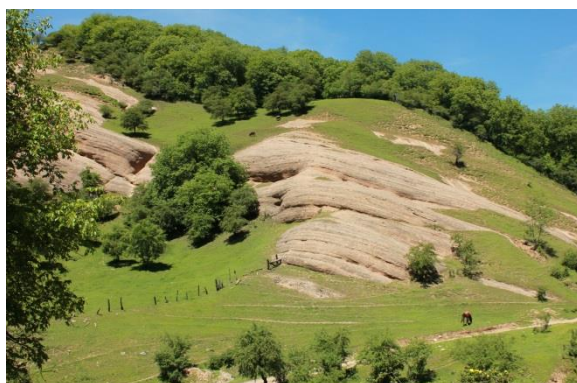# Final Report

Global Change Research Institute – CzechGlobe

Czech Academy of Sciences

Sharing of Czech Experience: Piloting SEEA-EEA in the Kyrgyz Republic

September 2016

This final report summarises the work of the following project: "Sharing of Czech Experience: Piloting SEEA-EEA in the Kyrgyz Republic". This project was funded by the Czech-UNDP Trust Fund (CTF) and supported by the UNDP-UNEP Poverty Environment Initiative (PEI) and the UNDP-CO of the Kyrgyz Republic.

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Table of contents

1 Key project achievements and findings

The overarching **aims of the project** "Sharing of Czech Experience: Piloting SEEA-EEA in the Kyrgyz Republic" were successfully achieved by:

1. **Building capacity** for SEEA EEA in the form of three stakeholder consultation workshops, positively received by participants, and continuous project collaboration with Kyrgyz partners and experts,
2. Mapping and mobilizing available data sources for SEEA EEA, and **compiling pilot experimental ecosystem accounts** for the Kyzyl Unkur leshoz in collaboration with project partners in the Kyrgyz Republic,
3. Identifying major challenges to the implementation of SEEA EEA in the Kyrgyz Republic and providing guidance and recommendations in the resulting **Implementation Guide**.

Key project findings:

Data issues:

1. The project has helped the Kyrgyz partners to identify the following **data-related gaps** regarding:
   a. Data sources and quality,
   b. Data collection and monitoring,
   c. Data management,
   d. Data exchange mechanisms.
2. Data gaps and data quality on the **local level** present a major issue.
3. Shortages in capacity and funding were identified as the most important **barriers to data collection** and statistical reporting related to SEEA EEA.
4. Current statistical and forestry reporting in the Kyrgyz Republic may not include the **indicators needed for SEEA EEA**.
5. Practical guidelines on most relevant SEEA EEA indicators and related data collection approaches are needed.
6. Development of **National Spatial Data Infrastructure** is vital for successful implementation of SEEA EEA, SDG monitoring and other initiatives.
7. The existence of a coherent, up-to-date, regularly updated national-wide **land use and land cover dataset** would be highly beneficial for SEEA EEA.

Capacity building:

1. Capacity building is vital to address data issues related to SEEA EEA, and should take place on all levels (mostly the local one).

SEEA EEA process:

1. The **expectations from the future SEEA EEA** are multiple: (1) to facilitate SDG monitoring, (2) to illustrate the importance of specific ecosystems, e.g. forest ecosystems, (3) to introduce evidence of the value of ecosystem services and (4) to promote sustainable use of natural ecosystems and nature protection.
2. **Forest ecosystems** represent vital natural capital for the Kyrgyz Republic and will be of even greater importance in the future. The importance of forest ecosystems should be illustrated through SEEA EEA by incorporating the value of forest ecosystem services to the GDP.

Project outcomes:

1. According to project partners, this project has built the basis for the SEEA EEA process in the Kyrgyz Republic. The final output of the project, the **Implementation Guide**, is expected to:
   a. Bring guidance on major barriers to SEEA EEA and recommendations how to overcome them,
   b. Provide technical guidance on concepts and methods applicable in SEEA EEA, as well as relevant indicators and related data collection guidelines.
2. According to project partners, the project has had multiple **positive effects**, such as (1) further identification of data-related issues, (2) launching the update of forest inventory reporting, and (3) launching a capacity building processes on the level of local statistical reporting bodies and leshozes.
3. According to project partners, this project has enhanced the **collaboration** between partners involved in SEEA EEA in the Kyrgyz Republic, which is highly beneficial for this process, as well as related initiatives.

2 Background

This report summarises the activities conducted within the project "**Sharing of Czech Experience: Piloting SEEA-EEA in the Kyrgyz Republic**". The project was led by the Department of Human Dimensions of Global Change, Global Change Research Institute, Czech Academy of Sciences, with support from the Czech-UNDP Trust Fund (CTF). This 6-month project worked closely with several key stakeholders in the Kyrgyz Republic including primarily: The National Statistical Committee (NSC), The State Agency for Environment Protection and Forestry (SAEPF) and the United Nations Development Programme (UNDP).

In line with the National Statistics Strategy (2016), the UNDP-UNEP Poverty Environment Initiative (PEI) in the Kyrgyz Republic is undertaking multiple interventions to support key government partners in the Kyrgyz Republic, to introduce the international statistical standard, the System of Environmental-Economic Accounting - Experimental Ecosystem Accounts (SEEA-EEA). The introduction of SEEA-EEA will assist the Kyrgyz government with developing robust evidence-based knowledge and policy advice for implementation of its National Strategy for Sustainable Development and its National Biodiversity Strategy. For example, the National Biodiversity Strategy adheres to Aichi Biodiversity Target 2 of the Convention on Biological Diversity (CBD), which commits countries to evaluating biodiversity and ecosystem services and integrating these assessments into national accounts by 2020. The introduction of SEEA-EEA will also have significance in delivering on the forthcoming Sustainable Development Goals (SDGs). SEEA provides a measurement framework that underpins the environmental and economic aspects of many of the SDG indicators. It is also expected that the SEEA can contribute to the broader strengthening of national statistical systems and their adaptation to changing data landscapes.

Overall, development, testing and implementation of SEEA-EEA will contribute to the nationwide analysis and decision-making on the conservation and sustainable use of biodiversity and ecosystems within the Kyrgyz Republic. The implementation of SEEA-EEA can also serve as a learning example for other countries in the Central Asia region and even worldwide.

Previous scoping and situational analysis found the policy background in the Kyrgyz Republic adequate for developing SEEA-EEA. However, as the data, information and methodologies on ecosystem accounting are rapidly advancing, there is a need to build and enhance the technical knowledge and capacity to develop SEEA-EEA in the Kyrgyz Republic. Therefore, the objective is to provide sufficient training, capacity building and understanding of basic principles, approaches and methodologies to develop and implement SEEA-EEA in the Kyrgyz Republic.

The specific aims of the project are:

- Identify the major areas for testing of SEEA-EEA, based on the availability of data and stakeholder preferences,
- Build capacity in the area of ecosystem accounting in the Kyrgyz Republic, by systematic and comprehensive training workshops,
- Develop pilot experimental ecosystem accounts in selected areas,
- Develop implementation plans for SEEA-EEA in the Kyrgyz Republic
- Mainstream ecosystem accounting into statistical accounting and decision-making.

The structure of this project included three parts: First, three missions were conducted during May-August 2016 to provide training regarding the SEEA-EEA process in the Kyrgyz Republic. While the first mission focused on the initiation of the SEEA-EEA process, the following two missions included training and knowledge-sharing activities. The second part of the project included compiling pilot SEEA-EEA accounts for selected pilot areas in the Kyrgyz Republic. The third part of the project focused on compiling a final Implementation Guide to SEEA EEA in the Kyrgyz Republic, addressing main challenges and recommendations and providing technical guidance to ecosystem accounting in the conditions of the Kyrgyz Republic.

The project missions are summarized in the next sections and reported in detail in reports from Mission I, Mission II and Mission III.

3   Mission I

The first mission took place on March 14-19, 2016 and was co-organized by the UNDP-UNEP PEI and CzechGlobe. The mission agenda consisted of two parts. First, separate meetings with key project partners were organized, namely with the National Statistical Committee, Kyrgyz governmental agencies (e.g. SAEPF), non-governmental organizations (Regional Environment Centre for Central Asia – CAREC) and German federal international agency (The Deutsche Gesellschaft für Internationale Zusammenarbeit – GIZ). These meetings focused on discussing the main objectives of the project, the current mission and the stakeholder workshop. In addition, preliminary information on the availability of data needed to compile the SEEA-EEA accounts was elicited.

The second key part of the mission was a stakeholder workshop, which assembled key stakeholders participating in the pilot SEEA-EEA process in the Kyrgyz Republic. The workshop focused on defining the main expectations and priorities regarding the SEEA-EEA process in the Kyrgyz Republic, and on defining available data sources, as described in detail in the following sections.

The purpose of this particular mission was to consult the development and implementation of SEEA-EEA in the Kyrgyz Republic with key local stakeholders through meetings, discussions and a one-day participatory workshop. In particular, this required the use of a SEEA Diagnostic Tool which was used to elicit the main priorities, needs and foreseeable constraints within the process. As recognised in the draft SEEA-EEA Technical Guidance (EEA TG) as well as from other examples of its implementation elsewhere, ensuring the inclusion and participation of all relevant stakeholders is essential for its success. In addition this activity, as part of the project as a whole, provided the necessary input into shaping the remaining activities which are centred around the development of pilot experimental ecosystem accounts and building of local capacity for its continued development in the Kyrgyz Republic.

