The Sustainable Aggregates Planning in South East Europe: the SNAP-SEE project in glance

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1. About the SNAP-SEE Project

The Sustainable Aggregates Planning in South East Europe (SNAP-SEE) project is being implemented under the 4th call in the South East Europe (SEE) Program. It lasted from October 2012 to November 2014 and gathers 27 partners from 13 SEE countries and Turkey.

Assuring sustainable supply of aggregates is an important challenge due to their economic importance and the potential environmental and social impacts, associated with the production. Medium and long-term planning of aggregates supply, which involves many different stakeholders should thus be an essential component of every country or region. Due to the regional differences and historical development in South East Europe, there are diverse approaches to aggregates policies, planning and resource management, which is hindering resource efficiency and might reduce economic development in the region. Successful planning for the management of aggregate resources and the supply of primary and secondary aggregates requires a wide variety of supporting information to ensure that everything required is being taken into consideration to achieve a win-win situation.

1.1 Background

Aggregates are the essential building component for modern society. A sustainable supply of aggregates is essential to economic growth, and conversely aggregates consumption can be an indicator of economic prosperity. Europe currently needs some 3 billion tonnes of aggregates a year (6 t/c) and could reach 3.5-4 billion tonnes before 2030, driven mainly by economic growth in Central and South East Europe (MUL, 2010). Growing demand needs to be addressed by aggregates supply planning concepts.

About 90% of these aggregates in EU come from naturally-occurring deposits, which are crushed stone and sand and gravel deposits. The remaining 10% comes from the secondary sources, such as recycled materials, marine and manufactured aggregates. Although the supply of aggregates from secondary sources will increase in the future, the majority of the demand in the future will still needed to be met by the extraction from the primary sources. As aggregates are bulk and heavy, and their transportation requires a lot of energy and produces unwanted negative impacts, their sources should be close to the consumption centers (MUL, 2010).

The increase of the consumption of aggregates is linked with the GDP growth. Because GDP is expected to grow in the South Eastern Europe (SEE) countries it is also expected that this region will need to meet the increased demand for aggregates. Assuring sustainable supply of aggregates is an important challenge, because a compromise between possible negative environmental and societal impacts at extraction, environmental protection goals and policies, and proximity to consumption centers must be achieved.

The **Sustainable Aggregates Planning in South East Europe (SNAP-SEE)** project, approved in October 2012 within a framework of the South East Europe Transnational Cooperation Program, focuses on developing and disseminating tools for aggregates management and planning in the SEE. It builds on the results of the Sustainable Aggregates Resource Management (SARMa) project, which ended in December 2011.

The SNAP-SEE is a two-year project with 27 partners from 14 SEE countries, cooperating under the leadership of the University of Leoben (Montanuniversität Leoben) from Austria. The composition of partnership in the SNAP-SEE project reflects the colorful mix of institutions involved in the planning process of primary and secondary aggregates supply, including universities, geological surveys, authorities in the charge of mining, local-level, regional and national level planning authorities, environmental protection agencies, representatives from the industry, civil society, and so on.

1.2 Challenges

The working hypothesis of the project was, that countries in the SEE area have one or more of the following drawbacks at aggregates supply planning practices:

- ✚ The lack of coordinated/regional planning for aggregates' supply that addresses cross-sectoral interactions and ensures that documents are consistent;
- ✚ The lack of integrated planning for primary and secondary aggregates that addresses resource efficiency;
- ✚ The lack of capacity and competence to address the preceding two problems;
- ✚ Very low level of stakeholder engagement in the aggregates planning process to ensure that planning addresses the concerns and needs of all target groups.

To address following open issues and to develop practical tools which can have positive impact in the aggregates planning process in the SEE area, the accurate situation in SEE countries has been analyzed and defined first. This includes assessment of:

- ✚ Differences among mineral policies;
- ✚ Identification of legal documents, which address aggregates policies and plans;
- ✚ The level of stakeholders understanding of the sustainable aggregates resource management (SARM) and sustainable supply mix (SSM) concepts;
- ✚ The level of the coordination on planning supply from primary and secondary aggregates sources between relevant authorities.

1.3 Goals, Objectives and Expected Impacts

To improve the aggregates planning process to make it more sustainable, socio-environmentally and economically friendly, the SNAP-SEE objectives have been set up. The primary objective is to develop a **Toolbox for Aggregates Planning to support national/regional, primary and secondary aggregates planning in SEE countries**, comprised of:

- ✚ The SNAP-SEE Vision for Aggregates Planning;
- ✚ Handbook on Capacity Building and Stakeholder Consultation;
- ✚ Handbook on Data and Analysis Methodologies;
- ✚ The Aggregates Planning Scheme.

