Mapping the contribution of the Turkish forestry sector to the Sustainable Development Goals

by Melike HEMMAMI

In 2015, Turkey, in partnership with the United Nations Development Program, undertook integrated forest management in its Mediterranean region. To be able to follow this project and foster the development of a decision support system, a national system of control, reporting and verification has been put in place.

Introduction

This article is the outcome of an on-going process of developing and elaborating a methodology aimed at identifying the contribution of the forestry sector in the achievement of the sustainable development goals (SDG) in Turkey. This process/work aimed at exploring how the contribution to the SDGs of a specific sector –in this case forestry – can be identified and therefore become more visible. Thereby answering the question: how can we develop sector-specific indicators to be able to monitor over years the extent of the contribution to the SDGs.

UNDP Turkey, in partnership with the Ministry of Agriculture and Forestry, General Directorate of Forestry, has been implementing the "Integrated Management of Forests in the Mediterranean Region of Turkey" Project since 2015, supported by Global Environment Facility (GEF). In short, this project aims at — as its name already suggests — promoting an integrated approach for the management of Turkish Mediterranean forests. The project design enabled demonstrating the multiple environmental benefits of such an integrated approach. The project is made of 3 components. The 1st aims to support the alignment of the policy and institutional framework to permit and sustain the practice of integrated forest management within the Mediterranean landscape. The 2nd component seeks to develop/adapt, test and implement forest-based GHG mitigation and carbon-sequestration tools. Finally, the 3rd component aims at exploring options to strengthen the protection of high-conservation-value forests within the Mediterranean landscape.

Among the many activities under each component, the project took up the challenge of designing a national monitoring, reporting and verification (MRV) system for the forestry sector. With this, the project team intended to create a quality and content framework for GHG reporting for the sector. The team undertook an assessment of the current reporting and data environment to explore their options and during this process tried to provide examples of good practices and approaches for carbon quantification and the modelling of activity impact. The implementation of this MRV system is not part of the project but is aimed at supporting the development of a 'decision support system' (DSS) that is designed for the management of Turkish forests. This DSS is being developed with the support of Yale University.

Monitoring, reporting and verification system design for Turkey

The design process of the MRV system first evaluated the existing data sources and processes in order not to disrupt the existing reporting channels; it also aimed at creating more than just a national carbon accounting system. The focus was also to create a system generating at different levels data/outcomes that could feed the needs of decision-makers in their day-to-day management. As the output of this process, the Turkish National MRV System Design report (version 1.1) presented guidelines and emphasised the requirements for its implementation in Turkish Mediterranean forests. As such, the system enables the visibility of multiple environmental benefits deriving from the Turkish Mediterranean forests as well as showing their direct contribution to the achievement of SDGs[1]. (Figure 1).

In short, MRV aims at creating/sorting data to create valuable information for Forest Management and reporting. As shown above, the MRV system takes different data sets to generate different types of outcome targeting different levels of reporting for Turkey. A Forest MRV system is basically a tool for reporting on forestry activities and their impact on the GHG balance which in turn has implications for the governance and policy implementation context. Thus, it can also be regarded as a management tool. The data collection and assessment process can help identify shortcomings in the area of forestry governance and policy implementation. Therefore, the development of the system included a process whereby a series of governance functions and activities related to forest management practices have been identified and incorporated to meet the needs of a decision support system. These identified functions and activities also included economic, social and environmental aspects.

Figure 2 gives an overview of the technical layers of the set-up of an MRV system for Turkey. It was developed to serve various purposes according to the different needs of diverse stakeholders. The system contains four functional layers: the data input and interfaces layer, shaped in relation to the data management layer, describes the data going into and out from the MRV system. The data management layer acts like a warehouse where the data are stored and classified according to different functionalities while also ensuring data quality assurance of the data received and of the parameters to be respected. The data processing layer is where all the work is done in terms of transforming the data into requested shapes for different reporting functions. This includes simple calculations up to complex analyses such as crosschecking data and/or generating statistical modelling for defined purposes. Finally, the reporting layer is where outcomes are generated in accordance with the reporting needs of different stakeholders.

