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Recommendation paper on enhancing the Biodiversity Information management and reporting

in South-East Europe

The South-East Europe (SEE) region harbors an exceptional wealth of biodiversity at the regional, national and local level. Nevertheless, this region is yet confronted with many challenges regarding biodiversity information management and reporting (BIMR). Key among them is lack of structured and standardized forms for data collection, inadequate data usage and data quality along with the absence of data availability and reporting protocols among relevant institutions.

The biodiversity data are produced by a variety of public institutions, researchers and non-governmental organizations (NGOs). However, they are in most cases not well systematically organized and verified/validated, which makes it very difficult for SEE economies to establish or improve BIMR and undertake convenient policy decisions. Addressing these issues require joint cross-border actions and decisions that highlight recommendations aiming to enhance feasible and effective implementation of BIMR within and across SEE economies but also towards the Convention on Biological Diversity (CBD), Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), the Convention on Wetlands of International Importance (Ramsar Convention), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention) and EU (European Union) Directives.

The purpose of this paper is to analyze these gaps and barriers which SEE economies are facing and to provide short to mid-term recommendations to be undertaken by relevant ministries of environment and other relevant decision makers in the field of environment/nature conservation (e.g. Institutes for Nature Conservation, Environmental Protection Agencies, Environmental Funds etc.). Therefore, it can help SEE economies in undertaking further EU integration reforms (e.g. Chapter 27 – particularly legislation, nature protection) becoming a necessary precondition for implementing principles and standards of sustainable development. To properly carry out these recommendations, particular consideration has been given to the relevant EU Directives¹, EU Biodiversity Strategy 2020 and good practices of neighboring Slovenia and Croatia, which have managed to set up adequate EU conform biodiversity information system and reporting to be applicable for the SEE economies in advancing their own systems.

These short to mid-term recommendations including legal as well as regulatory actions and infrastructure investments are:

■ **Amendment of national legislation regarding nature protection with focus on biodiversity information system (BIS) (as being a part of environmental information system (EIS)) in SEE economies:**

- a) *If primary legislation (e.g. Law on Environmental Protection / Law on Nature Protection) does not designate an institution responsible for the storage, maintenance and sharing of biodiversity data, such legislation should be amended accordingly. BIS should be operationalised in order to effectively monitor and report on the status of biodiversity within such designated institution.*
- b) *Secondary legislation (i.e. regulation, ordinance) on EIS and/or BIS: SEE economies should adopt specific secondary legislation to operationalize the EIS (including BIS as an integrat-*

ed system that contains catalogue of flora and fauna species, species occurrences, habitats distribution, map of habitats, Natura 2000 sites, protected areas map, registry of protected areas, etc). Such secondary legislation should define the structure, content, form and manner of operation, keeping and maintaining the system, obligations, manner and deadlines for the submission of data, environmental information and appropriate reports to the designated institution, and the way of managing the data and information about the environment.

While sound progress has been made in enactment of the primary legislation, BIMR Assessments (hereinafter as “the assessments”) have shown that SEE economies should adopt all secondary legislation emanating from the primary legislation to regulate in more detail and operationalize way all aspects pertaining to collection, integration and processing of biodiversity data. Among the reasons for insufficient regional sharing of biodiversity data is the need to draft adequate secondary legislation to fully operationalize biodiversity information system. It is also important that SEE economies interpret such legislation as far as possible in the light of all relevant EU Directives that have been transposed or are in a process of transposition in the SEE economies.¹

- **Formalization of reporting protocols within the sector of nature protection and potentially extension to other biodiversity related sectors (i.e. forestry, water management, agriculture, hunting, fishing, land management)**

SEE economies should formalize reporting protocols to ensure biodiversity data flow i.e. delivery terms, means and obligations of all stakeholders. Reporting protocols need to be formalized between relevant institutions (for example between the Ministry of Environment, Environmental Protection Agency/ Institute for Nature Conservation, National Parks, biodiversity non-government organizations etc.) and in standardized forms to secure that

- a) *existing data and information streams are linked through the use of modern tools (e.g. internet and satellite technology) and,*
- b) *paper-based reporting is replaced by a system where data is available in an open and transparent manner.*

Often the lack of exchange of biodiversity data in the SEE economies is a result of many factors such as lack of agreements and protocols to facilitate the data flow, inadequate data infrastructure, including the lack of adequate legal basis to facilitate sharing of data.² As data and information come from multiple sources and formats³ it's important that SEE economies develop standardized methodology for collection of biodiversity data and link them from different sources to a centralized portal to provide access to all kind of information hosted by the environmental authorities' and scientific institutions.