Other objectives address gaps which requires more practical approach and are:

- To engage stakeholders in capacity building;
- To conduct National/regional consultations;
- To initiate and establish a stakeholders consultations process which will last beyond the SNAP-SEE project and finally;
- To prepare all required supporting materials for capacity building and stakeholder engagement, based on the acquired experiences in the process.

The joint cooperation between cooperating institutions can bring together the most up-to-date knowledge and broad experience to express synergies required to achieve the project goals in a best manner. The SNAP-SEE target groups are public authorities which have the planning of aggregates in their jurisdiction. This can be on the national, regional or local level, therefore we target the ministries, regions and government agencies, as well as municipalities. By integrating the results of the SNAP-SEE project within their working process will benefit not only the authorities by adjusting their decision process towards best practices, but also all other stakeholders in the field of aggregates. Industry can benefit by having more consistent and easier permitting process, as well as more stable business environment. Local population will benefit by reducing negative environmental and social impacts, by cheaper constructions materials, and by higher economic growth. Environment will benefit as well because proper planning of aggregates supply can actually foster biodiversity. Active or abandoned quarries can represent unique habitats for endangered species. The proof for that is that many abandoned gravel pits or quarries are protected as the NATURA2000 areas today.

1.4 Partnership, Project Meetings and Management

27 partners from 14 different countries participated in SNAP-SEE project. Among them, there are 4 universities, 3 institutes in the domain of geo-sciences, 4 geological surveys, 7 national authorities (ministries or similar governmental bodies) in charge of mining or environment, 4 regional authorities in charge for mining, 2 environmental protection agencies, 2 associations of mining companies and 1 non-governmental organization. Geographical distribution of partners is presented on the Figure 1.

- Montanuniversität Leoben • Technical University of Crete • National Center for Sustainable Development • Geological and Geophysical Institute of Hungary • Emilia-Romagna Region - Environment, Soil and Coast Defence Department • Autonomous province of Trento - Environmental Protection Provincial Agency • National Institute for Research-Development in domain of Geology, Geophysics, Geochemistry and Remote sensing • Ministry of Environment of the Slovak Republic • Geological Survey of Slovenia • Geological Survey of Albania • Ministry of Economic Affairs of Herzegbosnian Canton • Croatian Geological Survey • Geological Survey of Montenegro • University of Belgrade, Faculty of Mining and Geology • Regional Government of Styria - Department 14 - Water Management, Resources and Sustainability • Bulgarian Association of Aggregates Producers • Hungarian Mining Association • Croatian Environment Agency • Ministry of Economy of Montenegro • Environmental Protection Agency of Montenegro • Ministry for Economy, Family and Youth • Hungarian Office for Mining and Geology • Parma Province - Territorial Planning Service • Ministry for Agriculture and the Environment • Ecologists Without Borders Association • Istanbul University • Ministry of environment energy & climate change

Figure 1. Geographical distribution of SNAP-SEE partners.

The SNAP-SEE project is divided into **6 work packages**. Two of those are horizontal activities – Project Management (WP1) and Dissemination and Communication activities (WP2) – and four are thematic: Capacity Building and Stakeholder Consultations (WP3), Data and Analysis Methodologies (WP4), National / Regional Planning (WP5)

and Aggregates Planning Scheme (WP6). Activities and results of each work package are described in the following chapters.

Regular monitoring of the project progress was performed at the regular project meetings. The Kick Off (Figure 2) was in October 2012 in Leoben, organized by the Lead Partner. The partners gathered together again at a training in Budapest in February 2013, where hosted the Hungarian Geological Survey. This training was needed in order to increase capacity of the partners to organize 2 rounds of stakeholders consultations in their countries/regions. In May 2013 the 2nd project meeting took place in Budva, arranged by the Geological Survey of Montenegro, and later that year in Bratislava, organized by the Ministry of Environment of the Slovak Republic. The 4th Meeting was organized by the Croatian Geological Survey in April 2014 in Pula. The 5th meeting was organized by Technical University of Crete in Chania.. Internal evaluation of quality of outputs is implemented by the Quality Management Board.

Figure 2. The Kick off Meeting in Leoben, Austria (October 2012).

The final project meeting, combined with the organization of the international conference entitled **"International Conference on Sustainable Aggregates Planning in South East Europe - contributions to the EU minerals policy framework"** was organized by the Geological Survey of Slovenia in cooperation with the projects' lead partner MUL. The event took place between the 22nd and 24th October 2014 in Bled, Slovenia. The purpose of this international conference is to share the results of the SNAP-SEE project beyond the SEE region, and place those results in the context of the European Innovation Partnership on Raw Materials' call for an improved minerals policy framework.