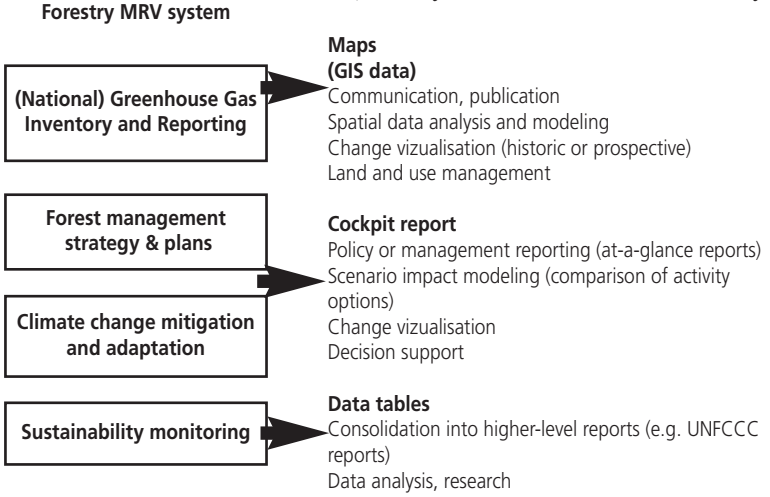

Fig. 1:
MRV Goals - Valuable Information for Forest Management and Reporting.

1 - Gold Standard Foundation & TREES Forest Carbon Consulting LLC, Turkish National MRV System Design Report version 1.1, 2017.

Linkage to Sustainable Development Goals (SDGs) and the motivation forward

Positive or negative, directly or indirectly, forests and land-use activities have an impact on nearly all Sustainable Development Goals. However, for practical reasons during the development of the Turkish MRV system and also based on the outcomes of a 'gold standard [2] report' on tracking the SDG impact of carbon projects, the focused SDGs were only SDG 1 (No poverty), SDG 6 (Clean water and sanitation), SDG 8 (Good jobs and economic growth) and SDG 15 (Life on land), i.e. 4 SDGs in total. SDG 13 (Protect the planet) is not referred to as it goes without saying that all activities aiming at an improved and sustainable forestry management make a positive contribution to SDG 13 (climate action).

The aim of linking the MRV system to the SDGs was to showcase the opportunity to use an existing established system (the developed Turkish MRV system) for making the Turkish forests' contribution to the SDGs visible and credible at no additional cost. At the same time, it created the possibility of highlighting the importance of the forestry sector for achieving specific SDGs. The scope, though, remains the contribution of forestry management practices in a specific country.

This exercise made it possible to showcase that monitoring the contribution is possible. Yet, it is as well to remember that certain activities may have a positive and/or negative impact depending on the context they are applied to. For example, forestation activities can present a lot of positive impacts if done in a suitable ecological location but can also have a negative impact if done in water-scarce areas with water-demanding species. Thus, monitoring and assessment need to be carefully be designed, applied and evaluated. As a first step towards a monitoring system for sectorial contributions to SDGs, the design focused on activities which can be directly monitored, concentrating mainly on climate change and social and environmental targets. The identified indicators were then discussed and reviewed by Turkish environment and forestry experts, including Turkish Ministry officials. Indicators were chosen by taking into consideration practicality as well as the availability of existing datasets.

Hence, the developed MRV protocol included 7 types of activity to be monitored across 8 SDGs. These consisted of two under afforestation and reforestation activities related to timber harvest and conservation; three under improved Forestry Management activities aiming at preventing loss of stocks, increasing stocks and increasing harvested wood products (HWP). And two under conservation activities focusing on conservation and restoration. It was nonetheless discussed that the selected SDGs were not exhaustive and it is clear that forests have a wider contribution to make with regard to the achievement of SDGs. And this enhanced the motivation to further explore the contribution of the forestry sector to the overall achievement of SDGs.

Mapping the contribution of the Turkish forestry sector to the SDGs

This work-in-progress aims at identifying the contribution of forestry to the achievement of the SDGs in Turkey. It tries to understand the existing level of contribution and explore how to make this contribution visible. It does that through the development of a methodology exploring how to develop the necessary indicators to permit the monitoring of progress over the years.

