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b a s e s

Sustainability assessment

Guidelines for federal agencies and other interested parties

Publication details

Publisher
Federal Office for Spatial Development, ARE
Department of the Environment, Transport,
Energy and Communications

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Production
Information service ARE

Recommended citation format
Federal Office for Spatial Development, ARE (2008)
Sustainability assessment: Guidelines for federal agencies
and other interested parties

Available from
www.are.admin.ch/nachhaltigeentwicklung → Assessing Sustainability → Federal Government

11.2008

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Contents

Introduction

In line with Articles 2 and 73 of the Swiss Federal Constitution, sustainable development is one of the central tenets of federal policy in Switzerland. This means that we are repeatedly faced with the question of whether the Federal Government's major initiatives are reconcilable with the objectives of sustainable development. This question can be answered in the form of a sustainability assessment (SA). In its Sustainable Development Strategy, the Federal Council determined that a sustainability assessment "must be conducted in particular in the case of new and important projects of a legislative, planning/conceptual or building nature".[1]

These Guidelines have been drawn up to help sustainability assessments to be carried out as efficiently as possible, in accordance with standard principles. They set out a procedure in nine steps and provide additional support in the form of a Sustainability Assessment Excel Tool that enables the relevance of an initiative to be reviewed from the sustainable development perspective and allows its impacts to be recorded in outline terms.

Past applications and evaluations of sustainability assessments at federal level, as well as the experience of cantons and municipalities, have shown that a SA can make a major contribution to optimising initiatives and can also serve as an important basis for decision-making. This past experience has helped to shape these Guidelines.[2] We have also formulated minimum requirements that apply to sustainability assessments at federal level.

The Guidelines begin with a brief introduction to the topic of sustainability assessments, which includes an explanation of the sense and purpose of a SA, defines its field of application, and presents it in the context of other instruments, such as regulatory impact analyses (RIAs). The following three chapters describe the individual stages of work. The appendix and bibliography then offer a wealth of additional information that might be helpful in conducting a SA.

The ARE hopes that these Guidelines will play an important part in making sustainability assessments more straightforward, while at the same time ensuring that they are conducted to the same high quality standards. The ARE intends sustainability assessments to be carried out even more frequently and effectively, thereby contributing to the careful evaluation and optimisation of the Federal Government's major initiatives.

Federal Office for Spatial Development

Prof. Dr. Pierre-Alain Rumley, Director

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[1] cf. Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011, page 40.

[2] cf. ARE (2004), Sustainability Assessment: Conceptual Framework and Basic Methodology, as well as Ecoplan (2008), Evaluation und Weiterentwicklung der Nachhaltigkeitsbeurteilung (NHB) (German).

List of abbreviations

ARE	Federal Office for Spatial Development
BTE	Buildings, Transport and Energy Directorate of Canton Bern
CBA	Cost-Benefit Analysis
CBA+	Expanded Cost-Benefit Analysis
CEA	Cost-Effectiveness Analysis
CVA	Comparative Value Analysis
DEA	Federal Department of Economic Affairs
DETEC	Federal Department of the Environment, Transport, Energy and Communications
EEAC	Network of European Environment and Sustainable Development Advisory Councils
EIA	Environmental Impact Assessment
EnIA	Energy Impact Analysis
FC	Federal Council
FEDRO	Federal Roads Authority
FOAG	Federal Office for Agriculture
FOCA	Federal Office of Civil Aviation
FOE	Federal Office of Energy
FOEN	Federal Office for the Environment
FOPH	Federal Office of Public Health
FOT	Federal Office of Transport
HIA	Health impact assessment
ISDC	Interdepartmental Sustainable Development Committee (formerly: IDA-RIO)
OECE	Office for Environmental Coordination and Energy, Canton Bern
RIA	Regulatory Impact Analysis
RIPSI	Road Infrastructure Project Sustainability Indicators
RSI	Railway Sustainability Indicators
SA	Sustainability Assessment
SEA	Strategic Environmental Assessment
SECO	State Secretariat for Economic Affairs
STOIS	Sustainable Transport Objective and Indicator System
TGA	Federal Act on Transparency in Government (Transparency in Government Act)
UVA	Utility Value Analysis
VOBU	Volkswirtschaftliche Beurteilung von Umweltmassnahmen und -zielen (economic evaluation of environmental actions and objectives)

Foundations: What are these Guidelines for – and what is sustainability assessment?

a) What is a sustainability assessment?

The aim of a sustainability assessment (SA) is to evaluate and optimise Federal Government initiatives with regard to the objectives of sustainable development. Conducted at as early a stage as possible, a SA shows:

- what impacts a certain initiative can be expected to have on the economic, environmental and social dimensions of sustainable development
- how positive and negative impacts are distributed across the three dimensions
- whether or not conflicts of interest exist between the individual dimensions and/or with the main goals of the initiative, and
- how it would be possible to optimise the initiative with regard to its sustainability.

These Guidelines form a basic common toolbox for SAs. Individual refinements and specific areas of focus will nonetheless be necessary for each specific assessment.

The Guidelines and their integrated SA Excel Tool enable assessments to be conducted relatively quickly and easily, and at comparatively modest cost.

A number of cantons (e.g. Canton Bern[3]) and other countries / communities of states (e.g. the EU[4]) employ instruments that are similar to the SA. For further examples, please refer to the bibliography, the ARE website[5] and the guidelines for sustainability assessments at cantonal and municipal level[6] . The ARE website also publishes examples of SAs that have already been carried out in order to give an initial impression of what exactly a sustainability assessment involves.[7]

Note: These Guidelines are based by and large on the conceptual framework for SAs.[8] The findings of the evaluation of this conceptual framework[9] have been factored in to these Guidelines, however, and they therefore differ in some places from the framework itself.

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3 cf. OECE (2008), *Checkliste "Zielbereiche der Nachhaltigen Entwicklung"* (German); BTE (2004), Sustainable Development.

4 cf.. European Commission (2006), Guidelines on Impact Assessments, dated 15 June 2005, with the new version of March 2006 (SEC (2005) 791).