Specific aims of this mission closely followed the structure of the SEEA Diagnostic Tool and included:

1. Clarification of key institutions and stakeholders including producers and users of statistics but also other groups that can benefit from improved information
2. Close engagement with key stakeholders to introduce this project, learn their relevant opinions and harness their support.
3. Provide stakeholders with a background to SEEA-EEA, its development and implementation in other case studies, and the planned scope of work through this project in the Kyrgyz Republic.

4. Broadly identify understanding of key concepts within SEEA-EEA amongst stakeholders.
5. Document national priorities for sustainable development and green economy.
6. Identify potential priority accounts.
7. Identify and discuss availability, quality and coverage of relevant data for EEAs.
8. Identify related statistical development activities that could benefit environmental accounting initiatives.
9. Understand what progress has already been made in environmental accounting.
10. Identify and discuss constraints, feasibility and opportunities of EEAs in the Kyrgyz Republic.
11. Determine priorities for action to develop selected EEAs.

3.1 Working meetings

The meetings with key project partners in the first part of the mission focused on the following topics:

- Mutual introduction and elucidation of the role of each project partner and stakeholder in the process.
- Initial discussion of the expectations and needs.
- Mapping the structure of the NSC and other Kyrgyz governmental agencies and gaining orientation in the data flows related to SEEA-EEA.
- Preliminary information on data availability and quality.
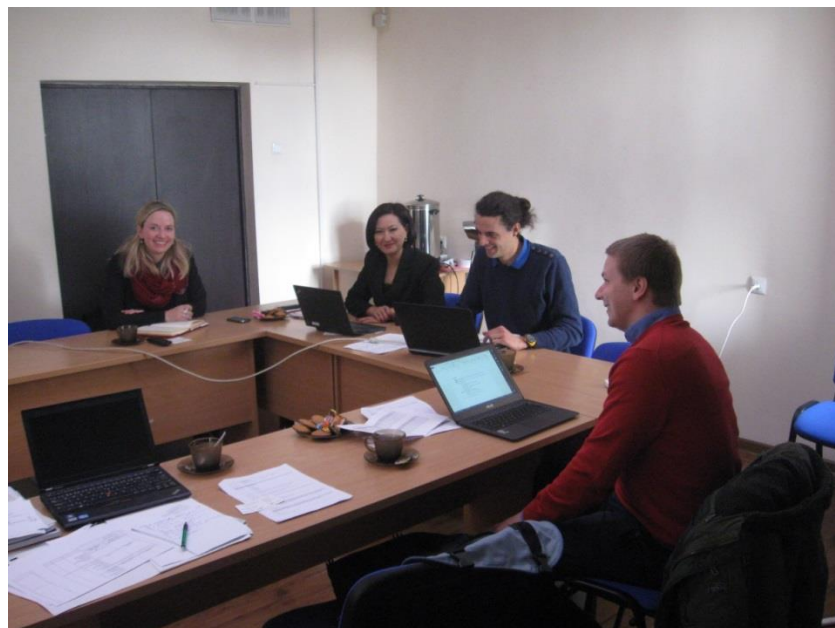
The main outputs of the meetings were as follows:

- The SEEA activities in the Kyrgyz Republic have already been initiated by incorporating the notion of ecosystem services in the current forest accounts. This work was implemented by the NSC in collaboration with GIZ.
- Many stakeholders expressed a great interest in the assessment of forest ecosystems and the services they provide.
- Among the pilot accounts compiled within this process, the stakeholders would prefer including accounts on forest ecosystem services, including provisioning, regulating and cultural services (e.g. recreation).
- Water-related accounts present another key theme for local stakeholders.
- A pilot array of local ecosystem-services accounts should be compiled for a selected case study area. Dashman Nature Reserve was originally suggested by several stakeholders and CzechGlobe provided some guiding information for appropriate selection of pilot sites. However, further consultations showed that the Kyzyl Unkur Leskhoz would be more appropriate in terms of stakeholder interest, data availability, etc.
- There is a great interest in economic valuation of ecosystem services and the compilation of economic SEEA-EEA accounts.
- The stakeholders would welcome further trainings and training materials regarding the methods eligible for SEEA-EEA.
- The outcomes of the project should be directly linked to the SDGs and related sustainability indicators.
- Further collaboration may emerge in the field of forest ecosystem services and their economic evaluation, specifically in the form of a follow-up project proposal and collaboration.

3.2 Stakeholder Workshop

The stakeholder workshop took place on March 18, 2016, in the UNDP premises in Bishkek (Business Center Maximum). The overarching aim of the workshop was to clarify technical aspects of developing and implementing SEEA-EEA in the Kyrgyz Republic, as well as to identify data availability and needs.

At the workshop, the key actors involved in the process were assembled to take part in a series of participatory discussions and exercises. One of the main priorities was to ensure an inclusive atmosphere and provide space for all the participants to present their expectations and needs from the SEEA-EEA piloting process in the Kyrgyz Republic, as well as to discuss which approaches and results they find useful.

In the following sections, we provide a detailed report of the stakeholder workshop, focusing on the activities conducted and their main outcomes. In the final part, the main conclusions of the workshop and the mission are compiled and next steps are outlined.

3.2.1 Participants

Participants of the workshop included key target stakeholders such as partners from the National Statistical Committee, UNDP, State Agency for Environmental Protection and Forestry (SAEPF) and experts from other selected institutions and government bodies and NGOs. The UNDP office targeted the specific participants both because of their potential interest in creating ecosystem accounts and their awareness of the relevant and appropriate data sources for development of the actual accounts. Another important part of the selection was the potential of participants to propose the specific priorities for specific topics and environmental issues on which the accounts should be focused and their knowledge of potential pilot study sites. Some of the participants were identified also for their initial experience with the forest asset account proposal (as referred to previously).

The final attending group of participants consisted of members from inter-ministerial working groups and the NSC, government officials, NGOs, international organizations, academia and researchers. Specifically:

- Governmental institutions: SAEPF (6 participants), Ministry of Agriculture (1), Ministry of Economy of the Kyrgyz Republic (1), Cadastre Department (1), NSC (7), Association of forest and land users in Kyrgyzstan (1)
- Other partners: UNDP (4), Regional Environment Centre for Central Asia (CAREC) (1), The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (1), BIOM (1), PF CAMP Alatoo (1). Food and Agriculture Organization (FAO) (1)
- Academic Institutions: The National Academy of Sciences (2), CzechGlobe (4), American University of Central Asia (1)
- Supporting staff: Interpreters (2)

In terms of thematic clusters, forest, statistical, environmental and conservation sectors were sufficiently represented. The general geographical, agricultural and economic sectors were represented only slightly and the water sector was underrepresented in terms of having dedicated experts from the field.

3.2.2 Workshop Activities and Results

The workshop agenda was mainly focused on the technical aspects of developing and implementing SEEA-EEA in the Kyrgyz Republic, as well as identification of available data and specific needs. The activities were tailored in order to meet detailed objectives of the project and this mission (for details see the Background chapter).

Brief summary of the workshop agenda

After the introduction by CzechGlobe and NSC, the first block of introductory technical presentations were given to ensure a basic level of understanding of the topic of SEEA-EEA was maintained, and to keep participants on the same page. The whole design followed the SEEA Diagnostic Tool and started with explanations and examples of ecosystems accounts and examples of best practise to illustrate the practical use of accounts in cases worldwide.

The following three main sessions of the workshop consisted of participatory exercises to help elicit the following:

- Policy priorities and expectations and needs of EEAs;
- Mapping of available data and knowledge resources;

- Priorities for specific accounts, pilot study area and constraints and opportunities of SEEA-EEA in the KR.

The whole workshop ended with a short conclusion session when the next steps were outlined for the CzechGlobe team. More details of each of these activities can be found in the detailed report from Mission I.

3.3 Mission I Conclusions

The stakeholder consultations and participatory workshop that made up this mission have brought a plethora of useful information to the table, that can be used to further ecosystem accounting efforts in the Kyrgyz Republic. As detailed above, the NSC have already made an invaluable start to this process in their creation of forest asset accounts. As this project progresses, these experimental ecosystem accounts will become more comprehensive, further enabling the Kyrgyz Republic to remain at the forefront of SEEA-EEA implementation in Central Asia.

The ultimate goal of this project remains to provide relevant stakeholders in the Kyrgyz Republic with the capacity and know-how to implement SEEA-EEAs. It is important however, to first summarise the findings from this first mission and to outline how they will be used to inform the next steps of this project.

Stakeholder engagement and knowledge-sharing

- The **stakeholder workshop**, which took place during this mission, provided stakeholders with a **background to SEEA-EEA**, its development and implementation in other case studies, and the planned scope of work throughout the remainder of this project in the Kyrgyz Republic.
- The workshop enhanced the **understanding of key concepts** within SEEA-EEA amongst stakeholders, which will be further deepened in the following project activities.
- There is a broad range of **stakeholders in the Kyrgyz Republic** interested in piloting SEEA-EEA or with the **potential to contribute to the process** with their knowledge-base and data. Key stakeholders operationalizing a substantial knowledge-base exist in the sectors of national statistics, forestry and environmental economics. The process of environmental accounting has previously been started by drafting forest assets accounts, which presents a valuable starting point for the current project.