One way to formalize the reporting protocols among the SEE economies is one example of an ordinance on environmental information system (see the Croatian Ordinance on EIS No. 68/2008) which defines the rights and duties of the data providers, obligations of state administrative bodies and other legal entities in submitting data and information to the EIS. The reporting protocols should address a) *the manner in which EIS is organized* b) *the manner of delivery of data by thematic areas and subdivisions* and c) *the method and deadlines for the submission of data and information on the environment.*

Furthermore, the reporting protocols of the SEE economies should be drafted in a way to ensure that EIS enables the collection and provision of information and data processed and analyzed in

accordance with international and European methodologies (e.g. “Mapping and Assessment of Ecosystems and their Services (MAES)” or pursuant to the Carpathian Countries Integrated Biodiversity Information System CCIBIS). Preferably, the reporting protocols should make it possible the exchange of environmental data with existing similar systems at the EU and Member State level, linked to the European Information and Observation Network (EIONET) as part of the European Environment Agency (EEA).

The SEE economies can also adopt a joint framework on exchange of biodiversity information by laying down technical arrangements for regional interoperability and harmonization of biodiversity data. For this purpose, common standards and protocols can be used (e.g. Global Biodiversity Information Facility [GBIF] promotes a set of standards and protocols through its network, the Darwin Core standard,⁴ the ABCD data specification,⁵ the BioCASE⁶ and DiGIR⁷ protocols, and the TAPIR standard).

■ **Set-up a functional IT infrastructure for biodiversity database**

The SEE economies should set-up an operational IT infrastructure for biodiversity database to combine data from different sources and ensure data flow across the SEE economies. A functional biodiversity database infrastructure will simplify the reporting requirements to different biodiversity related Conventions, but would also enable to structure data in systematic way, to facilitate the monitoring of biodiversity status and to improve reporting processes between institutions within and outside the economy.

A major barrier for the SEE economies is the lack of adequate IT infrastructure. In most SEE economies, the biodiversity data are mainly in textual formats, stored on local computers, which cannot be interchanged between various data providers, public entities and scientific institutions. For this reason, SEE economies are advised to consider setting up and operationalizing digital databases (e-portal) in order to integrate the scattered data sources into a centralized public domain. For example GIZ/ORF-BD has currently initiating and supporting a tailor made IT solution for three economies (B&H, MKD and MNE), based on which the beneficiary economies will be able to have their own modular information system for management of biodiversity data, and will be able to store the biodiversity data in a standard and interoperable form, with the possibility to be exchanged with other available information systems or used for reporting requirements on national and international level.

Centralized environmental information systems operating based on an adequate and up-to-date IT infrastructure increases effectiveness in the data flow, efficiency of scarce financial resources and enables timely decision-making for infrastructure feasibility studies. A good practice is the *Slovenian catalogue of Environmental Data Sources (CDS)*, which provides an overview of the data collected and stored by the Slovenian authorities and institutions.⁸ Another model is the *Croatian Environmental Information System (Bioportal)*, operating through a modern IT system available via an internet portal and connecting existing environmental information systems from different institutions in Croatia. Various thematic databases, applications and web services for storage, maintenance and exchange of biodiversity data are publicly available through this specialized web portal.⁹ The SEE economies can also refer to the Carpathian Integrated Biodiversity Information System (CCIBIS), which serves partners within the Carpathian Convention sharing information and building a set of data that is useful for project planning and implementation. Operational environmental information systems in SEE economies based on modern IT systems are essential for national monitoring, reporting and decision-making as well as regional exchange of biodiversity data.

■ Copyright legislation and exchange of biodiversity data and information

SEE economies should transpose pertinent copyright legislation with Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society¹⁰ in order to introduce the exceptions and limitations on authorship rights as provided in such Directive.