All the project results are available on the SNAP-SEE website (www.snapsee.eu), along with the three SNAP-SEE newsletters, two promotional project videos, photos and many other materials which were produced within the SNAP-SEE project.

2. Dissemination and Communication Activities

Communication activities have been implemented throughout the project as a horizontal activity and assured that the consortium used an integrated approach to communication activities, including common project visual identity as well as meeting all of the SEE Programme requirements.

The main focus of the dissemination activities includes target groups from the SEE area. Transnational events have been organized and experts from other SEE countries participated in national events so that exchange of knowledge between countries is ensured. With the use of internet and with the help of the press project results are being disseminated.

2.1 Common Communication Platform

Since one of the main goals of the project is to connect different stakeholders from many countries that are involved in aggregates supply, good information sources and ways of communication between involved parties are of great importance. Steady, organized and uninterrupted information flow among partners is vital to ensure that project's goals are met on-time, that workflow runs with as few interruptions as possible and that project results generate the best impact.

The SNAP-SEE logo (Figure 3), as well as the project color and font scheme was selected at the kick-off meeting. All participants suggested modifications, and the final logo was selected by voting. This assured that every partner recognized their ideas in the common visual platform. The SNAP-SEE website (www.snapsee.eu), including national subsections for the presentations and promotion of the project in native languages, was established in December 2012, as well as project's Facebook and a Linked in profiles. The SNAP-SEE promotion was based on the all partners' personal professional networks. Since the partnership was quite large, this was found to be a good strategy. The target of 1500 of unique visitors on the SNAP-SEE page was met at the half-way point of the project timeline. At the end of the project this dissemination indicator was doubled as initially expected. Visitors came from all over the world and visitors with the average session duration of higher length than just a few seconds came from 61 countries (data from the August 2014).

Figure 3. The SNAP-SEE logo, created jointly by all partners on the kick-off meeting.

2.2 Promotional Publications and Appearances

Joint SNAP-SEE posters, leaflets and other general promotion materials were prepared at the very beginning of the project and distributed to all partners. This assured that all partners have been actively involved in the project promotion from the beginning of the project on. Leaflets, brochures and posters with basic information on the project were also translated to partners national languages. Three Newsletters with reports on the project progress and its activities were prepared and disseminated and can be found on the project's website. Project web site hosts also national subsections, containing materials, translated in all partners languages.

The SNAP-SEE partners endeavor to promote the project by number of dissemination activities (Table 1). The project was presented at numerous of national and international conferences and seminars, in articles published on websites or newspapers, with press releases sent to journalists etc.

Table 1. The number of the dissemination events where SNAP-SEE project and its objectives were actively presented (data from the 1st August 2014).

DISSEMINATION ACTIVITY	No.
Participation at event	32
Event organized	24
Media appearance	17
Press release	7
Other dissemination activity	29

2.3 General Public Promotional Activities

Common promotional packages (containing a folder, a notepad, a magnet block, a pen, a reflective vest and leaflets) was prepared, as was individual promotional material by each project partner, and distributed on different events to stakeholders.

Two promotional videos were produced. The first presents the SNAP-SEE project and the importance of sustainable aggregates planning to general public, while the second presents the activities in the project through interviews of project partners. Videos can be viewed on the South East Europe channel on YouTube portal (<https://www.youtube.com/channel/UCQ6dX5-ixPLMvepsfP2rTjg>).

The major project promotion activity is organization as an international conference in October 2014 in Bled, Slovenia.

See you in Bled ♥
www.bled.si/en/

www.snapsee.eu

3. Capacity Building and Stakeholder Consultations

The purpose of capacity building and stakeholder engagement in aggregates planning is to create a common base of understanding between partners as well as between target groups about Sustainable Aggregates Resource Management (SARM) and Sustainable Supply Mix (SSM). National consultations with target groups have been conducted to ensure stakeholder's input to the development of the SEE Vision and the Aggregates Planning Scheme.

The Handbook on Capacity Building and Stakeholder Consultation in Aggregates Planning as part of a SEE Aggregates Planning Toolbox has been created. It is based on the experiences gained throughout organizing 2 rounds of national stakeholders consultations by project partners in all partner countries. This handbook will be used as reference material for partner and other SEE countries.