- During the mission, key stakeholders were identified in terms of sharing the responsibility for leading the project, sourcing the data and participating in the following trainings. The project is led in collaboration between CzechGlobe, the NSC and UNDP. The main data sourcing institutes are the NSC, the State Registry Service, SAEPF and experts related to GIZ. The experts eligible for the following trainings will be selected by the UNDP and NSC in collaboration with CzechGlobe, focusing on experts with backgrounds in environmental science, forestry, ecology, statistics and environmental economics, related to the SEEA-EEA process.
- The mission indicated the types of **knowledge and methods** the stakeholders would like to gain in subsequent training workshops. Specifically, the stakeholders showed great interest in:
- Which data is necessary for the compilation of different accounts;
- Modelling approaches to assess ecosystem services and examples of their application;
- Approaches to economic evaluation of ecosystem assets and ecosystem services.

Identification of policy priorities, priority accounts and pilot site

- Stakeholders identified multiple **policy priorities** generally related to natural resource management and sustainable development. Especially, they strongly highlighted priorities for policies concerning **water and forest resources**.
- The stakeholders indicated that the outcomes of the project and the compiled SEEA-EEA pilot accounts should be directly **linked to the SDGs** and related sustainability indicators. This needs to be reflected in the composition of the accounts, as well as selected indicators.
- The discussions with multiple stakeholders during the mission as well as the outputs of the stakeholder workshop showed that in addition to the national level, there is a demand to pilot a SEEA-EEA account at a local scale in a selected **pilot study area**.
- Eventually after the workshop, it was agreed to conduct the local pilot case study in the **Kyzyl Unkur leshoz**, which was formally agreed between the key local partners (NSC, SAEPF and UNDP).
- The stakeholders emphasized their **priorities for accounts development mainly in forestry, water and (mineral) resources sectors**. The proposed pilot study areas were covering the above mentioned topic as well, these were namely Kyzyl Unkur, Dzhety-Oguz and Nookat for forests; At-Bashy and Naryn for pastures and Alaarcha and Naryn for rivers.

Identification of stakeholder expectations, needs, constraints and opportunities

- The stakeholders highlighted the need for a higher level of **political support, wide discussion and a higher visibility of the process**.
- Results from one of the workshop activities suggested that stakeholders expected the SEEA-EEA implementation process in the Kyrgyz Republic to both affect the social earning capacity of the rural population, and to also lead to the provision of comprehensive information on resources.
- Overall, results from the same activity also highlighted stakeholder needs for legislation related to SEEA-EEA as well as public dissemination of EEAs.
- During discussions, the stakeholders identified **constraints** to the SEEA-EEA process, mainly in terms of lack of understanding of the accounts' practical use and benefits at the political and public levels (and related lack of coordination and motivation). Other constraints concerned a lack of knowledge capacity, research, data and lack of accounts which are ready to use for the Kyrgyz Republic.
- The **opportunities** were seen primarily in the context of: (a) the methodology and science (new data acquisition, capacity, knowledge), (b) economy (green GDP), (c) decision making and planning (to be more effective and integrative).

Data availability, quality and coverage

- The conclusion of the data mapping activity was that the **data sources available seem sufficient** for the compilation of several basic types of SEEA-EEA accounts in the Kyrgyz Republic. Nevertheless, in some cases it will probably be **necessary to organize more or less demanding procedures of data processing**, or to try to ensure supplementary data from international resources.
- The NSC stated that they might be able to conduct several on-site surveys linked to the pilot study location to supplement the data needs for local pilot SEEA-EEA accounts.

4 Mission II

The second project mission took place on May 16-22, 2016 and was co-organized by the UNDP-UNEP PEI and CzechGlobe. The first two days of the mission were allocated to working meetings with the PEI Regional Team, UNDP Sustainable Development team and local experts, as well as meeting with management of the National Statistical Committee, the key partner of this project. These meetings were important to discuss and refine project activities and forthcoming steps. The main activities in the mission agenda included: a two-day consultation workshop to provide training to stakeholders in methods used within the SEEA-EEA process (this took place on May 18-19) and a pilot study site visit in Kyzyl-Unkur in order to familiarize all project partners with the pilot area and to gain deeper insight and background into the selected pilot area of Kyzyl-Unkur (which took place on May 20-22). For a detailed report on this mission, see Mission II report.

Following Mission 1, which focused mainly on discussing the development and implementation of SEEA-EEA in the Kyrgyz Republic with key local stakeholders, Mission 2 was more targeted at training and consultation activities for local experts. The training content was tailored to the results of the stakeholder consultation during Mission 1, where stakeholders expressed content of highest relevance and priority given their specific local context and situation.

After successfully completing the objectives of the first mission, the second mission built on the needs and priorities for piloting the SEEA-EEA process, as identified by the stakeholders. Therefore, the main objectives of the second mission were:

1. To collaboratively enhance the capacity of all project partners and other stakeholders to compile experimental ecosystem accounts in the Kyrgyz Republic,
2. To map the data sources available in the pilot site of Kyzyl-Unkur.

These two main objectives of the mission were achieved by a two-day Consultation Workshop for the stakeholders and a pilot site visit.

Specific aims of this mission were as follows:

1. To practice specific methods of biophysical and economic assessment of ecosystem services,
2. To raise awareness of data requirements necessary for compiling the ecosystem accounts,
3. To discuss the availability of spatial data in the Kyrgyz Republic,
4. To visit the pilot area, and, through consultations with local stakeholders, to elicit the availability of data applicable in the SEEA-EEA piloting.

4.1 Working meetings

The initial meetings with the UNDP, the NSC and the local experts focused on (1) a general recapitulation of project priorities and development, (2) an introduction to the work already conducted on forest accounting in the Kyrgyz Republic, and (3) advanced information on data management in the Kyrgyz Republic. A summary of the issues covered are provided below:

General conclusions from working meetings

1. This project is successfully proceeding according to the project plan;
2. The aspect of **economic valuation of ecosystem services** is of high interest in the Kyrgyz Republic, acknowledging that knowing the value of ecosystem services facilitates fair, just, effective and transparent decision-making.
3. As the SEEA-EEA project requires substantial capacity, the aspect of **capacity-building** in particular, should be emphasized within this piloting project;
4. **Data availability and limitations** present one of the major project issues;
5. **Project sustainability and continuation** should be considered, e.g. in terms of new data collection schemes, and should be consulted with the NSC and the State Agency;

6. As the SEEA-EEA project has a clear **sustainability dimension**, the project outcomes should be linked to the support of the Sustainable Development Goals (**SDGs) implementation**;
7. From the UNDP perspective, **water and grazing issues** should be given more emphasis;
8. The partners are deeply interested in the **methodological guidelines**, which present one of the planned final outputs of the project. These should also elucidate why the **SEEA-EEA process** is beneficial and relevant and which **gaps** hinder its implementation.

Forest accounts:

1. Within the activity on forest accounts development, forest-area and timber-stock accounts have been developed for the period 2008-2014.
2. In addition, a draft list of ecosystem services (ES), eligible for evaluation at the national level, has been developed, together with an initial estimate of the economic value of these ecosystem services. The major issue seems to be the regulating and cultural ES. Of high interest is the addition of **drinking-water provision** and **protection against natural hazards** into the list of evaluated ES. Feedback and input from CzechGlobe is welcome on these specifics.
3. Digital maps of national forest land for 1980 and 2008 are available, with the reservation that both have been developed using a different methodology, which leads to a limited possibility of mutual comparison.

Data management:

1. The data situation in the Kyrgyz Republic is complex, in terms of data availability, technical data issues (formats, etc.), standardization of GIS data, metadata and methodology.
2. Research on tourism and visitation surveys are generally not available.
3. The most detailed biodiversity data available are from the Hunting Inventories; however, there are certain limitations arising from the method of data gathering used here.

4.2 Consultation Workshop

The two-day consultation workshop took place in Bishkek on May 18-19, 2016 and was targeted at the key stakeholders involved in the SEEA-EEA piloting process in the Kyrgyz Republic. The main aims of the workshop were to provide background regarding the most important features, approaches and methods relevant for ecosystem accounting, and to provide specific examples of their use and initial training. For a detailed consultation workshop agenda, see the following sections.

4.2.1 Participants

Workshop participants included similar key target stakeholders as the participants of the first workshop organised during mission 1 in March 2016. This was done to ensure continuity throughout the process of development of environmental accounts and the active involvement of the stakeholders. Partners from the NSC, UNDP, SAEPF and experts from other selected institutions and government bodies and NGOs were invited for this workshop in May. Participants were actively engaged in the learning process by completing participatory exercises. The selection of exercises contributed to enhancing the ability of the participants to assemble environmental accounts with the help of the experts and also on their own.

The final attending group of participants consisted of members from inter-ministerial working groups and the NSC, government officials, NGOs, academia and researchers. Specifically:

- **Governmental institutions:** SAEPF (4 participants), Ministry of Economy of the Kyrgyz Republic, Cadastre Department (1), NSC (8), Association of forest and land users in Kyrgyzstan (1).

- **NGOs:** UNDP (6), UNEP (1), Regional Environment Centre for Central Asia (CAREC) (1), UNIQUE Forestry & Land use (1), The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (1), NGO Green leave (1), PF CAMP Alatoo (1).

- **Academic Institutions:** The National Academy of Sciences (2), CzechGlobe (4).

- **Supporting staff:** Interpreters (2).