While creating a better understanding of the contribution of the Turkish forestry sector in achieving the SDGs, this work will facilitate highlighting the importance of the forestry sector from an SDG perspective thus enabling it to be effectively communicated to a wider audience. The trial of developing a methodology also incorporated a motivation

2 - For more information about the gold standard: https://www.goldstandard.org

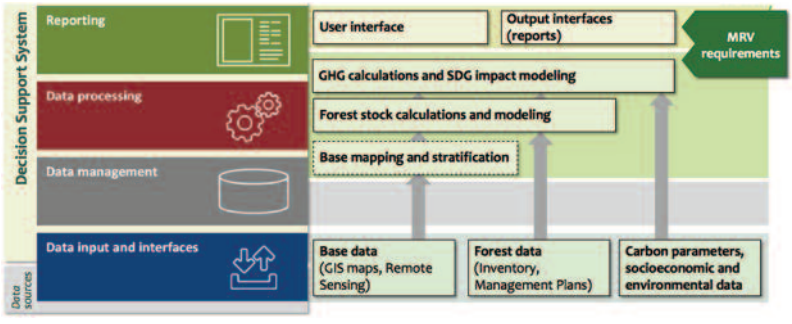

Fig. 2: MRV architecture: general set up for Turkey.

to develop a sector-based monitoring methodology for SDG localisation processes.

The process implicated exploring the input of the forestry sector at ecological, social and economic scale and investigate how and to which SDGs they are linked. This discussion process then evolved to develop indicators to monitor the contribution of the forestry sector. It has to be said that this process set its boundaries within the scope of operation of the Directorate General of Forestry. The outcome of the process is a discussion paper to be consulted/enriched by others to identify the best methodology and set of indicators to highlight the importance of the forestry sector for the achievement of SDGs.

The actors in this process consisted of a multi-disciplinary team including experts on biodiversity, forestry, natural resources management, economy, sociology, gender and localisation and indicators development for SDGs.

The process can be summarised in five steps (1) the planning process bringing the relevant actors together and preparation of initial forestry management related documents as a basis for the discussions. Sustainable Forestry Management Criteria and Indicators of different regional focus supported the brainstorming process. (2) Linkage of forestry practices and their outcomes in the context of sustainable forestry management with the Sustainable Development Goals and related targets. (3) Development and testing of indicators to monitor the progress in achieving SDGs. (4) Assessment the developed methodology through the multiple review of the generated indicators. (5) Creating a discussion paper explaining the initiation of the process and sharing its outcomes for feedback and further development.

As the outcome of a series of workshops undertaken by the experts involved, SDGs have been distributed to different experts. This grouping was divided in 5 headings to brainstorm on each allocated SDGs and their relations to forestry related context. The distribution was as follow;

1 - Social context group

This group reviewed SDG 1 -No poverty; SDG 2 -Zero hunger; SDG 4 - Quality education; SDG 11 -Sustainable cities and competencies; SDG 12 - Responsible consumption and production and their targets in the context of forestry villages and forestry sector related labour.

2 - Biodiversity group

This group reviewed SDG 6 – Clean water and sanitation; SDG 13 – Climate action; SDG 14 – Life below water; SDG 15 – Life on land by focusing on ecosystem and species conservation aspects in the context of existing natural resources management approaches.

3 - Economy group

The review focused on and reviewed SDG 7 – Affordable and clean energy; SDG 8 – Decent work and economic growth and SDG 9 – Industry, innovation and infrastructure in the context of national policies focusing on these last and creating linkages with the forestry sector.

4 - Gender

The focus for gender was initially for linking SDG 5 – Gender equality and SDG 10 – Reduced inequalities.

5 - Forestry Management

The expert reviewed SDG 3 – Good health and well-being and SDG 16 – Peace, justice and strong institutions.

All experts tried to individually explore potential linkages to be further discussed with all the members of the working group. Having said that, all experts contributed to the linkages made for each of the SDGs and how they could be linked to the forestry sector.

The principles adopted during this process have originally been developed by the Sustainable Development Solutions Network [3] – a global initiative for the United Nations. The principles also framing Sustainable Development Goals, Targets and Indicators.