3.1 Purpose of Capacity Building and Stakeholder Consultations in Aggregates Planning

When relevant decisions are being taken that affect different members of the public, it is important to involve the stakeholders into the decision making process. Planning process is usually done in a way such that a decision is taken by a small group of experts, and is later-on explained to public, where it can be sometimes be amended by stakeholders. This approach has drawbacks. Even if the process is undertaken transparently, stakeholders are usually not interested in participating, and they seldom familiarize themselves with the facts and ideas informing the decision. The result is that conflicts may arise at the implementation stage.

The SNAP-SEE project took another approach, testing what would happen if stakeholders were included stakeholders within the decision making process before the actual decision or draft decision is made. The benefit of this approach is that everybody becomes informed about the decision and its context, since they actually actively participate in this process. Such an approach requires time and effort before the decision is made, but everything pays back at the implementation stage, which runs much more smoothly than when the traditional approach is taken (Figure 4).

Figure 4. Difference between the traditional consultation and stakeholder involvement (adapted after Creighton, 2005).

The task of work package 3 was to increase awareness about the importance of early involvement of stakeholders, as well as to increase knowledge and capacity of stakeholders regarding various aspects of the aggregates planning process, as well as to implement and test such approach.

3.2 Activities and Results

Before the stakeholders consultation process was begun, the trainings was implemented to assure a solid and shared basis of knowledge across all participating organizations. Training covered the topics of SARM (Sustainable Aggregates Resource Management), SSM (Sustainable Supply Mix) and sustainable aggregates planning, as well as different practical exercises on how to properly plan and implement consultations and how to disseminate the obtained results after consultations were implemented. The training materials in 11 languages are available at the SNAP-SEE web-site.

Figure 5. Types of stakeholders participating at consultations.

Two consultation workshops were organized in each of the 11 participating countries between September 2013 and July 2014. The common element of this process was the adoption of the minerals plan in the each country. However, each organizer decided which topics are the most relevant to be discussed. Within 20 consultation workshops, over 800 representatives participated, including national, regional and local authorities and agencies, research organizations, industry, local communities, NGOs and other relevant and interested public (Figure 5). Short reports on the each countries’ experiences of capacity building and stakeholder consultations, as well as the main results of this process can be found on the SNAP-SEE web page www.snapsee.eu. In addition, guidance document defining the next steps to make

the planning of aggregates supply more reliable and sustainable has been prepared as a result of this process (see Chapter 5.2 for a description of the Guidance.).

3.3 Handbook on Consulting Stakeholders in Applying Best Practices in Sustainable Aggregates Planning

Recommendations and experience collected during the stakeholders consultations process is gathered in a handbook *“Consulting Stakeholders when Applying Best Practices in Sustainable Aggregates Planning”*. The Handbook provides insight into the consultation process with stakeholders as a supporting activity when best practices in aggregates planning are being implemented at the national, regional or local level. It shows the benefits of a participatory approach and provides practical advice on how to define the aims of stakeholder involvement, and plan and implement the consultation events. The structure of the Handbook is presented on Figure 6.

Figure 6. Key steps in planning the involvement of stakeholders (Dolinar et al., 2014).

The Handbook summarizes the benefits of involving stakeholders based on the experiences of Partners in the SNAP-SEE project:

- Cooperation was enhanced between authorities of different sectors, e.g. mining, environment, water, land use planning, transport etc. and at different levels (national, regional, local).
- Awareness was raised about the importance of planning.

- ✚ The need for preparing or updating the national minerals policy was identified.
- ✚ Key obstacles or problems faced in planning were identified (e.g. procedures, illegal quarrying, lack of awareness etc.).
- ✚ Suggestions for solutions were proposed and were acceptable for the majority of involved groups.
- ✚ The interests of target stakeholder groups are vary. Their opinions differ a lot and can be opposite to each other. Therefore you need to carefully consider how to cooperate with all of them and how to avoid escalating conflicts.
- ✚ It is most challenging to motivate representatives of the authorities. It is essential to inform them about the benefits and the expected outcomes of the consultations.
- ✚ Industry is very motivated to cooperate and we must be careful that they are equally represented. They are most interested that the authorities assure stable and fair working conditions for their operations.
- ✚ Expert organizations and experts from different areas can provide important insights into different themes.
- ✚ Representatives of the environmental sector, NGOs and communities also want to be included in the dialogue from the start so that their opinion can be considered and their knowledge shared. Experience shows that they are not *a priori* against (quarrying) operations but they are too often excluded until the last stage of the planning process.

The Handbook is available at the project website in electronic form in languages of all participating countries and in English. As part of the Toolbox for Aggregates Planning it will also be printed and available at the SNAP-SEE partner organizations in paper form. You are invited to take a look at it and utilize the SNAP-SEE experiences in your own work.