The thematic sessions of the workshops were designed to match the interests and the field of expertise of the participants. Therefore, relevant and accessible statistical classifications, GIS mapping approaches and economic valuations were presented and practiced. A detailed list of all participants with affiliations is provided in Appendix III.

4.2.2 Workshop Activities and Results

Brief summary of the workshop agenda

A more detailed description of the workshop sessions, exercises and results are provided below and an overview of the contents of these sessions is provided in Table 1.

Table 1. Overview of Consultation Workshop Contents

Topic	Session	Focus on Specific Ecosystem Services / Accounts
Introduction to SEEA - EEA principles	1. Basic principles of experimental ecosystem accounting, policy needs and international context	All; Examples of forest carbon and water accounts
Experience with SEEA in the Kyrgyz Republic	2. Developing SEEA accounts – Kyrgyz experience	Forest asset accounts on the national level

Topic	Session	Focus on Specific Ecosystem Services / Accounts
Classifications and spatial units	3. Ecosystem services classification – Common International Classification of Ecosystem Services (CICES), The Economics of Ecosystems and Biodiversity (TEEB), Final Ecosystem Goods and Services Classification System (FEGS).	All; Examples of forest goods and services
	4. Spatial units for accounting, spatial data, Consolidated Layer of Ecosystems of the Czech Republic (CLES).	All; Examples of forest accounts
Models and indicators for ecosystem accounting	5. General approaches to biophysical ES indicators	All; Indicators for provisioning, regulating and cultural services; Indicators for ecosystem condition
	6. Approaches to biophysical ecosystem services modelling.	Carbon Storage
Economic valuation of ecosystem services.	7. Approaches to economic valuation and Kyrgyz experience.	Provisioning Services and Recreation
	8. Exercise on economic valuation of ecosystem services, application of selected approach.	Walnut supply, carbon sequestration and recreation
Conclusion	9. Discussion and wrap-up of training	

Session 1: Basic principles of experimental ecosystem accounting, policy needs and international context

Although some of the introductory material from this first session was provided in the workshop of Mission 1 (held in March 2016), this enabled trainees to remind themselves of the overall context and principles of experimental ecosystem accounting. This was important for laying the foundations for the remainder of the workshop. In more detail, this session discussed descriptions of some of the main types of accounts and how they are connected and related. Next, it was important to describe very briefly

how different accounts could be compiled, which again provided background for the following sessions. Finally, this session described the policy context in which experimental ecosystem accounting is generally set, enabling trainees to gain insight into how such an accounting process can be integrated within a national economy.

Session 2: Developing SEEA accounts – Kyrgyz experience

The second session focused on the experience with environmental-economic accounting in the Kyrgyz Republic gained so far. First, the general conceptualization of SEEA was presented, and the different approaches of its Central Framework and Experimental Ecosystem Accounting were summarized. Afterwards, recent development of asset accounts for forests in the Kyrgyz Republic (predominantly in terms of forest area and timber stocks) were presented. It was emphasized that economic valuation of forest ecosystem services on the national scale is needed to fully account for forests' contribution to national Gross Domestic Product. Also, the progress in national forest digital mapping was presented (illustrated on the comparison of maps from 1980 and 2008).

Session 3: Classifications of Ecosystem Services – CICES, TEEB, FEGS

This session provided trainees not only with an overview of the main ecosystem service classifications currently in use, but also enabled them to appreciate the importance of such classifications. As recognised by the SEEA-EEA, such a standard system is required to ensure consistent application, avoiding double-counting and to provide definitions that clearly connect to human well-being and which allow communication and comparison across landscapes. As well as the overarching general classifications of ecosystem services into three main groups (Provisioning, Regulating and Cultural services), this session described in detail the following classifications: CICES (the Common International Classification of Ecosystem Services) developed by the European Environment Agency; the classification developed by TEEB (The Economics of Ecosystems and Biodiversity); and finally FEGS (Final Ecosystem Goods and Services), developed by the US Environmental Protection Agency.

An exercise was prepared which enabled trainees to practise grouping locally-relevant ecosystem services into the three classification systems described in the lecture (see Appendix IV). According to the FEGS classification, trainees also assigned appropriate beneficiaries to another list of locally-relevant ecosystem services. This was another important step with which to familiarise the trainees, according to the recommendations provided by SEEA-SEEA in creating environmental economic accounts.
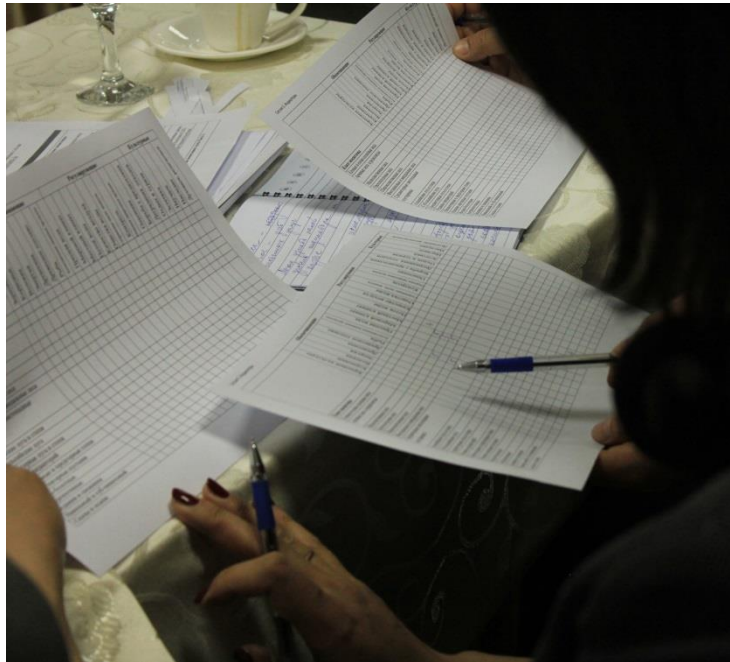
Session 4: Spatial units for accounting, spatial data, Consolidated Layer of Ecosystems of the Czech Republic (CLES)

The session was focused on the spatial infrastructure and data needed for ecosystem accounting. According to the SEEA-EEA Technical Recommendation, the lecture covered the basics of spatial areas, data sources, classifications, key issues and recommendations for delineating the spatial structure of the accounts. Firstly in terms of spatial areas, the differences between ecosystem units, land cover/land use classes and basic spatial units were stressed out. Secondly, the lecture had an example about land cover classification and spatial layer called Consolidated layer of ecosystems which was constructed in the Czech republic for ecosystem services mapping. Thirdly with respect to Kyrgyz republic context, key issues and recommendations were stressed out for spatial areas selection.

The accompanying exercise for the session (see Appendix V) focused on the spatial units design enabling the participants to propose their own suggestions for Kyrgyzstan. The participants were encouraged to address the following topics/issues: (1) forest protected areas and forest types, (2) forest health and condition, (3) non-timber forest products. As a guidance, few maps of Kyrgyz republic were included in the materials.

Session 5: General approaches to biophysical ES indicators

Session 5 focused on general rules that should be followed when selecting specific indicators to assess ecosystem services and ecosystem condition. First, general

principles for the choice of indicators, such as policy relevance and scientific soundness, were presented. Second, selected indicators of ecosystem condition were introduced, including simple indicators as well as composite indices such as Mean Species Abundance (MSA) and Human Appropriation of Net Primary Production. The process of Mapping and Assessment of Ecosystems and their Services, currently implemented in the European Union, was recommended as a comprehensive source of potential indicators for individual ecosystem services.

At the end of the session, participants could practice the ecosystem service production matrix approach. They were asked to assign ecosystem service flow potential to ecosystem classes (adopted from the Kyrgyz National Biodiversity Strategy) according to their best knowledge and field of expertise (see Appendix VI for the exercise material).

Session 6: Approaches to biophysical ecosystem services modelling

Session 6 focused on biophysical modelling of ecosystem services, which is applied in order to compile the SEEA-EEA accounts on ecosystem services supply. First, a general background was provided, specifying that in the ecosystem accounting model, ecosystem services are conceptualized as flows originating from ecosystem assets (stocks) and contributing to benefits people obtain from nature. Since the aim of the session was to introduce biophysical modelling, the session focused specifically on regulating ES. As a specific example, carbon storage and sequestration were selected as a straightforward and easy-to-understand illustration. Second, the process of biophysical modelling with the InVEST suite of models was presented, focusing on data needs, differences between data types and the formulas used in the modelling process. The InVEST model was used since it presents a freely available and relatively easy-to-use option for ES modelling. Specific examples from the application in the Czech Republic were used to illustrate the outputs of the model.

The subsequent exercise (see Appendix VII) simulated the typical workflow applied in the InVEST modelling of carbon storage (data gathering and processing, data analysis, modelling calculations) in order to illustrate the approaches necessary for biophysical modelling of ecosystem services.

Session 7: Approaches to economic valuation and Kyrgyz experience

Session 7 focused on the basic principles of economic valuation of ES and multiple available approaches and methods. The components of total economic value were explained. The emphasis was put on the valuation methods that are especially appropriate for ecosystem accounting. In addition, practical examples from the Kyrgyz Republic, as well as insights gained in Kyrgyz case studies, were presented. Specifically,

the following case studies were presented which focus on the assessment of ecosystem services in economic terms:

1. **Zerger:** assessment of ES provided by pastures, the provision of forest products and drinking water;

2. **Chon Aksu (Чон Аксуу):** the use of the production function and travel cost methods to assess the provision of forest products and tourism;

3. **Son Kul (Сон Кул):** assessment of local vs. foreign tourism and the provision of pasture products (meat, milk);

4. **Ala Medina and Ala Archa rivers in Bishkek:** the assessment of willingness to pay for multiple scenarios of river-side parks design.

