are mostly considered sensitive, or confidential due to national public security reasons, OVF might not be fully open and cooperative with the DRSDI

program. The Danube_Net expert maintains good personal contacts to some of the managers of OVF.

Navigation:
National Association of Radio Distress-Signalling and Infocommunications

http://rsoe.hu/

The Association is a not-for-profit professional organization in close professional cooperation with public institutions and ministries. Openness and cooperation can be expected from the Association with the DRDSI program.

Energy production:
Hungarian Energy and Public Utility Regulatory Authority

http://www.mekh.hu/en/ . The Authority is a public support organization of the government in charge for a politically very sensitive sector of the economy. Therefore it can be expected that the Authority would cooperate with DRDSI to a limited extent and with strong reservations.

Extend DRDSI priorities
It is recommended that in addition to the priorities of the JRC EUSDR and the DRDSI program set in 2013 (*irrigation and agricultural development; navigability; environmental protection and energy production*) DRDSI could focus on domains such as tourism and culture. Digitizing cultural heritage has commenced by many museums and government institutions in the Danube Region. Making detectable and accessible existing data sets through the DRDSI portal could largely enrich the DRDSI program on a short term, could generate attention to and attract tourism to, as well as could help developing businesses, services and creating jobs in disadvantaged geographic areas.

As an example Gyula Forster National Centre for Cultural Heritage Management is data owner of an archeological data set that can help investors to assess obligations and estimate associated costs with regards to construction projects at the early phase of feasibility assessment. The data set has not been made fully public, due to security reasons, but Centre would be ready to discuss linkage with the DRDSI portal. Also similar data sets could be explored in the Danube Region, or projects could be extended to unexplored areas, too.
Additional datadsets, such as those containing information on cultural heritage, photography etc. would be readily available to be linked to the DRDSI platform.
There has been several projects that addressed digitizing art collections, less with a geographic focus, though. Some of these are: ARIADNE (*http://www.ariadne-infrastructure.eu/*); EUROPEANA (*http://www.europeana.eu/*). The Object Photo database, a project by the Museum of Modern Arts, New York (*http://www.moma.org/interactives/objectphoto/#home*) , that has recently been completed, contains works from photographers from the Danube Region. The DRDSI infrastructure could help disseminate information on cultural heritage, arts, etc. which can reinforce interconnection within and outside the Danube Region, as well as could generate economic activity by new business models and could contribute to creating jobs.

MOOC to disseminate information on DRDSI and the JRC EUSDR program
AUB is a Hungarian and international university supported by Hungary, the Federal Republic of Germany, the Republic of Austria, the Free State of Bavaria, the Federal State of Baden-Württemberg, the Swiss Confederation and the Autonomous Region of Trentino South Tyrol.

Overall readiness and interest of the region's actors to contribute to

the Danube Strategy, in general

Stakeholders, in general, are open to contribute within their field of expertise and competence. There are two major obstacles hindering more active participation:

- lack of information, understanding of their potential contribution, and lack of coordination by actors in the EUSDR governance system with a broad view on the Strategy
- For many actors it is not clear how the EUSDR distinguishes itself from other EU initiatives, in particular in which government activity, including assigned functions by ministries have already been defined

the DRDSI, in detail

Actors, stakeholders are generally ready to cooperate and work with the DRDSI, but they usually lack appropriate information. They require exact information focusing on what their potential contribution could be, how such contribution could be financed and managed. Public actors are ready to contribute, conditional to the approval by the responsible government body (ministry), to the extent of their assigned and managed data themes. Academy is more open to dialogue on new initiatives, however the required budget is always a constraint.

Examples where public, private and academic sectors could be working together for the DRDSI

- creating and managing regionally harmonized water management monitoring system, including sourcing and using water, as well as floods,
- Enhancing the creation of services start-ups with the European Institute of Technology ICT KIC (*http://www.eitictlabs.eu/*)
- HUNAGI offered support and transfer of their best practice to establish spatial data related professional associations in EUSDR countries, where such associations have not been established, yet. First such contribution could be offered for Moldova, in case of need.

Possible benefits of the platform for key organisations

Scientific stakeholders can benefit from cooperating with DRDSI in many ways:

- Direct exposure to cooperation at the European level
- Access to projects targeting funding from EU and national sources
- Access to professional information

As the urban dimensions of the EUSDR was emphasized in the stakeholder conference in Vienna, January 2015, it is thought that cities could be very important beneficiaries of the DRDS program. Therefore, further understanding of the needs of urban policy making, as well as existing data and related information regarding the specifics of urban economic activity, ecosystems, environment and health issues (e.g. air quality) may need further investigation.

Key success stories/achievements of organisations (recent or likely to come in next few months)

Key bottlenecks/barriers uncovered

Lack of coordinated dissemination of information on the EUSDR

In general in the region

… and in particular for any potential key players

How free and open data is and how likely data may need to be paid for
Data are open through services (for example, maps). Most services and data are available for a fee.

How well data is being managed (impacting on infrastructure sustainability)
Management of data generated by specific projects are usually closed, or completed. Most INSPIRE theme data set, however, are maintained and updated on a continuous basis.

How readily stakeholders could respond to specific requests for new data.
It seems difficult, especially for public institutions to provide new data, except for those within their assignment. Non- public institutions, academy might be more flexible, but would require the budget necessary to produce data.

Recommendations

on how to proceed with key players (Is there anything in the current planning/activities that we should change?
It would be efficient to select one particular institution as key contact for each DRDSI priority.

Awareness-raising
There will be a number of events during the year 2015, where a presentation on DRDSI can be offered, including a following Q&A, or discussion. Key partners are contacted on a regular basis – 1-2 times a year, personally, by phone, or through e-mail. Partners welcome regular information on the progress of DRDSI, as having such information and connection can raise their esteem in the professional community.

Portal and newsletter issued by professional organizations can be efficient means to disseminate information on DRDSI and the EUSDR.

Tools
As everyone is overloaded, it seems that the most efficient means to disseminate information and involve stakeholders are online tool, maybe periodic newsletters.

Capacity building/training
As mentioned above, HUNAGI offered training and transfer of best practice to help establishing professional associations, where such association has not been established, yet, or dysfunctional.

Networking
Working on concrete initiatives and projects related to the DRDSI can reinforce common understanding and motivation of stakeholders to cooperate with DRDSI. This, however, requires managerial time and effort from DRSI

Funding
DRDSI related initiatives and projects could apply for grants from EUSDR dedicated financial instruments.
PA10 of the EUSDR manages the following instruments that could be used to finance projects related to the DRDSI.

- TAF-DRP
- START

A direct contact and discussion with PA10 coordinator Kurt Puchinger could facilitate access to these fundings for DRDSI stakeholders.
Further funding opportunities not directly dedicated to, but applicable for DRDSI related projects:
http://www.danube-region.eu/2014-03-21-07-28-38/etc-ipa-cbc-and-enpi-cbc-programmes