4. Data and Methodologies for Aggregates Planning

The purpose of this work package was to identify the data needs and related analysis methodologies that can be used to turn raw data into useful supporting information for planning primary and secondary aggregates supply.

A Handbook on Data and Analysis Methodologies for aggregates planning in SEE countries was created and is available as reference material for partner and other interested public. It identified some basic principles of Data collecting and analyzing, and provides a comprehensive list on what kind of data is should be collected and used in aggregates supply planning process. It also includes a discussion of data analysis methodologies.

4.1 Data and Methodologies for Primary and Secondary Aggregates

There are diverse approaches to aggregates policies in SEE area, and not all practices in this area can be regarded as best ones. The planning of primary aggregates supply is dispersed in many planning documents, there is no clear assignment of different authorities, too little information is used in the planning process, and there is a lack of longer-term visions and plans. Moreover, the secondary aggregates (extractive waste, Construction and Demolition Waste (C&DW), industrial waste, material excavated from civil works) are not considered in planning for aggregates supply. In some countries in SEE, the planning process haven't been established yet.

A number of preparatory steps are needed prior starting to plan. Proper data and data analysis procedures are crucial for a realistic sustainable planning policy framework. A sustainable planning of aggregates requires obtaining reliable data, data management activities (validation of data, analysis and compilation of raw data) and involvement of methodologies such as life cycle analysis.

The objective of this work package was to determine the policies, legal framework, actions, and information that are needed to ensure the availability of adequate quantities of primary and secondary aggregates to the national and regional economies in the short, medium and long term. The process began with the identification of data needs. The suggestions on what kind of data is needed for the successful planning of aggregates supply and how to obtain it and to test its reliability are provided, including the comprehensive lists on:

- what kind of data are considered as important;
- what kind of data is missing;
- what kind of data is currently not used in planning (and should be used in the future);
- the comprehensible lists of government agencies, which collects, stores and provides data;
- explains the basics about the data formats, as well as basics about scales and details;
- basic analysis methods, which are utilized to convert raw data into the useful supporting information.

The recommendations for planning authorities in SEE area have been compiled at the end. The output of the work package 4 thus provides the framework and methodology to help achieve effective resource management plans including both primary and secondary aggregates. It is important to specifically address data collection issues that will clearly identify the responsible authorities for particular data items, storage, availability and retrieval procedures and considerations (Hatzilazaridou, 2014).

To identify data availability in the SEE countries/regions, a questionnaire was developed. The partners of the SNAP-SEE project provided information on data availability, sources, and use to support sustainable aggregates planning. It was assessed that most SEE countries keep data on the distribution of primary aggregate resources and permitted reserves, on the location of extraction sites, on the quality per field of application and on production. Estimated demand forecasts data and data on aggregate consumption are only available in few countries. Most of the data are stored in digital databases and maps. In most SEE countries, secondary resources are not considered in the planning for aggregates supply. It was concluded that the aggregate resources inventories are not equally developed in all SEE countries.

Figure 7. Example of material flow between neighboring regions (Agioutantis et al., 2014).

tion with available resources and their spatial distribution as well as land use planning in order to allow authorities to make informed decisions regarding the sustainable planning for aggregates. This can lead to an effective and efficient use of natural resources and the mitigation of the environmental impacts to the region and neighboring regions (Blengini et al., 2014). Figure 7 shows a typical example of material flow between neighboring regions.

4.2 Data Analysis Methods

An important contribution included in this manual is the concept of the information matrix which was developed under the Methodologies - Activity 4.2 of the project. The information matrix links inputs to and outputs from every process that may be involved in aggregate production or consumption (e.g., construction, demolition, etc.) with the material flows to and from this process and how these material flows are linked to other parallel processes in the region. It develops a strategy for the collection and a routine for the organization of the above data and to help organize this information into logical compartment (Figure 8). This will help to facilitate the identification of aggregate flows between several processes. The matrix is designed in a way to match each process with the necessary information. The **Report on Data Analysis Methodologies also includes information on materials flow analysis and demand forecasting. It is available in English on the project website.**

4.3 Presentation of the Handbook

The main data categories that were identified, the recommended data formats and possible data sources are highlighted in the Handbook titled ***“Data and Analysis Methodologies in Support of Best Practices in Sustainable Aggregates Planning”***. This manual is prepared as a final result of these activities. It includes a total of six chapters where the significance of data and data analysis methods for aggregates planning are presented in detail.