Session 8: Exercise on economic valuation of ecosystem services, application of selected approach.

Session 8 was directly connected to session 7 that constituted a broad introduction to the economic valuation of ecosystem services. During session 8, participants had the opportunity to practice three methods of valuation that were designed for three different ecosystem service types. Therefore, the session was divided into three parts, identical in structure. Firstly the participants listened to a short, 15-minutes presentation on the specific method, some considerations about the method and a given case study example. Then, they were given practical exercises to complete and finally the results of the exercises were presented by the participants (Exercise handouts are provided in Appendix VIII).

The first presentation's topic concerned **walnut supply valuation** with the use of the **market price method**. Walnut supply is a provisioning ecosystem service that can be described as the growth of the seeds that are edible and have particular characteristics that are beneficial to humans. Due to the fact that walnuts are sold on the markets it is possible to apply the market price method to calculate the ecosystems service value. Workshop participants became acquainted with the possible advantages and limitations of applying this particular method. After the presentation, participants were asked to estimate the annual gross value of walnuts, given the specific assumptions that could relate to the Kyzyl-Unkur case study. After the exercise, a discussion took place concerning the net value of walnuts, methods of adjusting the values to different time frames and different kinds of price, and market distortion.

The second presentation's topic concerned **carbon sequestration valuation** with the use of the **voluntary market price method**. Carbon sequestration is a regulating

ecosystem service provided to a great extent by forests. Forests have the capacity to transform atmospheric carbon into biomass. Workshop participants became acquainted with the possible advantages and limitations of applying the voluntary market price approach. At the end of the presentation, a relevant case study concerning forest ecosystem service valuation from the Austrian Alps was presented. After the presentation, participants were asked to assess the carbon sequestration in biophysical units of the walnut forest. During session 6 they were already familiarized with the InVEST model. During this exercise, participants utilised the specific formula that is also applicable and even more accurate than InVEST to assess the amount of carbon sequestrated. The main aim of the use of various approaches to calculate carbon sequestration was to make participants aware of choices that they need to make in the whole process of assembling the accounts. After the exercise, a discussion took place concerning the value of carbon sequestrated in other types of forest and the comparison of the carbon storage and sequestration values.

The third presentation covered the topic of **recreation valuation** with the use of the **travel cost method**. Recreation is a cultural ecosystem service that can include the non-material benefits that people obtain from ecosystems, e.g. by walking, hiking, doing outdoor sports and (eco)tourism. There are various methods used in the valuation of cultural ES, such as value transfer, preference based methods (Choice Experiment, Contingent Valuation) and travel cost method. The latter method was later practiced with stakeholders. After the participants completed the exercise, the following considerations were discussed: How is travel cost defined? Can you specify the different types of cost? Can you think of a case where one cost type is not perceived as a cost but rather as a benefit?

4.2.3   Discussion and wrap-up: Evaluation of training

At the very end of the workshop, time was devoted for participants to share thoughts, ask questions, raise some issues that still needed explaining and fill in an evaluation questionnaire. The questionnaire consisted of 17 closed and open questions (for details please see Appendix IX). In order to ensure honest and personal opinions, full anonymity was ensured. In total, 10 evaluation forms were collected.

Participants **rated** all training sessions at an average of **9.6 out of 10** possible points, which indicated that their overall satisfaction was very high. Participants found the **duration** of this 2-day training just fine and some even a little too short, which could leave some room for extending duration of the workshop in the next mission. Participants also very highly rated (**9.5 out of 10**) the **delivery** of the workshop by the expert team. According to the audience, presenters **answered questions well** and **extremely well**. Also the organisation of the training overall, was perceived as having been **extremely well** by the majority of participants (Figure 1).
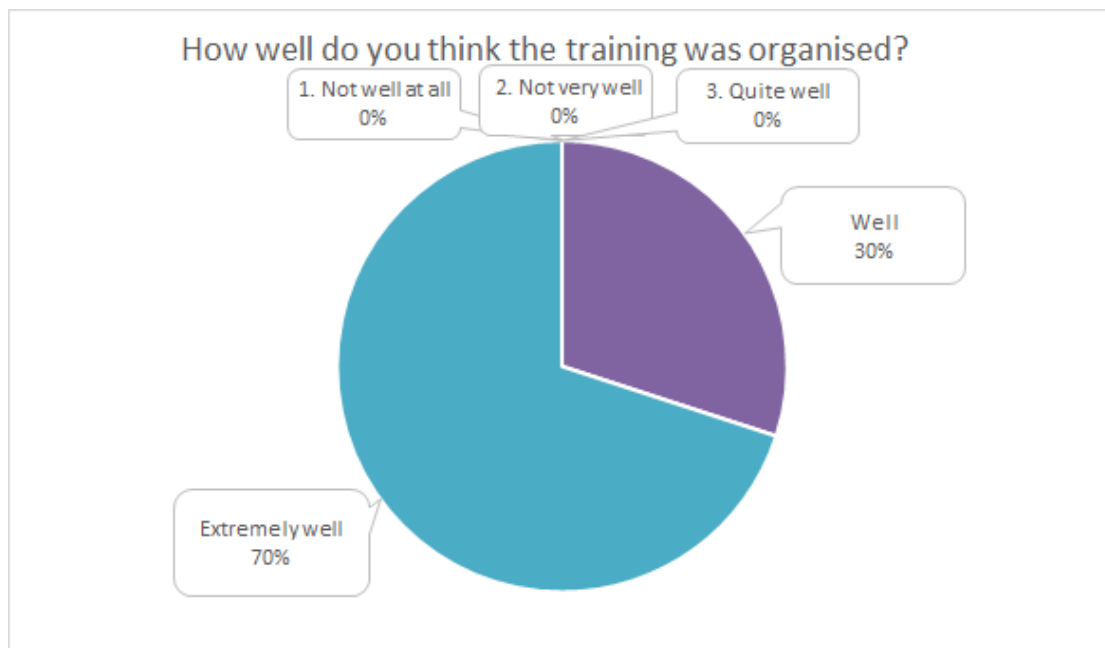
Figure 1. The perception of the workshop organization by participants.

In terms of content, participants were keen to practice **biophysical and economic estimations of ES** and they mostly learned everything they expected. The **level** of the training was on average **just right**. The **training exercises** and practical activities were consistently evaluated as **helpful** and **very helpful**.

Most participants could not distinguish which session was the most memorable learning activity for them, since they enjoyed all sessions. However, some stakeholders specifically named **economic valuation** and **biophysical modelling of ES** as their **most interesting sessions** (Figure 2). Participants also found the **practical exercises** the **best aspects** of the training. They truly appreciated the actual calculations that they were engaged in.
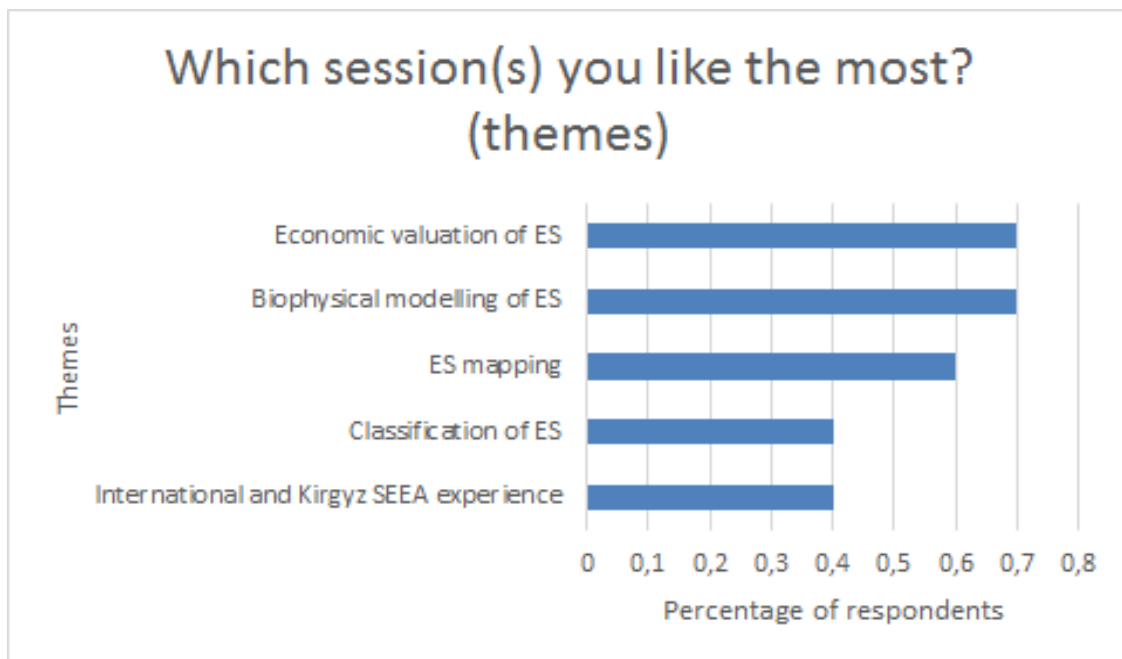
Figure 2. Participants responses to the question of favourite session/theme of the workshop.