5 http://www.are.admin.ch/themen/nachhaltig/00270/02745/02781/index.html?lang=de (German)

6 cf. ARE Federal Office for Spatial Developent (2007), Nachhaltigkeitsbeurteilung von Projekten auf der Ebene der Kantone und Gemeinden – Leitfaden, Anhang I (German)

7 http://www.are.admin.ch/themen/nachhaltig/00270/03005/03007/index.html?lang=de (German)

8 cf. ARE (2004), Sustainability Assessment: Conceptual Framework and Basic Methodology.

b) When is a sustainability assessment used at federal level?

Initiatives, in the sense of federal programmes, concepts, plans and strategies, are the main areas in which SAs are used. A SA may also be used for evaluation at project level (e.g. construction projects), although more specific assessment instruments are generally used here. A SA may go into a greater or lesser degree of detail depending on the subject and aim of the analysis.

According to the Federal Council's Sustainable Development Strategy, a sustainability assessment "ought to be conducted in particular in the case of new and important projects of a legislative, planning/conceptual or building nature."[10] This report deliberately leaves open the precise areas in which a SA should be used, neither does it state when a SA becomes mandatory, or where a general or detailed assessment would be appropriate. These factors will all be determined separately.

A SA might also be conducted for an initiative that has already been implemented, in the form of an ex-post analysis. As the only approach that offers the opportunity for optimisation, ex-ante analyses are nonetheless the preferred option.

c) What are these Guidelines for, and what are their limitations?

These Guidelines are intended to provide a framework for conducting a SA. They are thus geared to the persons or external contractors who actually carry out such assessments, as well as to their line managers or clients (generally within those federal agencies that are responsible for an initiative that is the subject of a SA). As such, they set out general procedural guidelines. However, if it is to provide a suitable instrument for evaluating the issue in question, the SA will have to be adapted to the problems that are to be addressed. For example, modifications might be made to the criteria applied or to the various options used to analyse the findings. That said, this flexibility of treatment does not mean that assessments may deviate broadly from the requirements laid down in these Guidelines. The central elements – the sequence and content of the individual steps – must be observed, and a convincing case must be presented for any deviations (please refer to the "must" vs. "should" wording in the text, cf. also Appendix A: Sustainability Assessment Standards, page 28).

In the interests of keeping these Guidelines brief and easy to follow, we will not go further here into the reasons for a SA. Our focus is on providing a clear set of working instructions for conducting a SA. Consequently, these Guidelines do not constitute a comprehensive

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[9] cf. Ecoplan (2008): Evaluation und Weiterentwicklung der Nachhaltigkeitsbeurteilung (NHB) (German)

[10] cf. Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011

manual of SA methods. For further, more in-depth information in this regard, please consult the conceptual framework for SAs[11] and the VOBU[12] (cf. also the bibliography).

d) What principles does a sustainability assessment observe?

SAs are based on the following central principles:[13]

- Process: ideally, a SA is designed to be a dialogue – an iterative process conducted with those responsible for an initiative – in order to help optimise that initiative.
- Practical orientation: a SA can be integrated directly into project management, thereby enabling the sustainability of an initiative – and its optimisation in this regard – to be reviewed continually.
- Comprehensive: although the methodology permits quantitative approaches, SAs also allow qualitative evaluations, in order to capture as comprehensive a spectrum of impacts as possible, and to reflect the individual nature of each initiative.
- Flexibility: SAs have a fixed procedure and minimum standards that the criteria and the procedure must meet, but offer considerable freedom with regard to the methods and criteria chosen.
- Compatibility: a SA is not a substitute for other assessment tools. Rather, it complements them or builds on their existing findings (see Section e).
- Transparency: appropriate documentation ensures that the results are comprehensible and the procedure transparent.

e) Sustainability assessment in the context of other instruments

SA is an instrument for assessing the sustainability of political initiatives. A large number of further evaluation and assessment tools also exist in public government. Figure 1 provides an overview of these instruments and shows how SA fits into the overall scheme.

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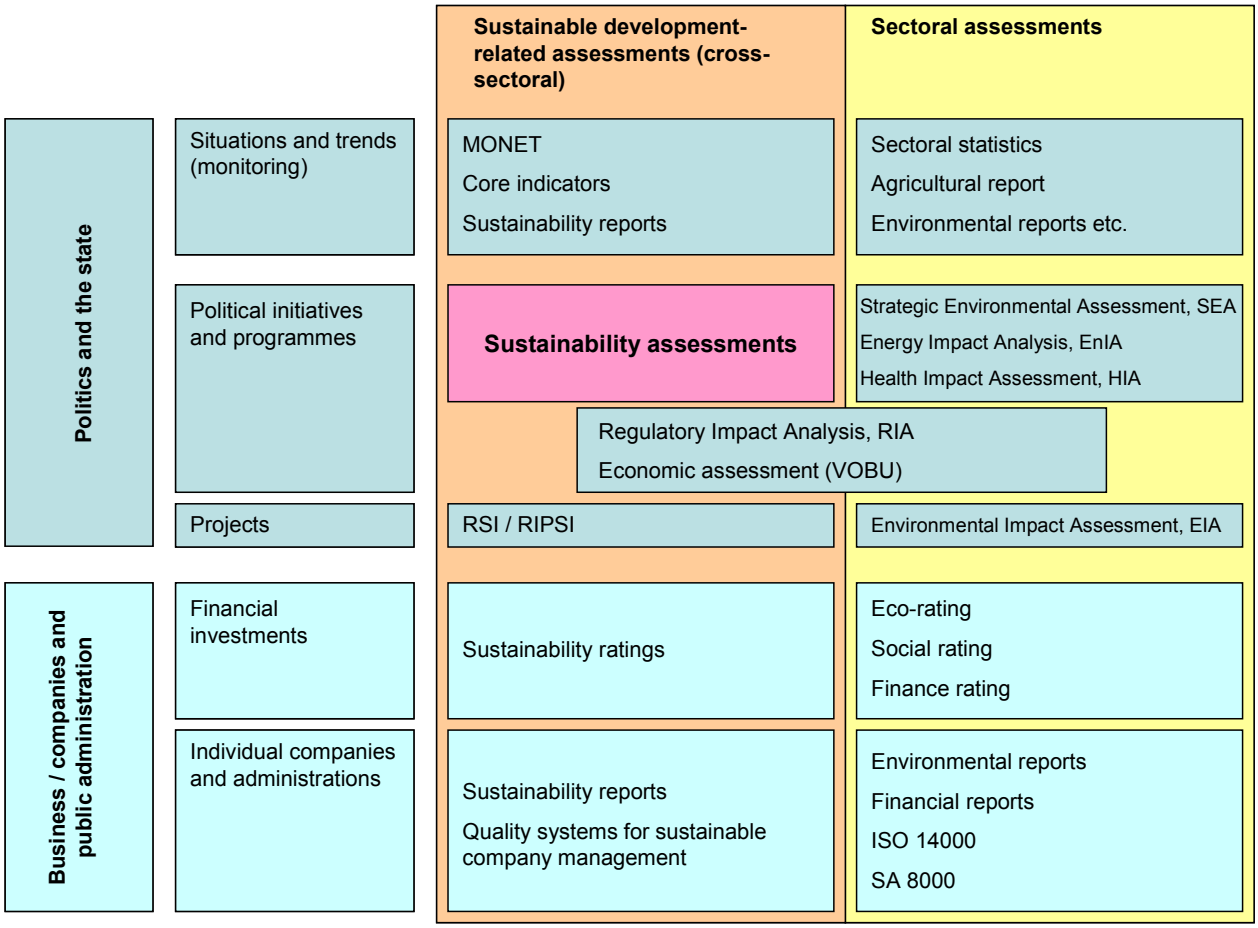
[11] cf. ARE (2004), Sustainability Assessment: Conceptual Framework and Basic Methodology.

