SUNRA

Sustainability – National Road Administrations

Project Framework for a Sustainability-Rating System for Roads

Organisational Level User Guide

Report version v1.1

February 2014

Report Details

Work package: 3

Deliverable: 9

Work package lead: VTI

Lead author:

Chris Sowerby, CH2M HILL

Contributing authors:

James Langstraat, CH2M HILL

Lennart Folkeson, VTI

Clare Harmer, TRL

Quality Review: Jean Hopkin, TRL

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1 Introduction

This document provides an organisational level user guide for the application of the SUNRA Project Framework. It is intended for European National Road Administrations (NRAs) who wish to use the framework and will also provide a useful source of reference to their designers and construction contractors. The SUNRA Project Framework, part of a suite of three frameworks developed by the ERA-net SUNRA project in 2013, is intended to be used by European NRAs in setting their definition of sustainability at a project level, identifying appropriate targets and indicators and finally recording project performance. It has the dual benefits of also being an educational tool for project teams to increase their awareness of the wide range of sustainability issues that are considered by the framework.

This document is divided into two sections, the first sets out the context for the SUNRA project as a whole, and the second provides overview guidance on how the application and use of the Project Framework should be applied at a project level.

Detailed, step-by-step user guidance for the Project Framework is self-contained within the Excel workbook.

2 SUNRA Project

2.1 The Need for SUNRA

National Road Administrations (NRAs) across Europe continually strive to improve the performance of their road networks. This improvement has been underpinned by significant research into the optimisation of road planning, design, construction and maintenance, which has enhanced the understanding of the social, environmental and economic aspects of managing a road network. These aspects form the three pillars of sustainability and are addressed at different levels across European countries through sustainable development plans and strategies. Whilst there is a common understanding of some aspects of sustainability this is not true of sustainability as a whole and thus measuring, benchmarking and improving overall performance can be difficult.

In order to develop a common understanding and means of measuring, benchmarking and improving sustainability performance the ERA-net 'Energy: Sustainability and Energy Efficient Management of Roads' research programme funded the 'Sustainability: National Road Administrations' (SUNRA) project. The project was delivered by a partnership between TRL, VTI, CH2M HILL, TNO and DTU.

2.2 The Purpose of SUNRA

The purpose of SUNRA is to drive change and an improvement in sustainability performance of national road development and management across Europe. The SUNRA project is not about developing a rigid set of criteria that result in a score or a level of performance. The core focus of the SUNRA Frameworks is to support and guide an NRA to improve performance by providing a means to define sustainability that is most relevant to the NRA's sphere of control and influence.

2.3 What is SUNRA?

The SUNRA project developed three interconnected frameworks for NRAs to consider sustainability based on national priorities, significant issues, stakeholder concerns and individual organisational structures:

- Framework 1: helps NRAs define sustainability considerations at a strategic level, considering the level of influence they have; defining a commitment; and an implementation approach. For more information see: www.eranetroad.org/images/eranet/Downloads/sunra_d3_framework-_2.0-short.pdf
- Framework 2: is used to identify strategic sustainability metrics and performance levels applicable to organisational, programme and project level. For more information see: www.eranetroad.org/images/eranet/Downloads/sunra%20d4%20framework%20part2%20accompanying%20framework.pdf
- Framework 3: provides a project level tool for scoping project level sustainability topics, setting appropriate targets, selecting indicators and recording results. This framework is the focus of this document.

Due to the various contexts of European NRAs, the SUNRA Frameworks have not been developed with a prescriptive approach to defining sustainability, but allow flexibility by providing a set of overarching sustainability topics and guidance for scoping topic aspects. The SUNRA Frameworks provide a practical approach to defining and measuring sustainability for an NRA. The Frameworks are interconnected and can be applied in sequence if required by

an NRA. This is because they cover the different levels of control and influence that an NRA has from strategic down to project level as shown in Figure 1. NRAs that are less developed in their approach to defining or managing sustainability impacts should start with Frameworks 1 and 2. The outputs of the application of the first two frameworks would inform the application of Framework 3.