Participants also expressed some suggestions for what material they would wish to cover in the next training: experimental calculations of Kyzyl-Unkur leshoz, to set up accounts based on data (previously collected) in the form of a spreadsheet, practical exercises based on real data and spatial data available in the Kyrgyz Republic.

In the evaluation form, participants were also asked to assess how helpful was the provided **SEEA-EEA Short Guide.** This Short Guide had been prepared by the CzechGlobe expert team to assist stakeholders with summarising the key information from the SEEA-EEA guidelines and technical recommendations, and in a manner most relevant to the context of the Kyrgyz Republic, which currently is not available in Russian language. Participants of the workshop found the Short Guide **helpful** and they declared that they would definitely **recommend** it to others. This Short Guide will represent one of the outcomes of this piloting project.

4.2.4 Consultation Workshop Conclusions

Participants were generally satisfied with the workshop's form, content and organization. They particularly liked the balance between the **theoretical** and the **practical** parts, including hands-on exercises illustrating the main SEEA-EEA features, approaches and methods. The participants further indicated they were most

interested in the sessions linked to ES classification, GIS and mapping approaches and economic evaluation of ES.

A key point raised during the workshop was that it is essential to emphasize the **importance of data management and quality** for the SEEA-EEA process. In addition, it was stressed that capacity-building and knowledge-raising regarding data management is an essential step of the SEEA-EEA piloting process. During discussions, it was further considered that the data on tourist-use of ecosystems, visitor surveys, as well as spatially explicit biodiversity censuses are generally not available. Data on the provision of products from forests and pastures are available; however, with certain limitations. It is highly recommended to broaden the use of new national coordinate system (Kyrg-06) and to harmonize the coordinate reference systems used in various spatial datasets.

Overall the participants considered the workshop materials and activities beneficial and informative, and appreciated the collaboration necessary for the successful finalization of the exercises. According to the participants, this served as a good example of the **collaborative nature of the SEEA-EEA process**. Furthermore, the participants stated that the workshop activities helped them to analyse which data are generally needed for successful compilation of the SEEA-EEA accounts and to **identify current data gaps**.

4.3   Pilot site visit

The pilot site visit comprised a two-day field trip to the Kyzyl-Unkur leshoz, which took place on May 20-21. Kyzyl-Unkur leshoz represents an authority responsible for managing the natural walnut forest area in the Jalal-Abad region, which is planned to serve as the case study for SEEA-EEA piloting in the Kyrgyz Republic. For the detailed agenda of the field trip, see Annex X.

The field trip served three purposes: (1) meeting local stakeholders, whose subsistence and earnings originate from local walnut forests, (2) meeting the representatives of the leshoz office, and (3) meeting GIZ representatives providing the social-ecological background of the study area.

The session with representatives from local villages dependent on the forest ecosystem elucidated the following points:

1. The main source of livelihood in the area is **walnut collecting** and **grazing**.
2. The forest is being r**ented per household,** who utilize the provision of walnuts, berries, medicinal herbs, honey, and space for grazing, etc.
3. **Tourism** presents another emerging source of livelihood for the villagers.

4. The estimates of yearly use of forest products, as well as their division between subsistence and sales to the market, are missing or merely approximate.

The session with the representatives from the leshoz office showed the following:

1. The history of the leshoz goes back to the 1940s. **Detailed statistics** on the development of the area of the leshoz, as well as the area of various land use and land cover types (forest land, pastures, etc.) are available.

2. **Forest inventories** provide detailed information on various characteristics of all hierarchical levels of leshoz spatial subunits (for instance, land use and land cover, slope, major species).

3. The forest inventory takes place once every ten years (recent inventories took place in 1993, 2003 and the current inventory is planned to be **finalized in 2017**). The reports for the forest inventory are compiled in the State Agency, which also has some of the materials (including maps) in digital form.

The session with the GIZ representatives highlighted the following:

1. The Kyzyl-Unkur area presents a **social-ecological area** with complex dynamics and structural system changes.

2. The walnut forest is aging, with seedlings and young trees generally lacking as a result of **intensive forest use**.

3. Grazing, excessive walnut collecting and cutting young walnut-trees for firewood present the major **environmental pressures**, causing lack of forest renewal, soil sedimentation and changes in water regime in the area.

4. The **livelihoods** of the local communities are closely **dependent** on the forest ecosystem, making them vulnerable towards unexpected events and potential long-term ecosystem changes.

5. **Education** and **collaboration** with local communities present one of the ways to mitigate the environmental pressures on the forest while increasing the sustainability of forest use and diversifying the sources of local livelihoods. Furthermore, economic valuation of forest ES could help people and decision-makers realize these issues.

4.3.1 Pilot site visit conclusions

The pilot site visit highlighted that the Kyzyl-Unkur forest produces a wide array of ecosystem services (provisioning, regulating and cultural), which the local communities largely depend on, and which also bring benefits to the wider population both in the Kyrgyz Republic and abroad. At the same time, major environmental issues are currently affecting the ecological stability of the area and threaten to exacerbate in the future.

From the SEEA-EEA perspective, detailed statistics on the use of local forests (forest products, tourist use of forests) is currently lacking. However, some data are available through project partners and key stakeholders, such as the NSC and the SAEPF. Therefore, it is vital to **develop additional capacity** on data collection and monitoring of the forest use in the area, as well as in other forest areas in the Kyrgyz Republic. A pilot activity in this direction was outlined by the NSC, planning to launch a household survey to assess the use of forest provisioning ES, as well as forest management and operation costs.

The field trip illustrated that the forests in the Kyrgyz Republic substantially contribute to citizens' livelihoods and GDP, which might not be reflected in the standard national accounting. Therefore, the SEEA-EEA together with economic evaluation of forest ES provide an opportunity to raise awareness of the importance of forest ecosystems and make them count to achieve more sustainable decision-making.

5 Mission III

The final third mission of the Czech expert team took place on 15-20 August 2016, following Mission 1, which focused mainly on discussing the development and implementation of SEEA EEA in the Kyrgyz Republic with key local stakeholders, and Mission 2, which was targeted at training and consultation activities for local experts. The final mission focused on exchange between all project partners and other stakeholders, finalization of the pilot ecosystem accounts and further capacity building for the SEEA EEA process in the Kyrgyz Republic.

The third mission built on the needs and priorities for piloting the SEEA EEA process, as identified by the stakeholders during the first two project missions in March and May 2016. Therefore, the main objectives of the third mission were:

1. To conduct a two-day SEEA EEA technical consultation workshop for key stakeholders to facilitate capacity building, discussion and exchange between project partners and stakeholders,
2. To finalize the pilot experimental ecosystem accounts for the Kyzyl-Unkur leshoz in consultation with the NSC, SAEPF and other key stakeholders.

The first two days of the mission focused on working meetings with the PEI Regional Team, UNDP Sustainable Development team and project partners, as well as meeting with management of the National Statistical Committee, the key partner of the project. These meetings aimed to clarify remaining issues regarding pilot SEEA EEA in the Kyzyl Unkur region and to finalize data flows. At the same time, project activities and forthcoming steps were discussed and refined.

The main activity of the mission agenda included a two-day technical consultation workshop involving key stakeholders and project partners. The workshop, entitled "Stakeholder Seminar on the System of Environmental and Economic Accounting - Experimental Ecosystem Accounting", was organized by UNDP-UNEP PEI and took place on the 17-18 of August 2016 in Bosteri, the Issyk Kul region.

Finally, the mission was concluded by a wrap-up meeting with the National Statistical Committee and UNDP-UNEP PEI representatives.

For a detailed mission agenda, see Mission III report.

5.1 Working meetings

The working meetings with the UNDP-UNEP PEI, UNDP Sustainable Development office, SAEPF experts, the NSC and local experts focused on (1) a general recapitulation of project priorities and development, (2) clarification of remaining issues regarding pilot SEEA EEA in the Kyzyl Unkur region and finalization of data flows, and (3) discussion of expectations from project outputs and next steps.

A summary of the issues covered are provided below:

1. Expected outputs from the project to be accomplished after Mission III include the **Implementation Guide** and a **Communication material/Policy brief**.
2. **Identification of gaps** regarding SEEA EEA in the Kyrgyz Republic represents a vital outcome of the project.
3. The project has identified issues regarding **data** sources, data collection, monitoring processes and **indicators** pursued as the major barriers to SEEA EEA in the Kyrgyz Republic.
4. **Integration with SDGs monitoring and current national statistics** is vital, as well as not introducing additional reporting burden and duplication of reporting activities. It is important to rather link SEEA EEA to existing reporting activities, their development and update.
5. An important next step is to upscale SEEA EEA to the **national level**.
6. **Political support** and link to regular statistical reporting represents necessary preconditions to successfully implement SEEA EEA.

5.2 Consultation Workshop

A two-day consultation workshop took place at a conference venue in Bosteri, the Issyk Kul region. The aim of the workshop was to facilitate further capacity building in SEEA EEA and discuss potential barriers and opportunities for SEEA EEA in the Kyrgyz Republic.