[12] cf. Ecoplan/FOEN (2007), VOBU Volkswirtschaftliche Beurteilung von Umweltmassnahmen und Zielen.

[13] cf. for more details, ARE (2004), Sustainability Assessment: Conceptual Framework and Basic Methodology, p. 12 et seq.

Figure 1: How sustainability assessment is embedded in the evaluation system



Developed by us from the chart produced by Von Stokar in VUR (2006), Umweltrecht in der Praxis. Rechtliche Aspekte der Nachhaltigen Entwicklung – Auswirkungen auf das Umweltrecht, p. 535 (German).

RIAs and VOBUs extend beyond a sectoral evaluation, but they cannot be regarded fully as a comprehensive sustainability assessment. RSIs and RIPSIs are cross-sectoral in their impact, but relate to road or rail projects and are thus specialist applications.

It is clear from Figure 1 that most of the instruments shown are clearly distinguishable from SAs because of the different areas in which they are applied. RIAs and VOBUs, meanwhile, are used in very similar areas. SEAs, EnIAs and HIAs also have parallels with sustainability assessments. The main differences compared with SAs are:

- Regulatory Impact Analysis (RIA): both SAs and RIAs evaluate the consequences of initiatives or regulations, although they differ in terms of focus. RIAs concentrate mainly on economic consequences but also look into the impact on the individuals who are affected, not just the economy or society as a whole. Despite these differences, there are many common points, which make switching from one instrument to the other much easier.

Please refer to the concordance table in Appendix B: Table of concordance between sustainability assessment and other instruments (p. 31).[14]

- Economic assessment of environmental actions and objectives (VOBU): where procedure and methodology are concerned, VOBUs are very similar to SAs. Major differences nonetheless exist, specifically in terms of subject, objectives, and analysis. Please refer to the concordance table in Appendix B: Table of concordance between sustainability assessment and other instruments (p. 31). Despite these differences, it is still possible to switch from one assessment to the other or to combine both to exploit synergies.
- Strategic Environmental Assessment (SEA): unlike a SA, an SEA examines only the environmental dimension, but does so in greater detail. The primary objective of both is to optimise the initiative in question. However, since Geneva is currently the only canton in Switzerland to have conducted SEAs to date (the first stage of an EIA test pursues a similar direction), it is not yet fully clear how SA and SEAs interact.
- Energy Impact Analysis (EnIA): this instrument helps to estimate how much energy an initiative will consume, and to optimise (or reduce) this consumption. As such, its content is very similar to that of the three Federal Council Criteria En 2 Use of renewable resources, En 3 Use of non-renewable resources, and En 4 Pollution suffered by the natural environment and humans (cf. Appendix D: Criteria, p. 46). However, EnIAs go further than SAs where the reduction of energy consumption is concerned. SAs deal with this issue only implicitly, in terms of general possibilities for optimisation. That said, SAs – with their three environmental, economic and social dimensions of sustainability – are much more comprehensive than EnIAs (cf. the criteria system in sub-step A1).

  It is very easy to combine an EnIA with a SA, thereby explicitly incorporating the issue of energy use optimisation.[15]
- Health Impact Assessment (HIA): according to a preliminary draft bill for a Federal Act on Prevention and Health Promotion (Prevention Act (*Präventionsgesetz*) consultation version dated 25 June 2008), the objective of an HIA is to allow the Federal Council to establish in advance the impact on public health or on specific groups of individuals of important parliamentary and Federal Council business. The Prevention Act was still in its consultation phase when the original German version of these Guidelines went to press (September 2008). As discussions stand at present, a HIA could be used both as an independent instrument and in combination with sustainability assessments.

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[14] The RIA system is currently being revised, which may result in changes in the relative positions of RIAs and sustainability assessments.