These were formulated as;

1. One set of ambitious but achievable goals that will stand the test of time,
2. Universal application,
3. Set normative standards,
4. Small number of concise goals,
5. Motivational and easily understandable,
6. Operational and applicable to all stakeholders,
7. Integrated or 'system-based' goals,
8. Based on international consensus,
9. Dynamic goals,
10. High quality and consistent measurement.

3 - For more information: http://unsdsn.org/wp-content/uploads/2014/04/141120-Framing-Goals-Targets-and-Indicators.pdf

The next step was to establish indicators for each linked SDG and its targets. Indicator cards were inspired by the monitoring protocol of the MRV system developed for Turkish forestry. After some adaptation, they were used to establish indicators for each SDG and describe the connection with the forestry sector.(Table II).

This process generated a total of 157 indicators distributed among 16 SDGs. Table I shows the distribution of indicator numbers for each SDGs.

The next phase focused on reviewing and assessing the indicators. The 1st round of scoring was done in accordance with a set of 10 criteria identified and developed by the working group. The criteria were defined and finalised after an intense communication process wich ensured that the criteria meant the same thing for all the team members. The criteria were first established based on the literature and further developed for a common understanding. These criteria were (1) Relevance; (2) Efficiency; (3) Feasibility; (4) Simple, single-variable; (5) Disintegrated; (6) Mainly outcome-focused; (7) Forward-looking; (8) Consensus-based; (9) Comprehensibility; (10) Specificity. Although not added to the set of criteria, the experts considered 2 other criteria while assessing the indicators: the first was on "participation", in terms of the indicators being developed in a participatory manner and the second was "exhaustive" in terms of ensuring an indicator being measurable. Criteria were revised and narrowed to 8 for the final scoring.

This first round resulted in a new discussion concerning 67 indicators of which 24 were removed and 43 reformulated. The second round of scoring was made for the remaining 133 indicators; 58 indicators scoring less than 3.5 average were collectively re-assessed, 37 were reviewed and 21 removed. The final round resulted in 112 indicators.

Forestry sector's contribution in achieving SDGs
Suggested indicators

Finally, 112 developed indicators could be linked to 73 targets. Only 2 goals, SDG 16 & and SDG 17, did not remain linked to the indicators due to the poor scoring results in temrs of the developed criteria.

Forestry sector's contribution in achieving SDGs
Affiliated SDG indicators

In total, linkages between indicators and targets could be established for 153 SDG indicators. These results showed that the most affiliation was made with SDG 15 and the least with SDG 3. See examples of developed indicators, including their linkages to the SDG goals and targets, in Table III.

SDG	Number of indicators
SDG1	10
SDG2	7
SDG3	4
SDG4	5
SDG5	19
SDG6	11
SDG7	3
SDG8	12
SDG9	6
SDG10	23
SDG11	6
SDG12	12
SDG13	7
SDG14	5
SDG15	26
SDG16	1
Total	157

Table I:
Number of indicators by SDG.

Suggested Indicator	Number of houses in forest villages having access to clean water and sewage systems
Linked SDG	ODD6 : Ensure availability and sustainable management of water and sanitation for all
Linked target	6.2 : By 2030 achieve acces to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
Affiliated indicator set	6.2.1 : Proportion of population using safely managed sanitation services, including a handwashing facility with soap and water.
Nature /attribute	Qualitative Quantitative : X
Existing data situation in relation to th indicator	Available (specify source) : Not available
What / ho should be the data source and/or what should be the data collection strategy? Please specify	
Cycle/period	Once every 5 or 10 years
Responsible Institution (data collection) Related institution	TUIK (Turkish statistical Office)

Table II:
Examples of indicator cards.

Indicator	Related Goal	Related Target
Surface area (ha) selected according to conservation objectives in forests areas to national land surface area (%)	15	15.1
Proprotion of forest areas to national land surface area (%)	15	15.1 ; 15.2
Reforestation area (ha) except in steppe and maquis ecosystem areas	15	15.1 ; 15.2
The proportion of rehabilitated mining areas (where mining activities stopped) within forest zones	15	15.1 ; 15.2
Forest area per inhabitant (m^2/person) within urban zones	3	3.4, 3.9, 11.6

Table III:
Examples of developed indicators including their linkages to the SDG goals and targets.