As biodiversity data may be in various forms (e.g. raw data and metadata, analyses, pictures, graphs and other diagrams), some of the data can be copyrightable, which can create legal barriers for open access of biodiversity data. The SEE economies should provide for an open and free access to biodiversity data while removing legal provisions related to copyright that may prevent free access to biodiversity data. For this purpose, individual data use agreements can be used in a form of a general “terms of use” - statement which the user has to accept before accessing protected data and information.¹¹

Given that copyright may present a barrier to scientific data, the EU Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society (The EU Copyright Directive) has put considerable weight on the importance of science by providing for exceptions and limitations to copyright.¹² With regard to authorship rights that may emerge regarding the use of biodiversity data, the SEE economies should harmonize the pertinent legislation with the EU Copyright Directive, which balances the individual right on intellectual property with the right of general interest in using intellectual property works. According to this Directive, the author has the right to decide who shall be allowed to reproduce his work or communicate it to the public but it removes from the author to a wide degree the intellectual property rights for the benefit of the general interest.

It should be noted that EU database protection is not part of copyright but is a *sui generis* (special case) right that applies whether copyright relating to the database exists or not and as Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) provides it will support EEA to improve the flow of policy-relevant environmental information between Member States and the Community institutions. The Slovenian Law on copyright and related rights (as amended)¹³ while it provides detailed norms about authorship rights, it states that it integrates into the Slovenian legal system the provisions of the EU Copyright Directive. The Law extends legal protection to databases and its contents irrespective of their protection by copyright or by other rights, but it states that a lawful user of a database may freely reproduce or alter the database, if this is necessary for the purposes of access to its contents and the normal use of those contents. Croatia has also transposed its Law on Copyright and Related Acts¹⁴ with the EU Copyright Directive whereby the same exceptions and limitations to copyright provided by such Directive will be applicable at the Croatian legal system.

CONCLUSION

As the new EU biodiversity strategy proposes to halt biodiversity loss by 2020, one of the most effective instruments to achieve this goal is by fostering a regional information and sharing of biodiversity information. However, as explained above, this requires a range of legal and institutional measures to enable SEE economies to functionalize biodiversity information systems and enable sharing biodiversity information among the SEE economies. Moreover, adequate IT infrastructure is also necessary, which, through standardization of data collection will enable adequate information spread and would ensure the fulfillment of the institutional and reporting commitments of the SEE economies in the area of biodiversity.

NOTES AND REFERENCES

- 1 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal L 206 , 22/07/1992; Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
- 2 See the national assessment of biodiversity information management and reporting baseline for Macedonia available at https://balkangreenenergynews.com/wp-content/uploads/2017/08/Macedonia-Assessment_ENG.pdf p. 8; See the national assessment of biodiversity information management and reporting baseline for Albania available https://balkangreenenergynews.com/wp-content/.../08/Albania-Assessment_ENG.pdf. p. 15.
- 3 See the national assessment of biodiversity information management and reporting baseline for Montenegro available at https://balkangreenenergynews.com/wp-content/.../Montenegro-Assessment_ENG.pdf. p. 27.
- 4 See the document on Darwin Core available at <rs.tdwg.org/dwc>
- 5 See www.tdwg.org/standards/115
- 6 See www.biocase.org
- 7 See digir.net
- 8 For more see the official webpage of the Slovenian Environmental Agency, which is available at <http://kpv.arso.gov.si/welcome/welcome?L1=94&L2=302>
- 9 Maja Vasiljević, Sanja Pokrajac, Boris Erg, “State of Nature Conservation Systems in South-Eastern Europe” p. 96.
- 10 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society.
- 11 Egloff, Willi, et al. “Open exchange of scientific knowledge and European copyright: The case of biodiversity information.” ZooKeys 414 (2014).
- 12 Egloff, Willi, et al. “Open exchange of scientific knowledge and European copyright: The case of biodiversity information.” ZooKeys 414 (2014).
- 13 Copyright and Related Rights Act (Official Gazette No 16/2007 -No 68/2008, No 110/2013 and No 56/2015).
- 14 Copyright and Related Rights Act and Act on Amendments to the Copyright and Related Rights Act (OG No. 167/2003, 79/2007, 80/2011, 141/2013, 127/2014, 62/2017) available at <http://www.dziv.hr/en/ip-legislation/national-legislation/copyright-and-related-rights/>