[15] cf. also FOE (2006), Handlungsanleitung zur Energiefolgenschätzung von neuen Aktivitäten der UVEK-Ämter. (German)

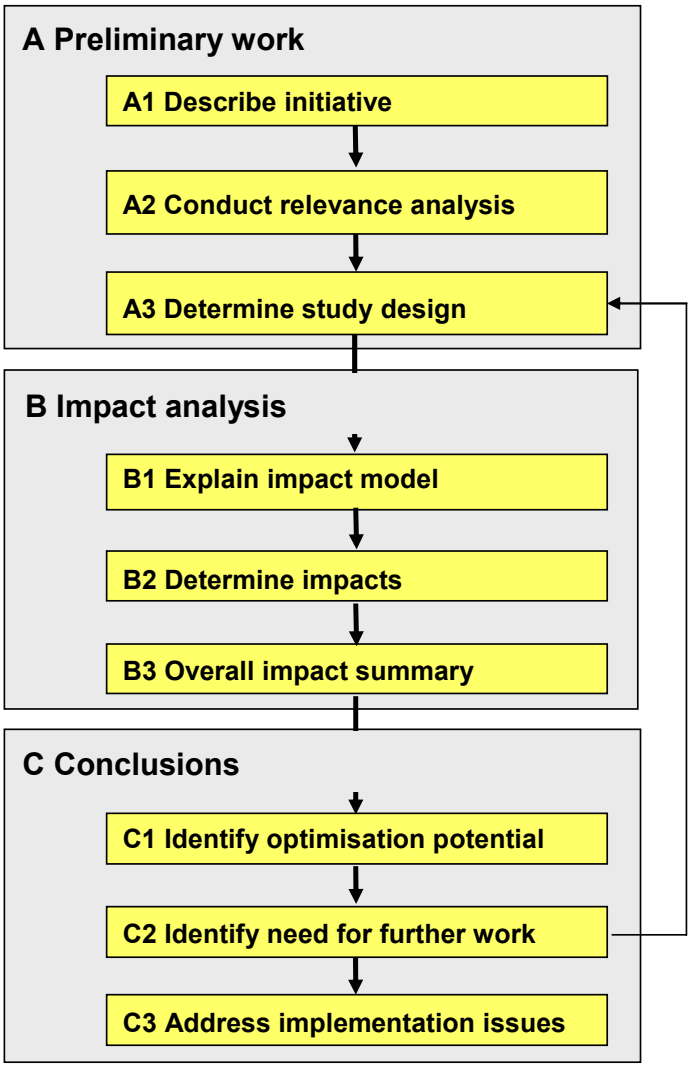
f) What steps must be completed when conducting a sustainability assessment?

A SA is produced in three steps, each of which has three sub-steps (cf. Figure 2 and Figure 3).

g) What further reading is available?

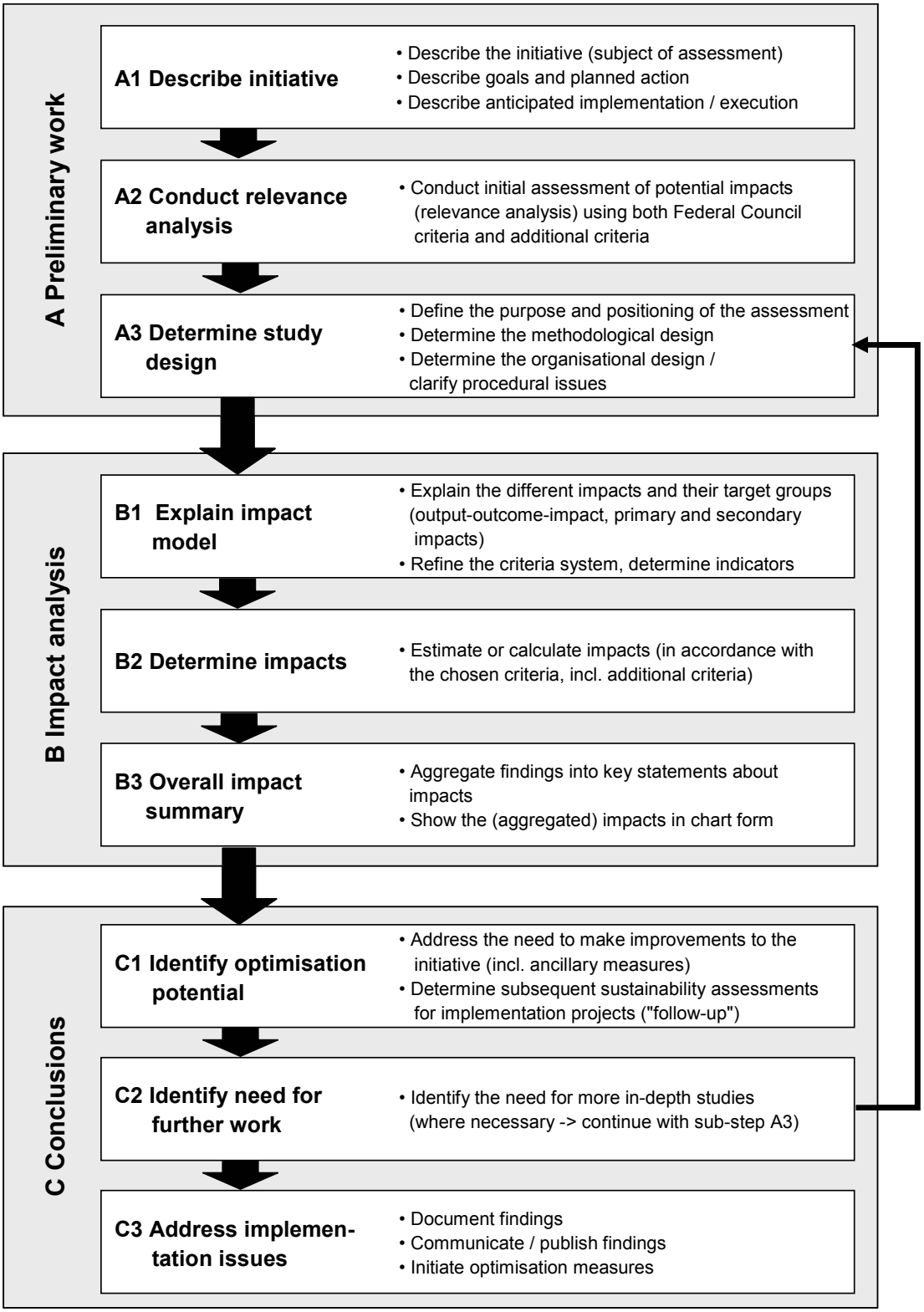
Further reading on SAs is given in the bibliography. The ARE website is also updated regularly with the latest information on sustainability and SA.[16]

Figure 2: Summary of the steps involved in a sustainability assessment



[16] http://www.are.admin.ch/sustainabledevelopment

Figure 3: Overview of the steps involved in a sustainability assessment, their sub-steps and content



A. Preliminary work

A1 Describe initiative

- The entire SA process begins with a description or definition of the initiative in question.[17]
- This also includes a general subject matter-related, geographic or time-based outline of the initiative. The system-related boundaries will then be set in sub-step A3.
- Where possible and reasonable, the initiative should be broken down into individual measures or groups of measures, which should then be described separately.
- The primary and secondary objectives that the initiative is intended to achieve must also be listed and, where appropriate, linked to the (groups of) individual measures.
- The way in which the initiative (or its individual measures) is/are to be implemented or executed are also to be described. If the specific details of execution have not yet been determined, then anticipated execution scenarios should be formulated and used for further analysis.
- Where different variations of an initiative are to be compared with regard to their sustainability, then each of these variations is to be treated as though it were a separate initiative, and described accordingly.