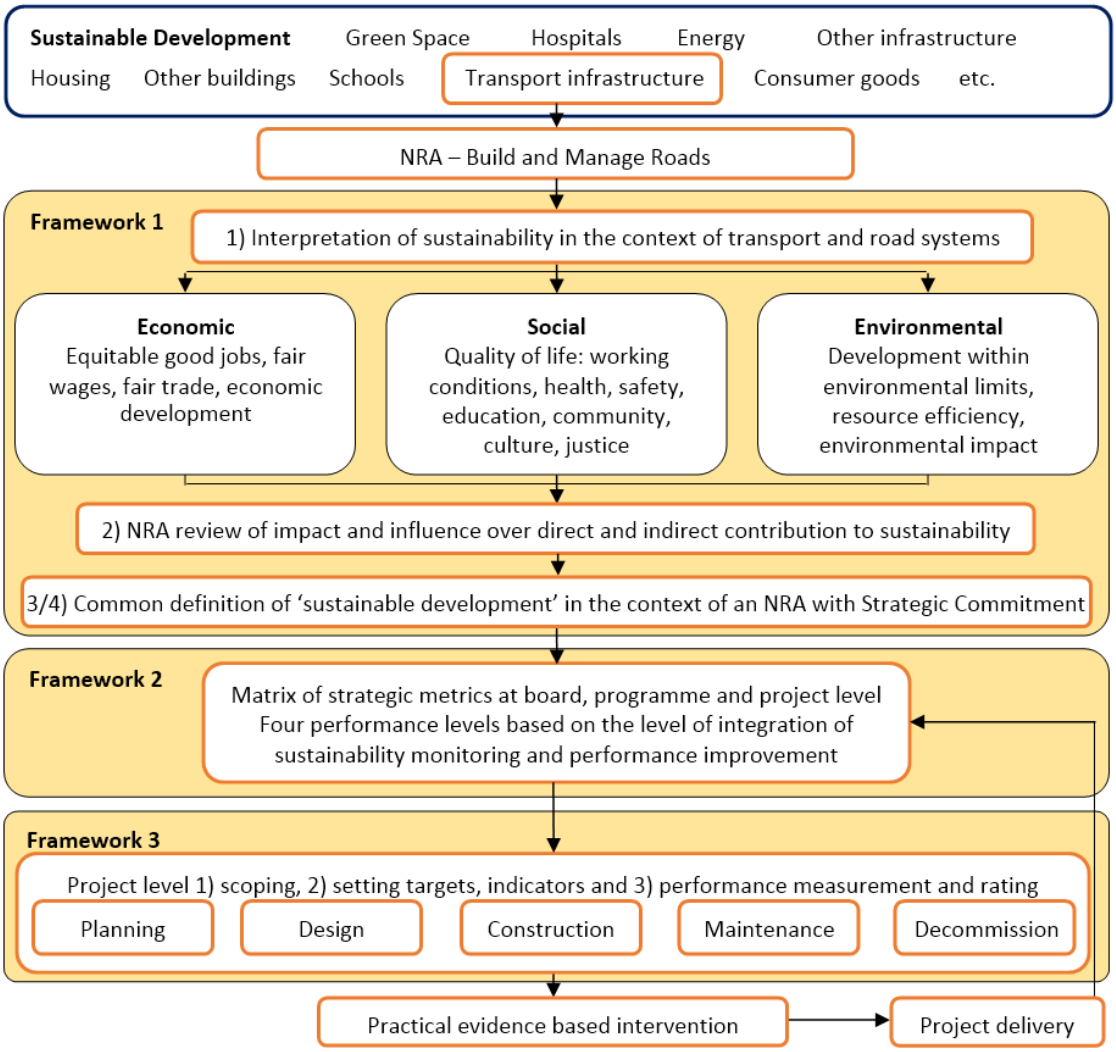

Figure 1: The three SUNRA frameworks

3 Application of the SUNRA Project Framework

3.1 Benefits of the SUNRA Project Framework

The SUNRA Project Framework enables an NRA to define and record sustainability performance of a road project, drawing on existing processes and records rather than adding additional administrative burden.

This one record of sustainability performance should prove useful to demonstrate to governments, stakeholders and the public an NRA's contribution to the sustainable development of a country. This is possible because the Framework is comprehensive enough to have full coverage of sustainability aspects, whilst flexible enough to be adaptable between NRAs and their projects in terms of the scope of aspects being considered.

NRAs can use the Framework to set the performance standard they wish projects to be targeted and measured by. NRAs are free to decide if they wish to make any of the topics or aspects mandatory, and could set fixed targets and indicators that must be applied to all projects. To do this NRAs could complete the Framework with their required information and save it as a starting version for all projects they specify to use. If NRAs did this it could support benchmarking and performance comparison between their projects – which in turn could support knowledge transfer between the higher and lower performing projects.

This flexibility should allow NRAs to tailor the Framework to meet their own internal project life cycle process and controls.