The interactive design of the workshop programme allowed a good level of discussion and exchange to enhance communication between different groups of stakeholders. The thematic sessions presented the theory of SEEA EEA and the results of the pilot SEEA EEA in Kyzyl-Unkur forestry. By discussing the questions in the working groups, the participants could apply the theory in practice, followed by discussion sessions at the end.

5.2.1 Participants

The workshop aimed to ensure the participation of all project partners and key stakeholders. Therefore, partners from the NSC, UNDP, SAEPF and experts from other selected institutions and government bodies and NGOs took part workshop. A great majority of the participants of the workshop have already taken part in the workshops and training organised within the first and second mission. Thanks to the keen involvement of involved partners and stakeholders throughout the project, numerous workshop participants succeeded to follow consecutive learning steps from SEEA EEA basic principles to the opportunities and barriers to its implementation in the Kyrgyz Republic.

The final attending group of participants included 38 representatives of governmental institutions, NGOs, leshozes and academic institutions, specifically the NSC (8), Environment Agency (7), Ministry of Economy (2), Ministry of Finance (3), Institute of Forest of the Academy of Sciences (5), Naryn State University (3), Association of the Forest Users (2), Kyzyl Unkur forestry (4) and GIZ (3). A detailed list of all participants with affiliations is provided in Appendix II.

5.2.2 Workshop Sessions, Exercises and Results

The workshop agenda was built upon the structure of the SEEA EEA as described in the SEEA EEA Technical Recommendations 2015. First, after a general introduction, the accounts for ecosystem assets (ecosystem extent and condition accounts), were

presented. Second, the accounts for ecosystem services both in physical and monetary terms were introduced. Finally, integrated accounts were presented and practiced.

Participants were actively engaged in the learning process by completing participatory exercises. The selection of exercises contributed to enhancing the capacity of the participants to perform experimental ecosystem accounting.

For a detailed consultation workshop agenda, see Appendix III and the following sections. All presentations as well as exercises and other materials are available through UNDP-UNEP PEI and the K-Link online data sharing platform (https://klink.asia/).

Table 2. Overview of Consultation Workshop Contents

Topic	Session
Welcome & Introduction	1. Piloting SEEA EEA in the Kyrgyz Republic
Pilot SEEA EEA accounts for Kyzyl-Unkur leshoz	2a. Ecosystem extent
	2b. Ecosystem condition, Regulating ecosystem services
	2c: Provisioning ecosystem services
Data collection	3: Sharing experience with data collection for SEEA EEA
Integration of accounts	4: Integration of SEEA EEA accounts.
	5: Comprehensive exercises on the compilation of SEEA EEA accounts
Conclusion	6. Discussion and wrap-up of training

Session 1: Welcome & Introduction – Piloting SEEA EEA in the Kyrgyz Republic
The aim of the first introductory session was to set the overall context of SEEA EEA in the Kyrgyz Republic, including the policy motivations for developing SEEA and a short summary of the "Sharing of Czech Experience: Piloting SEEA EEA in the Kyrgyz Republic" project with a SWOT analysis of its developments. Subsequently, the main principles of experimental ecosystem accounting were presented, including the main concepts and developments in the SEEA EEA, the descriptions of some of the main types

of accounts and their mutual links. Finally, terms relevant for SEEA EEA, their definitions and sources of further information were provided.

Session 2: Pilot SEEA EEA accounts for Kyzyl-Unkur leshoz
The second session aimed to provide the overview of the pilot accounts for Kyzyl-Unkur leshoz compiled within this project, related barriers and recommendations. The types of accounts presented in this session included accounts for ecosystem assets (ecosystem extent and ecosystem condition) and ecosystem services (ecosystem service supply and use tables in physical and monetary terms).

Session 2a: Ecosystem extent
Session 2a focused on ecosystem extent accounts and related challenges. The concept of ecosystem units and their connection to the land cover classes was explained. The participants got acquainted with the purpose of the ecosystem extent accounts, i.e. to monitor trends in the land use and land cover changes of the Kyrgyz Republic, and consequently, to account for degradation. The information from the land use and land cover data is later required to assess the potential to provide ecosystem services and finally to serve as a basis for other SEEA EEA accounts. The presentation addressed the newest developments of the National Statistical Committee in terms of forest asset accounts and the possibility to use both GIS and tabular data from the SAEPF forest inventories.

Session 2b: Ecosystem condition, Regulating ecosystem services

Session 2b on ecosystem condition built on the previous ecosystem extent session. The measures of ecosystem extent together with ecosystem condition provide the basis to assess ecosystem assets and their capacity to generate ecosystem services. Therefore, the compilation of ecosystem condition account requires the selection of the appropriate indicators to measure the key ecosystem characteristics, e.g. vegetation, water resources, soil, carbon, biodiversity. During this session, details on selected indicators and methods to assess ecosystem condition and regulating ecosystem services were presented.

Session 2c: Provisioning ecosystem services

Session 2c covered provisioning ecosystem services, including detailed CICES classification of provisioning services, identification and assessment of provisioning ecosystem services in the Kyzyl Unkur case study on walnut forests and the compilation of ecosystem service supply and use tables. It was highlighted that the supply and use tables are one of the most important aspects of SEEA as they present the contribution of ecosystems to the products that are already marketed and consumed, and are already captured by the System of National Accounts. The participants were engaged in a conceptual exercise on the value chain of walnut provision to understand the flow of ecosystem service into benefits and products, including the discussion on economic units included in the value chain. Subsequently, the participants practiced the compilation of ecosystem service supply and use tables. On the basis of the data provided by the NSC and SAEPF, the preliminary supply and use tables were presented and discussed.

Session 3: Sharing experience with data collection for SEEA EEA

Session 3 was co-hosted by the NSC and SAEPF, represented by Venera Surappaeva and Nazira Kerimalieva, who gave comprehensive and informative speeches on their experiences with data collection for SEEA EEA. The speakers underlined the importance of high quality data for SEEA EEA, while identifying gaps in the processes of data collection and data processing in the Kyrgyz Republic, including local levels.

Session 4: Integration of SEEA EEA accounts

Session 4 summarized the information provided during the previous session, and the approach to their integration was outlined. The session concentrated on integration of SEEA EEA accounts with the standard national accounts (SNA). Key terms (e.g. SNA and non-SNA benefits) as well as concepts (e.g. ways of integration) were explained. The session further addressed (1) the aim of integration, which is to derive adjusted measures of national income e.g. degradation adjusted measures of GDP, and (2) how ecosystem accounts can facilitate the Kyrgyz Republic in reaching its SDG 15.

Session 5: Comprehensive exercises on the compilation of SEEA EEA accounts

Session 5 represented a practical implementation of the theory introduced in Session 4. During the session, participants had the opportunity to practice the identification of SNA and non-SNA benefits and compile supply and use extended accounts. The participants were working in groups consisting of representatives of all partners' fields of expertise, which facilitated multiple-perspective approach to the activities.

Discussion and wrap-up

During the discussion session, several important issues were raised:

Mission III, the final mission of the project "Sharing of Czech Experience: Piloting SEEA EEA in the Kyrgyz Republic", brought the following key findings:

Data issues:

1. The project has helped the Kyrgyz partners to identify the following data-related gaps regarding:
    a. Data sources and quality,
    b. Data collection and monitoring,
    c. Data management,
    d. Data exchange mechanisms.
2. Data gaps and data quality on the local level present a major issue.
3. Shortages in capacity and funding were identified as the most important barriers to data collection and statistical reporting related to SEEA EEA.
4. Current statistical and forestry reporting in the Kyrgyz Republic may not include the indicators needed for SEEA EEA.

5. Practical guidelines on most relevant SEEA EEA indicators and related data collection approaches are needed.
6. Development of National Spatial Data Infrastructure is vital for successful implementation of SEEA EEA, SDG monitoring and other initiatives.
7. The existence of a coherent, up-to-date, regularly updated national-wide land use and land cover dataset would be highly beneficial for SEEA EEA.

Capacity building:

1. Capacity building is vital to address data issues related to SEEA EEA, and should take place on all levels (mostly the local one).

SEEA EEA process:

1. The expectations from SEEA EEA are multiple: (1) to facilitate SDG monitoring, (2) to illustrate the importance of specific ecosystems, e.g. forest ecosystems, (3) to introduce evidence of the value of ecosystem services and (4) to promote sustainable use of natural ecosystems and nature protection.
2. Forest ecosystems represent vital natural capital for the Kyrgyz Republic and will be of even greater importance in the future. The importance of forest ecosystems should be illustrated through SEEA EEA by incorporating the value of forest ecosystem services to the GDP.

Project outcomes:

1. According to project partners, this project has built the basis for the SEEA EEA process in the Kyrgyz Republic. The final output of the project, the Implementation Guide, is expected to:
   a. Bring guidance on major barriers to SEEA EEA and recommendations how to overcome them,
   b. Provide technical guidance on concepts and methods applicable in SEEA EEA, as well as relevant indicators and related data collection guidelines.
2. According to project partners, the project has had multiple positive effects, such as (1) further identification of data-related issues, (2) launching the update of forest inventory reporting, and (3) launching a capacity building processes on the level of local statistical reporting bodies and leshozes.
3. According to project partners, this project has enhanced the collaboration between partners involved in SEEA EEA in the Kyrgyz Republic, which is highly beneficial for this process, as well as related initiatives.

5.2.3 Evaluation of the Consultation Workshop

The consultation workshop was concluded by an evaluation to elicit participants' feedback. The anonymous evaluation questionnaire consisted of 15 close and open questions. In total, 32 participants (84%) submitted answers, which were subsequently analysed.