The data should be stored in a commonly available database, which should be regularly updated. The main data categories are maps (spatial data), time series data (annual production, consumption, capacity, etc.) as well as data pertaining to the legal framework of each region (Blengini et al., 2013). A number of tables or forms useful for data collection are also presented. Methodology for demand forecasting, which is the cornerstone of all the planning activities, is outlined. General recommendations regarding to data and data analysis needed for sustainable aggregates planning and specific recommendations on how to improve data collection, validation and analysis were prepared and are also presented.

Focus Area	Flowchart	Data		Data Collection	
		Source	Information	Method	Frequency
Extraction	Quarrying Type 1, Quarrying Type 1, Quarrying Type 1	Public Bodies and Companies	<ul style="list-style-type: none"> Permitted quarries Extracted volumes (m³) Types of materials Waste production (tons) Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
Recovery	C&D Recovery	Public Bodies and Companies	<ul style="list-style-type: none"> Recovered volumes (tons) Recovered ECW types Waste production (tons) Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
Production	Prod. Recycled, Prod. Natural Type 1, Prod. Natural Type 2	Public Bodies and Companies	<ul style="list-style-type: none"> Produced volumes (m³) Waste production (tons) Types of aggregates Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
End Products	End Product 1, End Product 2, End Product 3, End Product 4	Public Bodies and Companies	<ul style="list-style-type: none"> Produced volumes (m³) End product destination Aggregates volumes (m³) End products types Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
Construction	Buildings, Roads, Reclamations..	Public Bodies and Companies	<ul style="list-style-type: none"> Aggregates volumes (m³) End product volumes (m³) Waste production (tons) Waste destination Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
Demolition	Demolition (selective) - Selection	Public Bodies and Companies	<ul style="list-style-type: none"> Waste production (tons) Waste destination Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally
Disposal	Inert Landfills	Public Bodies and Companies	<ul style="list-style-type: none"> Disposed volumes (tons) Landfill volumes (m³) Location 	<ul style="list-style-type: none"> Mandatory forms Association internal survey Controls 	<ul style="list-style-type: none"> Yearly Yearly Occasionally

Figure 8. Simplified version of the Information matrix (Agioutantis et al., 2014).

The Handbook on Data and Analysis Methodologies (Figure 9) is one of the four documents comprising the Aggregates Planning Toolbox, which is the main deliverable of the SNAP-SEE project. The document features a common introduction and a uniform format regarding layout and front and back covers to assist readers in finding the information they need and to illustrate how the different aspects of SNAP-SEE inter-related. As all the documents in the Toolbox, this Handbook is also available in each of the national languages in the SNAP-SEE project.

Figure 9. The WP4 Handbook.

5. National / Regional Planning

The primary and secondary aggregates planning approach in each partner country are very different. In order to harmonize aggregates planning practices in the SEE and to prepare recommendations and joint SNAP-SEE vision for integrated sustainable aggregates planning for SEE area planning, practices must be carefully examined first. This is the task of work package 5. Activities were:

- 1. Multi-sectoral analysis on the approach to aggregates planning in SEE (MSA);*
- 2. National/Regional Guidance on Aggregates Planning Scheme; and*
- 3. Preparation of the Joint SNAP-SEE Vision for integrated sustainable aggregates planning.*

Two handbooks: The Multisectoral analysis and The SNAP-SEE vision, are the direct result of this work package. The SNAP-SEE vision is also the part of the Toolbox.

5.1 Aggregates Planning

The purpose of this WP was to analyze the primary and secondary aggregates planning approach in each partner country, so as to prepare guidance on partner countries' planning and to create a Joint SNAP-SEE Vision for integrated aggregates planning. Its activities were:

- Multi-sectoral analysis on the approach to aggregates planning (MSA);
- Guidance on Aggregates Planning Scheme; and
- Preparation of the Joint SNAP-SEE Vision for integrated sustainable aggregates planning.

The goal of 5.1 project activity "Multi-sectoral National/Regional analysis on aggregates planning" was to determine how planning is carried out in partner countries, including where each partner country is in the planning cycle. The Multi-sectoral analysis on the approach to aggregates planning (MSA) was prepared based on questionnaires examining the current aggregates planning and all the other policies related to aggregates (sustainable development, minerals, land use planning, environmental, waste management and recycling policies). The roles of responsible authorities, the permitting procedures and the legal barriers of aggregates planning were also analyzed.

Aggregates planning already exists in Austria, the Autonomous Province of Trento (IT), and Slovenia. In other partner countries primary and secondary aggregates are managed separately or aggregates management has not even started yet (Figure 10). The secondary aggregates are considered mainly by the Waste Management Policy, separated from resource management. In several partner countries the Land Use Planning Policy could be a good basis for Aggregates Planning because it contains important information on designated aggregates or mining areas and protected areas of nature or culture.