Synergies with on-going process

A grasped opportunity was the process of updating of Sustainable Forest Management Criteria and indicators in Turkey. The summary of the process is shown in the table IV below.

Table IV.

Time line	November 2017 – September 2018
Drivers	▸ The need to address the gaps within the existing indicator sets ▸ Update the system according to the built-up experience and developed data collection capacity ▸ Forest Europe update process ▸ Implementation of the Integrated Forest Management Project
Working groups	1) Forest Resources and Carbon Stock 2) Forests Health, Vitality and Integrity 3) Production Functions of Forests 4) Biological Diversity Function 5) Protective Functions of Forests 6) Socio-Economic Functions of Forests
Result	6 criteria and 40 indicators adapted to the Turkish context
Linkage with Forestry SDG Mapping	Assessment of the linkages between the SFM C&I and SDGs

The introduction on linking SDGs to SFM C&I enabled the discussions to be taken into a wider audience and included in the Forestry Directorate General agenda as a possibility to simultaneously monitor their own contribution to the achievement of SDGs.

SFM Criteria & Indicators and their association with SDGs

An expert assessment resulted in associating SFM criteria and indicators with 10 SDGs. This exercise enabled to explore which sustainable forest management criteria and indicators could provide data to monitor the contribution of SFM to the achievement of SDGs. These potential data sources are shared in the table V.

Finally, it was possible to associated 30 indicators under 6 SFM criteria could be directly associated with SDGs. These SFM criteria are (Table VI) :

Criteria	Indicators
C1: Forest resources and carbon	4
C2: Forest ecosystem health and vitality	7
C3: ProductiveFunctions of Forests (wood and no-wood)	3
C4: Biological Diversity Functions of Forest Ecosystems	8
C5: Protective Functions in Forest (notably soil and water)	2
C6: Socio-economic Functions of Forest Ecosystems	5

The way forward

This work in progress generated a draft methodology to map the SDGs within the MRV architecture. A list of indicators has been developed to monitor (MRV) the contribution of forest in achieving SDGs at national level and finally an assessment has been made to highlight the linkage of Sustainable Forestry Management Criteria and Indicators and Sustainable Development Goals. This provided as a next step the opportunity to explore how to use the same data collection processes to also monitor SDG achievements.

The way forward as also communicated during the 6th Mediterranean Forest Week is to move the dialogue with a wider audience through the generated discussion paper at National and International level in order to finalise a localised sectoral mapping methodology to monitor the progress in achieving the Sustainable Development Goals.

M.H.

Potential SFM C&I providing data to monitor contribution to SDGs

C1: Forest resources and carbon stocks	C2: Forest Ecosystem Health and Vitality	C3: Productive Functions of Forests (Wood and Non-Wood)
I1.1 Forest area I1.2 Growing stock I1.3 Forest carbon I1.5 Forest areas managed through plans	G2.1 Forests affected by natural factors G2.2 Silvicultural activities G2.3 Human induced damages G2.4 Grazing damages G2.5 Authorisations and allotments G2.6 Air pollution and areas affected by climate change G2.7 Forest roads and facilities	G3.1 Increment and production G3.2 Non-wood products and services G3.3 Certified forests
C4: Biological Diversity Functions of Forest Ecosystems	**C5: Protective Functions in Forest (notably soil and water)**	**C6: Socio-economic Functions of Forest Ecosystems**
G4.1 Tree species diversity G4.2 Regeneration G4.3 Naturalness G4.4 Introduced tree species G4.5 Dead wood G4.6 Genetic resources G4.8 Threatened forest species G4.9 Protected areas	G5.2 Water protection forests G5.3 Natural disaster and infrastructure protection	G6.1 Contribution of forest sector to GDP G6.2 Forest products supply/demand/ balance G6.3 Employment G6.4 Financial power of forestry G6.6 Forest dependent communities G6.9 Research & development, Education and extension

Table V.

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