On average, the participants rated the 2-day **workshop** at **8.75 out of 10**. The same score of 8.75 was assigned to the overall **delivery of the training**. On average, they found the duration of the appropriate.

The main skills the participants expected to gain during the workshop were as follows:

- The impact of ecosystem services on the GDP,
- Accounting and statistics of ecosystem services, their calculation and indicators,
- International practice on ecological ecosystem accounts,
- New knowledge about ecosystem services accounts,
- New directions for further cooperation,
- Calculations of the economic assessment of forest resources.

The training II met the expectations of the participants and the majority reported to have learned everything they expected. The **difficulty level** of training was considered as "just right". Participants found the training **exercises** and practical activities "quite helpful" and "helpful".

The most notable learning activities that the participants were engaged in were the following:

- Calculations of ecosystem accounts,
- Session 5a. Comprehensive exercise on compilation of accounts on SEEA EEA,
- Ecosystem services included in the System of National Accounts,
- Exercise on calculation of value added,
- CICES classification of ecosystem services,
- Integration of the ecosystem accounts.

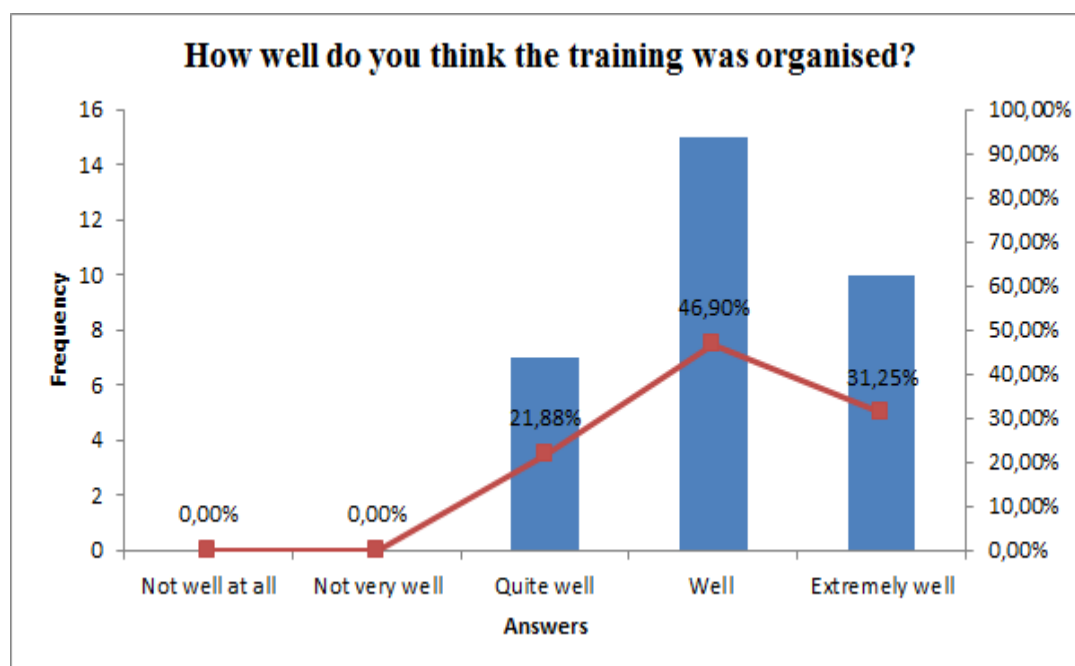Almost 80% of the participants found the training II **well organised** (Figure 3).

Figure 3. The histogram of answers to the question "How well was the training organised"

Source: own elaboration

The participants listed many **aspects of the training** that they **liked** most, among which these were most frequent:

- Sessions 2a, 2c and 4
- Discussions
- Kyzyl-Unkur forestry example, deficiencies in accounting
- Getting acquainted with international practice and its adaptation to local circumstances
- Local experience with SEEA EEA data collection by SAEPF.

Most of the participants were satisfied with the answers that they receive for their questions (Figure 4).
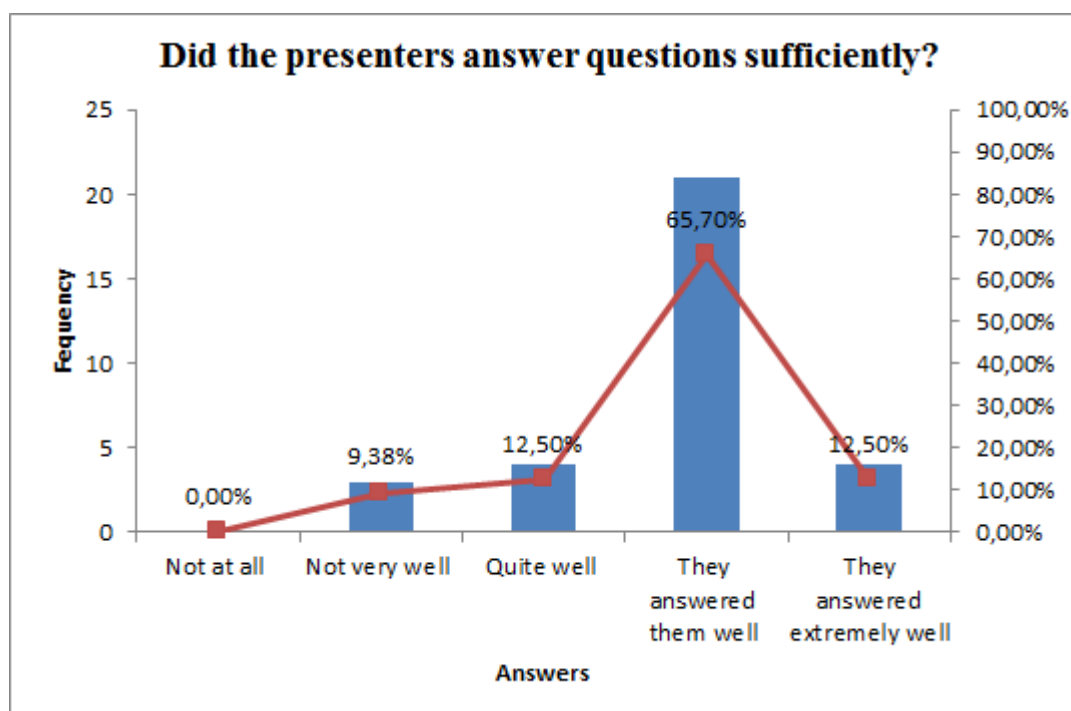
Figure 4. The histogram of answers to the question "Did the presenters address the questions sufficiently"

Source: own elaboration

The drawbacks of the workshop were elicited. Some participants indicated that there were problems with incorrect written translation of the materials and that they would prefer more practical examples of accounts. The economic calculations and knowledge about GIS systems were also of interest to participants, though these aspect were not covered in the 2-day training. It was suggested that it would be beneficial to conduct calculations of SEEA EEA for other leshozes as well, not only for walnut forests.

Some partners participated in the previous project workshops, and thus could compare the improvements made throughout the course of the project. They mentioned integrated, condition and provisioning ecosystem service accounts, as well as more detailed review of calculations in relation to Kyzyl Unkur as the aspects they liked more in the current training. Many participants also appreciated more group work in the current training.

6 Conclusions and next steps

Project "Sharing the Czech experience: Piloting SEEA EEA in the Kyrgyz Republic" established an intensive collaboration between the Czech expert team and partners in the Kyrgyz Republic, which facilitated capacity building for SEEA EEA in the Kyrgyz Republic, the finalization of pilot SEEA EEA accounts for the case study area in Kyzyl Unkur leshoz and the compilation of an Implementation Guide.

Furthermore, the project largely contributed to the discussion of SEEA EEA-related barriers and formulation of recommendations, summarized in the Implementation Guide. Importantly, the workshop helped the Kgz partners to identify gaps in data management and to enhance collaboration between partners involved in SEEA EEA (NSC, SAEPF), which represents a vital precondition for successfully implementing SEEA EEA.

Data gaps and data quality, especially on the local level, have been identified as a major issue, together with the lack of data exchange mechanisms and need for capacity building on all levels (especially the local one). Data collection, management and integration represent a another key issues.

Next steps

Multiple project partners expressed the need for follow-up activities to the current project.

It is expected that the project results will contribute to mainstreaming ecosystem accounting into statistical reporting and decision making for sustainable development of the Kyrgyz Republic. For instance, a new statistical form of forestry reporting, which already includes the SEEA-related questions and indicators, is being developed and tested by the NSC in collaboration with SAEPF.

This project helped to pilot SEEA EEA on the local level; however, further work on capacity building and the compilation ecosystem accounts on higher levels is needed. There is a need to continue the work and PEI will have detailed discussions with the NSC and the Environment Agency to identify next steps for 2017. PEI will be considering to submit a new application to the Czech Trust Fund to conduct follow-ups in the area.

Regarding the involvement of CzechGlobe and further collaboration with project partners in the Kyrgyz Republic, potential follow-up activities are as follows:

1. A follow-up project on SEEA EEA on the national level,
2. Contribution to GIZ project on ecosystem accounting.
3. Collaboration with other countries in the region, e.g. Tajikistan.

Sharing of Czech Experience: Piloting SEEA-EEA in the Kyrgyz Republic

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