5.2 Country Guidance on Planning Scheme

The goal of 5.2 project activity "National/regional guidance on aggregates planning and scheme" was to determine how to make planning better in SEE countries by organizing the collected information into a form that provides substantive guidance to both national/regional planning processes and also to the development of the Aggregates Planning Scheme. Partners created a guidance document reflecting the situation in each country, and the input of the stakeholder network. They also identified gaps in planning, excellence in planning, overlaps or inconsistencies among sectors,

needs and preferences of stakeholders and planning aspects that are applicable and relevant in many SEE countries.

Figure 10. Aggregates planning in SEE countries (Horvath et al., 2014).

The recommended content of an **aggregates planning document** is the following:

- Geological mineral resource potential maps (scale from 1:10000 -1:100000);
- Data bases of mineral resource sites;
- Exploitation areas;
- Production and reserves data;
- Environmental protection conditions and restrictions;
- Market and development needs;
- Restoration recommendations;
- Delineated areas most favorable for extraction sites (areas with mineral commodities not in conflict with other land uses);
- Stakeholder opinions on mineral policies (Local authorities, operators, NGOs, municipality officials).

5.3 Joint SEE Vision

The **Joint SEE Vision** (5.3. activity titled " Joint SNAP-SEE vision") was made based on the following data (Figure 11):

- ✚ Results of the MSA;
- ✚ The guidance of the aggregates planning;
- ✚ The experiences of the stakeholder consultations,;
- ✚ The SWOT analysis (mainly according to the British Geological Survey),
- ✚ The SARMa recommendations and
- ✚ On other aspects.

Figure 11. Data sources for the Joint SEE Vision (Horvath et al., 2014).

A Vision, as described in the document entitled ***“A Vision of Best Practices in Sustainable Aggregates Planning”***, is arranged by the following topics (Figure 12): legal - regulatory framework (national level, aggregates planning, other related policies, permitting procedure, stakeholder involvement, local planning, authority, EU issues), environmental issues (air pollution, noise, water, quarry fines and waste, ecological offsets), social issues (increase knowledge and awareness), economic issues (cross-border SARM policy, taxation), professional tasks (inventory, mineral safeguarding),

technology (recycling, blasting, restoration, safety), general (transport). This Handbook (Figure 13) is available in English and in twelve national languages as a part of the Toolbox.

JOINT VISION

Figure 12. Addressed topics regarding Joint SEE Vision (Horvath et al., 2014).

Figure 13. The WP5 Handbook - A Vision of Best Practices in Sustainable Aggregates Planning.

Some important recommendations are:

- ✚ Aggregates Planning should be harmonized and based on the Land Use Planning Policy integrating other policies (mineral planning sustainable development, environmental, waste management and recycling policies).
- ✚ The Land Use Plans should be made on national, regional and local level. They contain designated areas for extraction and protection of mineral resources.
- ✚ Primary and secondary aggregates should be managed together to protect the primary aggregates resources and prevent waste disposal.
- ✚ During the developing of the Aggregates Planning Policy, the relevant stakeholders should be involved; this way the Policy goes through a public consultation procedure.
- ✚ The Aggregates Plan (including demand forecast and supply options) should be updated at least in every 5-10 years, depending on the needs of community or society.

6. Aggregates Planning Scheme

This work package is the capstone of SNAP-SEE. Its purpose is the creation of the Common Transnational Aggregates Planning Scheme as part of the Aggregates Planning Toolbox. The intention of this scheme is to create a common aggregates planning framework for the SEE area, which will increase a cohesion of the region and will increase resource efficiency.

Aggregates planning scheme contains statements of good governance. It can be used in a number of cases, either integrated planning of primary and secondary aggregates supply, or when supply is being regulated by a single or multiple laws.

This work package is the capstone of the SNAP-SEE project and had as its purpose the creation of the Common Transnational Aggregates Planning Scheme and the Aggregates Planning Toolbox.

The Common Transnational Aggregates Planning Scheme is an effort towards a comprehensive aggregates planning. Sustainable planning is a complex process that requires consideration of cross-sectorial impacts and integration of plans for primary and secondary aggregates. Different planning factors are often addressed in different documents, each of which may be at a different stage in the policy and planning cycle (preliminary development, under discussion with stakeholders, or implementation). Thus opportunities to create a comprehensive planning document are often limited. Nonetheless, good planning is needed and improvements to the planning process and plans should be made.

Figure 14. Aggregates Planning Scheme - An example from Emilia-Romagna Region (Severi et al., 2014).