Described in this way, the initiative becomes the actual subject of the study and will be analysed in the following steps of the sustainability analysis. As such, this sub-step must be conducted with the greatest care and precision.

A2 Conduct relevance analysis

a) Conduct an initial assessment of possible impacts (relevance analysis)

- An initial estimate of the possible impacts (relevance analysis) is conducted based on the description of the initiative.
- The proposed target system for this relevance analysis corresponds to the Federal Council Criteria and eight additional criteria (see Section b).
- The SA Excel Tool is available to support this work (see Appendix C: SA Excel Tool, p. 34).

[17] "Initiatives" will be used below as a collective term for action plans, programmes, concepts, etc. that are the subject of a sustainability assessment.

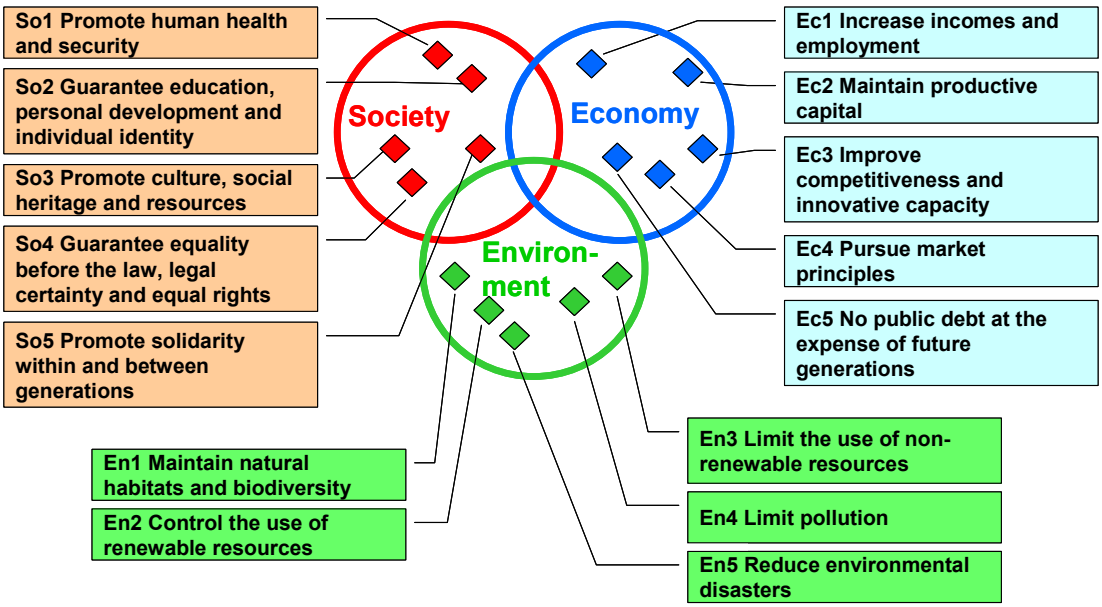
The result of the relevance analysis should help to set the correct points of focus in the study design (see sub-step A3), thereby omitting irrelevant factors at the earliest possible stage.

The relevance analysis may also reveal the wisdom of greater focus and/or greater precision in the initiative itself (the subject of the analysis). For example, it may make sense to include only one element of the initiative, because none of the other elements produce any relevant impacts. Were this to be the case, the description of the initiative set out in sub-step A1 would have to be amended.

b) Target system, criteria and additional criteria

The Federal Council criteria are used as the target system for both the relevance analysis and the impact analysis that must be carried out in step B (see Figure 4 and Appendix D: Criteria, p. 46).[18] These criteria are supplemented by eight additional criteria (see next page).

Figure 4: Overview of the target system (Federal Council criteria)



Note: The designations used here are shorter versions of the originals. The latter are listed in Appendix D: Criteria (p. 46).

- The ISDC criteria cover the same three dimensions of sustainability as the Federal Council criteria (see Appendix D: Criteria, p. 46). However, they are more specific because more criteria are used overall. Since the ISDC criteria can be integrated fully into the Federal Council criteria (see the synopsis of the two target systems in Table 4 of Appendix D:

[18] cf. Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011, p. 10.

Criteria, p. 46), they are used in these Guidelines to explain the details and specifics of the Federal Council criteria. They may also be used to divide the Federal Council criteria up into different sub-aspects or sub-criteria.

- A criterion is not always allocated entirely clearly to one dimension, as it often happens that two or even all three dimensions are affected (e.g. external costs affect both the environment and economic dimensions). In such cases, the dimension should be chosen on which the criterion has the greater impact, or an attempt made to divide the criterion according to the two (or even three) dimensions.
- For each Federal Council criterion, an additional analysis is conducted according to the eight additional criteria.[19] These eight additional criteria are listed and explained in Table 1.

Deviation from the target system:

- The relevance analysis should not deviate from the Federal Council criteria to ensure that none of the three dimensions is either neglected or prioritised at this important initial stage.
- If the impact analysis is conducted (see Step B), it may be necessary and useful to supplement the target system proposed here, or to replace it (wholly or partly) with an alternative system. Reasons must always be given for such a course of action.
- It may be sensible to adopt the primary objectives of an initiative as criteria for its specific SA (see Section c).
- Optionally, the overall summary may factor in the initiative's level of target attainment, by calculating efficiency, effectiveness and the ratio between costs and benefits. The primary objective of the initiative is generally used as the target in such cases (see Section c).