3.2 Application over a Project Life Cycle

The Framework covers all stages of a typical project life cycle. Through the scoping process the Framework suggests and enables performance recording against relevant project stages for all topics and aspects.

The purpose of this is to aid the delivery of sustainable outcomes through influencing activities undertaken during a particular project development stage. Figure 2 shows that the greatest opportunities to influence sustainability are during the early project lifecycle stages. This is because it is during these stages that key choices regarding function, design, use of materials, techniques used, and impacts on the end user are made.

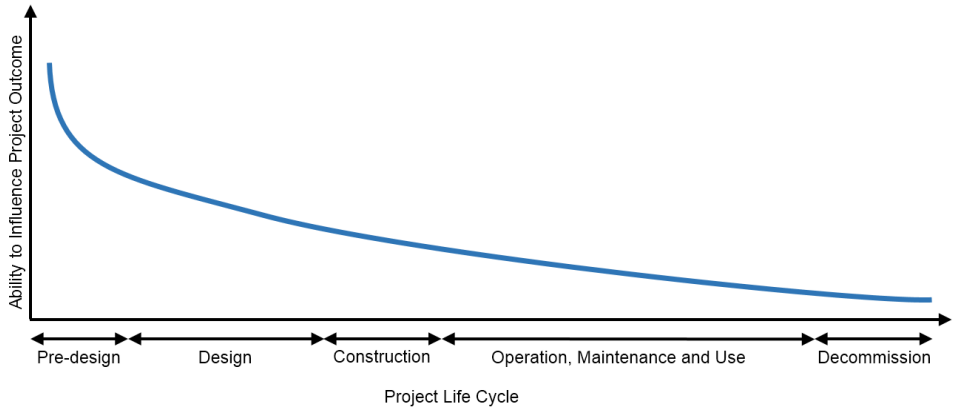

Figure 2: Ability to influence sustainability throughout a project (adapted from Carbon Management Framework for Major Projects, Forum for the Future, 2009[1])

[1] www.forumforthefuture.org/sites/default/files/images/Forum/Projects/Carbon-Management/EC21-Carbon-Framework-FINAL.pdf

The ability to influence sustainability decreases throughout the project life cycle but this does not mean those stages are not important. Many sustainability outcomes and impact controls identified in the early stages need to delivered 'on-the-ground' to be realised. This means that decisions, targets and indicators identified in the early stages need to flow through to the following project delivery stages.

The SUNRA Project Framework can assist with this flow-through of sustainability objectives/ targets for a project. This could be achieved by using the Framework as the central record of sustainability scoping decisions, target and indicator identification. The Framework can be used to inform the production of project briefs and scope for the designers and construction functions on a project. These functions may be fulfilled by NRA supply chain organisations or 'in-house'.

For the SUNRA Project Framework the project stages are as follows:

- Pre-Design – activities undertaken prior to full project design, including:
    - Business case development
    - Route / alignment option selection
    - Option stage transport appraisal / assessment
- Design – all activities undertaken after pre-design up to construction, including:
    - Detailed design of all project elements
    - Relevant statutory project assessments (e.g. environmental impact assessments)
    - Specification of road elements to inform construction
- Construction – all on-site construction/building related activities, including:
    - Physical activity of construction
    - Traffic management (e.g. disruption)
    - Employment (local and project related)
- Operation and Maintenance – activities that occur when the road is in-use, including:
    - Vehicle use on the road
    - Energy use in operating the road
    - Cyclic maintenance activities (e.g. winter maintenance, mowing, litter collection)
    - Major maintenance / renovation of road
- Decommissioning - activities after road has reached its end of life, including:
    - Deconstruction/demolition
    - Major change of use (e.g. transformation of 2-lane road to a cycleway, or change to non-non-vehicle use)
    - Complete re-build or renovation

3.3 Structure and Stages of Application

The SUNRA Project Framework (Framework 3) has three main elements:

1. Scoping sustainability topics to identify relevant topic aspects
2. Setting targets and identifying appropriate indicators for the aspects

3. Measuring performance against targets and indicators.

3.3.1 Scoping

It is intended that the scoping stage is undertaken by the NRA (or other client) based on its priorities and policies (having been identified using Framework 1 or otherwise established). This could be done once and applied to all projects and be subject to periodic review.

Framework 3 includes 26 sustainability topics jointly intended to represent a selection of important parts of the breadth of sustainability. For each topic, a number of key aspects have been described. Scoping is based on sustainability considerations that cover all lifecycle stages of the road. For all topics, three standard scoping questions are included covering EU and national policy or legislation, NRA policy, and site-specific issues. Each topic aspect is equipped with a scoping question which will guide the user whether to include the aspect in the assessment or not. Within a specific topic, different aspects may thus be either scoped in or out.