A common planning framework across the SEE region would increase cohesion and resource efficiency. A goal of this activity, which started by collecting of the planning schemes in partners' countries (Figure 14), is to facilitate the gradual shift to comprehensive, integrated aggregates planning in SEE by creating a suite of generic planning text modules addressing all aspects of sustainable aggregates planning for both primary and secondary aggregates, and which can be used together when the multiple planning issues related to aggregates reside in a single document, or individually, in different planning documents.

The Scheme entitled *“How to Build a Sustainable Aggregates Plan”* is a part of the Aggregates Planning Toolbox and is available in English and partners' native languages.

7. Aggregates Planning Toolbox

The SNAP-SEE project partners have developed a Toolbox for Aggregates Planning to support national/regional, primary and secondary aggregates planning in SEE countries, which includes:

- *The SNAP-SEE Vision for Aggregates Planning;*
- *Handbook on Capacity Building and Stakeholder Consultation;*
- *Handbook on Data and Analysis Methodologies;*
- *The Aggregates Planning Scheme.*

The SNAP-SEE Aggregates Planning Toolbox is the main output of this project, and summarize the efforts done and project achievements within 2-year project lifetime.

The **Aggregates Planning Toolbox** is composed of **four handbooks** and is dealing with themes developed by the SNAP-SEE partnership in these years. They are entitled:

- “The SNAP-SEE Vision for Aggregates Planning”;
- “The Aggregates Planning Scheme”;
- “Handbook on Capacity Building and Stakeholder Consultation”;
- “Handbook on Data and Analysis Methodologies”.

All the documents are inter-related and mutually supporting, and include:

- The “***Vision of Best Practices in Sustainable Aggregates Planning***” document presents a Vision for a transition to an integrated, comprehensive sustainable planning in SEE. It includes discussions of the issues that need to be addressed, interim steps that can be taken toward more sustainable planning, and a review of the components a sustainable plan should contain.
- The “***How to Build a Sustainable Aggregates Plan***” document represents the synthesis of the research and collaboration effort around the aforementioned “Common Transnational Aggregates Planning Scheme”.
- The “***Consultation in Support of Best Practices in Sustainable Aggregates Planning***” document provides a step-by-step guide for how to plan and conduct stakeholder consultations so as to ensure that industry, government, non-governmental organizations and civil society can provide input to and participate in the planning process. Capacity building materials prepared by SNAP-SEE partners are also provided, in the form of slideshow presentations.
- The “***Data and Analysis Methodologies in Support of Best Practices in Sustainable Aggregates Planning***” document discusses the various types of data that provide essential background information for the planning process. Data definitions, significance, availability, structure and needs are addressed. Methods for validating and analyzing data are presented, including approaches to demand forecasting.

The Aggregates Planning Toolbox is available in English language, as well as in all national languages of the partners involved in the SNAP-SEE project. Beside its printed version, an electronic version can be found on the SNAP-SEE website: www.snapsee.eu.

8. The SNAP-SEE synopsis...

At the project outset, the SEE region faced a lack of data to support aggregates planning, inadequate capacity and competence, as well as an inadequate level of stakeholder participation, to develop essential aggregates plans. The SNAP-SEE project has successfully demonstrated that the visionary goals set up at the beginning of the project have now been achieved.

The direct and very positive results of the SNAP-SEE project are:

- The SEE area has a roadmap on how to plan primary and secondary aggregates supply. Its foundations are based on the current state of the planning concepts in SEE area using the best practices now established.
- The key stakeholders in the SEE area are now aware and know the basic concepts of sustainable aggregates planning and sustainable supply mix concepts.
- Stakeholder consultation processes have been initiated in 2 rounds of successful stakeholder consultations in project partner countries.
- Stakeholder engagement gave valuable experience and know-how on how to fully involve stakeholders in the consultations process. Such knowledge needs now to be applied by those stakeholders in bringing these aggregates plans to fruition.
- These aggregates plans can quickly foster the growth of a truly sustainable aggregates industry in the SEE region that will not only supply the essential building materials, but will also foster economic growth and increased employment in the region up to 2020 and beyond.
- With the establishment of new local networks in 14 countries during the implementation of stakeholder consultations process, backed up with the strong international network of SNAP-SEE project partners, their experts and friends, a huge new network was created, which can unlock whole new potential to achieve many new synergies in planning, resource efficiencies, sustainable raw materials supply and also many other areas in the future.
- Such a network is indeed potentially able to address global challenges beyond the SEE area. The project partners hope that such a network is going to be sustained by addressing the upcoming societal challenges and will address future gaps to ensure better, healthier and wealthier life of citizens.

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