[19] If the Sustainability Assessment Excel Tool is used (see Appendix C: SA Excel Tool, p. 34, it is not possible to assess each individual criterion according to the eight additional criteria. Consequently, the additional criteria in the Sustainability Assessment Excel Tool offer only an estimate of all the criteria used. Particularly important criteria may, of course, be given a heavier weighting and, in particular, emphasized in the text part of the evaluation.

Table 1: The eight additional criteria

1 Problem status	Will the initiative further exacerbate an already critical situation?
2 Trend	Will the initiative further strengthen an existing negative trend?
3 Irreversibility	Will the initiative result in negative impacts that are difficult or even impossible to reverse?
4 Burden on future generations	Will the negative impacts be felt only at a later point in time? Will this place a particularly heavy burden on future generations?
5 Risks/uncertainties	Is the initiative associated with major risks (very high potential damage/loss, even if the probability is low) and major uncertainties (insufficient knowledge of the dangers linked to impacts, or about future trends)?
6 Minimum requirements	Does the initiative result in a violation of minimum social, economic or environmental standards (e.g. thresholds or limits)?[20]
7 Spatial impact perimeter	Will the negative impacts be felt across a wide area (spatial perimeter)?
8 Conflicts of interest	Do conflicts of interest exist between the various dimensions of sustainability, and with regard to the primary objectives of the initiative?

c) Addressing the primary objectives of an initiative

The primary objectives of an initiative are usually determined by the constitution and the law, or by parliamentary orders. They can generally be associated with one or more sustainability criteria. However, there is often a tension between these primary objectives and the – generally broader – criteria of sustainable development. The following Guidelines apply in such cases:

- It is helpful for a SA to show whether or not an initiative will achieve its primary objectives, while at the same time explaining the associated advantages and disadvantages in terms of the various related sustainability criteria.

[20] According to the Sustainable Development Strategy (cf. Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011, p. 10), a distinction can be made between the following three minimum requirement types: 1) thresholds laid down in law (e.g. emissions, health-related environmental norms under conservation legislation and its corresponding ordinances), 2) scientific thresholds that are not (yet) reflected in statutory limits (e.g. greenhouse gas emission levels at which further global warming would be halted), 3) socio-political norms such as equal opportunities, equal rights, minimum wages, dignified living conditions, a social safety net and guaranteed human rights.

- The primary objectives of an initiative may be included as an explicit part of the SA. Frequently, they are used to add extra detail to Federal Council criteria, or formulated as a sub-criterion of one of these Federal Council criteria. This allows the primary objectives of an initiative to be weighed up against its other impacts within the context of the SA.
- It is also possible to evaluate the primary objective of an initiative independently of a SA. Care must nonetheless be taken to avoid double counting in such cases: the primary objective should not be included once in the SA criteria and then a second time as a separate additional criterion.
- If an initiative will achieve its primary objective, but generate negative impacts with regard to (other) sustainability criteria, then the persons concerned must consider – in the knowledge of these impacts – whether or not the initiative is prudent and viable, or if it might also have to be optimised. Although a SA generally provides a comprehensive examination of all the relevant impacts, the primary objectives of an initiative are often more one-sided and sector-specific. Balancing advantages and disadvantages (which frequently involves positive effects on the side of the primary objectives, but negative side effects in other areas) nonetheless remains a political act. As such, there is no a priori hierarchy, according to which either the primary objectives or the findings of the SA are more important.
- If the primary objectives of an initiative stand in direct opposition to sustainable development, this should be noted in the context of the SA.

A3 Determine study design

a) Define the purpose and positioning of the SA with regard to the initiative

- The purpose of the SA should be defined based on the description of the initiative (see sub-step A1). There are essentially three basic, ideal options here:
  - support and optimise the initiative, either continually right from the start, or repeated at certain intervals at important stages as the concept of the initiative develops (the formative approach)
  - compare variations in the initiative
  - evaluate the initiative at the end (the summative approach).

  The specific objective that a SA is to pursue depends on the initiative and its context. Experience has shown that SAs that follow the first (formative) approach generally produce the best results in terms of optimising the initiative in question.
- Those parties that are involved and those that are affected must also be determined. The SA is thus geared to these parties, who may be agencies that are internal to the project or the administration, higher-level bodies, the general public, etc.
- Depending on the objective that has been chosen, the SA will have direct cross-references with the project management tools of evaluation, monitoring and controlling. These tools take different forms with each initiative. How they relate to the SA must nonetheless

be investigated. The details of the initiative will also determine whether or not synergies can be exploited here.

The description of the purpose, those involved and those affected is relevant in determining the design of the study (see Sections b) and c)).

b) Determine the methodological design

- The depth of the SA must be determined first of all, because it is relevant to all of the subsequent elements. Specifically, a decision must be made on whether the assessment will be conducted in outline or in detailed form (see Table 2). The choice of study depth depends on the following factors, in descending order of priority:
  - whether or not definite prescriptions exist
  - the scale of the relevant impacts (these can be estimated from the findings of a relevance analysis, as well as other instruments)
  - the importance of the initiative itself
  - the intended purpose of the SA (see Section a) and
  - what resources are needed and available (financial, staff, time, etc., see Section c).
- The system-related boundaries of the study must be clearly defined and described. The subject (see sub-step A), the geographical area and the time horizon are of particular importance here. Unless these boundaries are determined by the initiative or the purpose of the SA in themselves, they must be set so that the relevant impacts can be captured while keeping the assessment manageable.