Six of the 26 topics differ from the others in not being attributable to specific sustainability topics but instead to planning procedures or organisational issues. These six topic are grouped together in the Framework under the heading “Procedural Topics”.

In the tool, the 20 “ordinary” (non-procedural) sustainability topics are arranged in alphabetical order and thus not according to importance or significance.

The scoping step enables NRAs to set the overall scope of sustainability topics to be considered to the specific needs of their project, organisation or national context in a systemised way through considering a standard and comprehensive set of scoping questions. This allows adequate justification to be given where certain topic aspects are scoped out from consideration.

3.3.2 Setting targets and indicators

For each of the sustainability topic aspects scoped into the Framework, targets and indicators need to be identified. Whilst the Framework highlights relevant considerations for setting targets and suggests relevant indicators, it is up to the user to decide on these. This flexibility is intended to encourage users to set targets and appropriate methods to record performance against those targets, including the means of collecting performance data.

To help ensure that targets are met, a responsible ‘actor’ must be assigned for each target/ indicator. The options for this selection are as follows:

- Client – actor responsible for overall delivery and funding of the project; this would normally be someone within the NRA.
- Designer – actor responsible for the design aspects of a project; this could be either staff within the NRA or one of the NRA suppliers.
- Contractor – actor responsible the construction aspects of a project; this could be either staff within the NRA or one of the NRA suppliers.

For each target one or a combination (e.g. Designer and Contractor) of the above must be assigned responsibility. To track individual responsibilities we recommend that on the Home Page the users named on the ‘Tool Users’ list is assigned to one of these roles. It is recommended that there is one user per role, however, on larger project more than one user per role may be preferable, or different users who are responsible for different topics and targets.

A summary of all targets assigned to an actor can be produced on each of the Summary Output Tables (one for each of the three ‘actors’). This). This should aid communication and tracking of associated actions needed to achieve a target.

The summary of targets produced in this way could form part of a Design or Construction brief as the project moves through its life cycle. For example the summary list of Design targets could be developed by the NRA in the pre-design stage and used in the procurement of a design consultant. The summary could form part of the tender information pack and project brief.

The Framework has the facility to include multiple targets and indicators per aspect – which could be assigned to different actors. This may be useful to:

- Account for multiple elements of an aspect, e.g. for air quality there could be separate targets for NOx and PM10.
- Assign a separate indicator and/or target to the designer and the construction contractor for a particular aspect, e.g. for light pollution in an urban area the designer might have a target related to the ongoing lighting requirements when the road is in use whilst the contractor would have a specific target relating to temporary impacts during the construction stage of the project.
- Assign different targets for different stages of the project as the project progresses.
- Assign different targets for different asset lifecycle stages (when the impact will occur).

When choosing appropriate targets and indictors it is recommended that they be aligned to the actors'/organisations' sphere of control and influence. Assigning a target to an actor who does not have any control or influence over the associated element of project delivery is unlikely to support its achievement.

When setting targets, it is assumed that all relevant legislative requirements are fulfilled. It is recommended that the targets set within the Framework should generally go beyond legal minimum requirements so as to promote best practice and encourage innovation.

In general it is recommended that any targets are 'SMART', which can be summarised as:

- Specific – a specific target that is defined and focused is more likely to be achieved than a generally and loosely defined one.
- Measurable – if the target is not actually measurable it will be very difficult to establish if it has been achieved.
- Attainable – targets must be within the actor's ability to control or influence or they will not be achievable.
- Realistic – a target must be based on the realities of the project and industry practice.
- Time-based – a time-frame for achievement of a target is essential if it is to be delivered as part of a programme of project development.

3.3.3 Measuring performance

The final step is to record project performance against the target for each aspect. Performance is simply recorded as:

- Target exceeded
- Target achieved
- Target partially achieved (more than 50 % achieved)
- Target not met

The scoping and target setting is intended to be completed at the pre-design and design stages, with the measurement of relevant targets applicable across the project lifecycle. However it may be possible at the design stage to estimate (or calculate with the help of

models) performance for operational targets, for example to eliminate operational energy through designing out the need for lighting and other energy-demanding equipment.

It is recommend that an NRA and its suppliers keep appropriate records to provide evidence for the decisions made during scoping and of the performance reported in the Framework. The location of such evidence should be included in the Outcome Record and Comments boxes. This would facilitate a review or audit which an NRA or other organisation may wish to make.