Table 2: Distinction between outline and detailed sustainability assessments

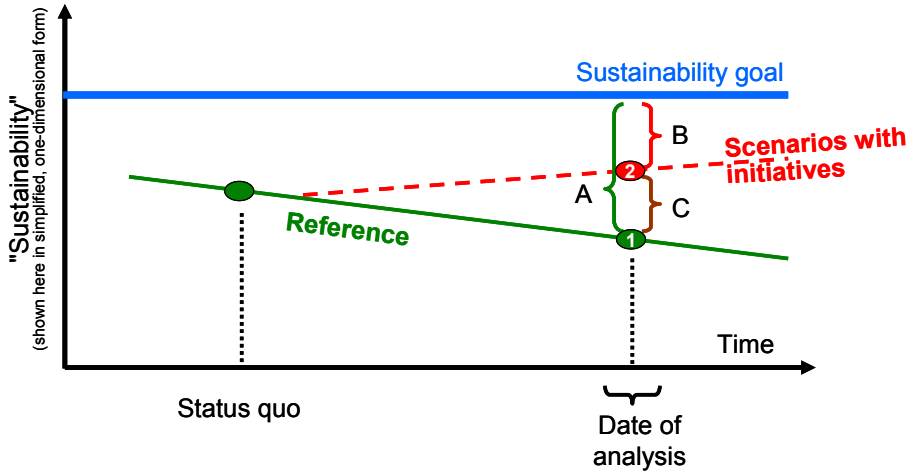
	Outline assessment	Detailed assessment
Scope of analysis	• Limited to an outline estimate on the basis of existing findings, usually using the SA Excel Tool and the criteria it proposes	• Comprehensive, providing more in-depth analysis using a system of criteria and indicators adapted to the initiative
Total time/resources required*	• Generally approx. 3-7 working days	• Generally 15-25 working days, perhaps considerably longer
Work involved in evaluating indicators	• Secondary analysis of existing documents and data sets • No (extensive) calculations	• Data collection (where necessary) in addition to secondary data • Precise calculation/estimates of indicator values
Subject	• Initiatives that have less far-reaching impacts (note findings of relevance analysis)	• Complex, often long-term initiatives with significant and varied impacts (note findings of relevance analysis)
Potential purposes of sustainability analysis	• Primary: outline evaluation of the initiative after its implementation (summative) or a one-off study at an early stage • Secondary: comparison of variations of the initiative; support for and optimisation of the initiative right from the start (formative)	• Support for and optimisation of the initiative, either continually right from the start, or repeated at certain intervals at important stages in the development of the initiative concept (formative) • Comparison of variations of the initiative • Evaluation of the initiative after its implementation (summative)
Greater depth (sub-step C2)	• In exceptional cases only	• As much additional in-depth analysis as necessary
Documentation	• Brief documentation (e.g. using the SA Excel Tool)	• Detailed documentation (see Section g in Appendix A: Sustainability Assessment Standards)

* The total time/resources involved depends very heavily on the amount and quality of information / data available.

- As a general rule, all SAs should establish (by means of estimates or measurements) the (future) reference situation without the initiative (survey no. 1), and the future situation with the initiative (survey no. 2), see Figure 5. This approach allows those conducting the assessment to show both the changes that will occur with or without the initiative (Scenario C), and any sustainability deficits that exist in the scenarios that exclude (Scenario A) and include (Scenario B) the initiative. This not only illustrates the effects of the initiative compared with the reference case, but also shows whether or not the objectives are achieved, and where sustainability deficits continue to exist even with the initiative. Where at all possible, the "as at" date of the analysis should be chosen to give a representative picture of overall trends. It may be necessary to assess developments at several points in time. However, this approach is very resource-intensive, which is why other methods may be

chosen where there are compelling reasons for doing so (e.g., where an outline sustainability analysis is being conducted).

Figure 5: **The various measurements (surveys) and comparison options**
("sustainability" is presented here in very simplified, one-dimensional terms in which deterioration in the reference case is assumed)



- If the SA Excel Tool is used for the analysis (see Appendix C: SA Excel Tool, p. 34), then the evaluations that must be conducted using it relate to the changes revealed by a comparison of the reference trend with the scenario involving the initiative (Scenario C). However, the tool can also be used to evaluate the scenario with the initiative compared to target sustainability objectives (Scenario B).
- A decision must be made as to whether and, if so, which scenarios within an initiative should be included in the assessment, e.g. different trends in energy prices or economic growth. The use of scenarios generally increases the accuracy of the SA as a whole.
- If the initiative in question must still be studied using other instruments (e.g. an RIA or VOBU, see Figure 1, page 7), then possible synergies must be identified, as must the adjustments that must be made to the design of the SA to permit such synergies (see Appendix B: Table of concordance between sustainability assessment and other instruments, p. 31).
- As described in sub-step A2 above, the Federal Council criteria are generally used as the system of criteria. They are supplemented by the eight additional criteria (see Section A2b). It may nonetheless be prudent to adapt the proposed system of criteria depending on the initiative and the purpose of the SA. It must then be decided which criteria can be refined, added to, or omitted on the grounds of irrelevance. Reasons must be given for any deviation whatsoever from the Federal Council criteria.
- The next step is to decide on the methodology for the study, based on what has been established so far. Possible methods include:
  - literature analyses

  - expert interviews and workshops
  - surveys
  - calculations and qualitative analyses
  - estimates based on models
  - analyses of existing statistics (secondary analysis).

  Depending on the nature of the study, it may be possible or necessary to use a combination of several methods, or a different method for each sub-area.

- The spatial aspects of an initiative are often important, but are not expressed sufficiently by the systems of criteria that are used for SAs. Where possible, spatial impacts (e.g. the centralisation effect, overdevelopment) and their consequences (e.g. on traffic) must be estimated and included with the relevant criteria in the assessment.
- It may be prudent to undertake relevant sensitivity analyses if a number of scenarios are examined, or if alternative assumptions are made and different frameworks set. That said, the resources required must always be kept in proportion to the benefit of the SA in such cases.

c) Determine the organisational design / clarify procedural issues

- As explained in Section b) above, the available resources are very important to the design of a SA. The financial and staff resources, as well as how many calendar days are available (or would be required) for the assessment, must therefore be clarified. Who is providing these resources must also be established, as must whether or not their identity might be problematic with regard to the impartiality of the SA (for example, because the examining agency is also responsible for carrying out the initiative, see also Section c) in Appendix A: Sustainability Assessment Standards).
- Responsibilities for the SA or for individual steps or tasks within it must be clearly defined. Specifically, which agencies are to conduct the assessment and be responsible for it, and which agencies are to take decisions on whether or not recommendations will be implemented (optimisation proposals, further SAs, etc.) must be determined at an early stage. The official bodies that are also to be involved in the SA, as well as all of those that will be informed of the process from start to finish, must also be defined.
- The mandatory principles that apply here are laid down in Appendix A: Sustainability Assessment Standards (p. 28).
- Furthermore, a decision must be made on whether or not external support will be brought in to conduct the actual analysis part of the SA (external processing). If so, the procedures for invitations to tender and contract awards must also be decided, and the specific standards that apply to external mandates must be observed (see Section d) in Appendix A: Sustainability Assessment Standards).
- Whether or not any committees will be appointed in parallel with the assessment work must also be determined. These committees may be composed of internal and/or external experts.

- Responsibilities for the production of documents and the communication/publication of findings must also be determined clearly by those responsible for the sustainability analysis.
- A binding schedule with certain defined milestones must be drawn up.

Combined with the description of purpose, the chosen methodological and organisational structures form the overall design of the SA study, and thus the basis for the impact analysis of step B.

If the design (or even the relevance analysis) shows that the impacts of an initiative cannot be determined with a sufficient degree of accuracy even after the analysis described in the following steps, then a binding decision must be made as to when, and by whom, its actual implementation (sub-projects, etc.) or potentially critical points (from the sustainable development perspective) will be subject to occasional subsequent checks as a means of follow-up or control.

B. Impact analysis

B1 Explain impact model

Before the precise nature of the impacts can be established (sub-step B2), there must be clarity about which impacts are actually caused by the initiative. An impact model is produced to facilitate this work. It is a theoretical analysis of the chain(s) of cause and effect. It helps to provide the fullest possible understanding of the impact mechanisms involved, as well as all their possible side effects.

- The description of the initiative from sub-step A1 is also used as the basis for the impact model.
- Reflecting evaluation terminology, the impact model can generally be presented at three levels (see Figure 6):
  - output level: the external impulses generated by the initiative; its (assumed) implementation is generally a central point here
  - outcome level:[21] impacts among target groups, i.e. what changes in behaviour are triggered, and what adjustments are made
  - impact level: impacts that help achieve the initiative's objectives (or obstruct or prevent them being achieved), as well as other impacts that are not specific to the initiative.
- It is often useful to distinguish between primary and secondary impacts.
- Where the time dimension is concerned, impacts should be distinguished as follows:
  - between impacts that occur in the short-term and those that take effect in the medium to long term
  - between temporary and permanent impacts
  - between one-off and repeat impacts.
- Impacts may be direct or indirect, and may be desirable or undesirable (or unintended) in the light of the initiative's objectives.
- The content of the impact model should be geared to the Federal Council criteria (see Section A2b), so that it covers all possible impacts on the various aspects of sustainability.
- An impact model may be presented in a variety of ways, e.g. as a chart or table (matrix).[22]

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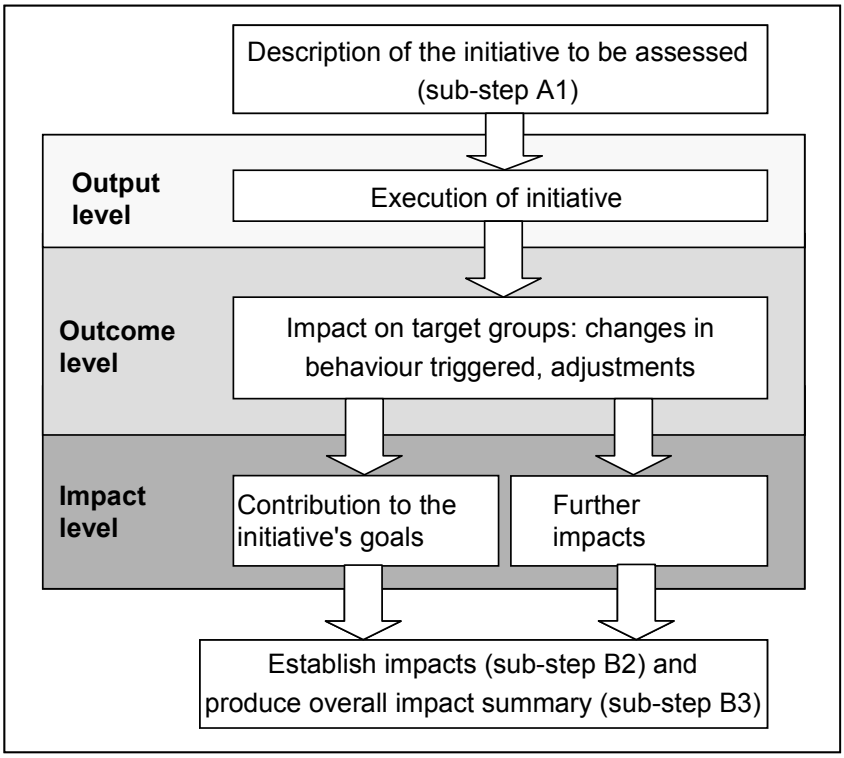
[21] The terms "outcome" and "impact" are sometimes used the other way around. Their use here reflects customary international terminology at the present time.

[22] A selection of possible presentation formats can be found in Ecoplan/FOEN (2007), VOBU, Volkswirtschaftliche Beurteilung von Umweltmassnahmen und Zielen (German), section 2 pages 10-14, see also http://www.bafu.admin.ch/wirtschaft/00517/03734/index.html?lang=en

Figure 6: The levels of the impact model, using evaluation terminology



The final structure of the impact model can be used as a basis for a further review of the elements determined in sub-step A3 and, where necessary, their adjustment, specifically:

- the depth of the study
- boundaries
- scenarios
- the system of criteria (incl. indicators)
- the choice of methodology.

The effects that are found at impact level then provide a foundation for (the subject of) sub-steps B2 and B3. It thus follows that criteria and indicators must be chosen so that they can also capture potential impacts as shown by the impact model.

B2 Determine impacts

- Values for the indicators determined in sub-step A3 are estimated or calculated in accordance with the chosen methods, thereby determining the impacts that the initiative will have.
- If an outline SA is being carried out, the SA Excel Tool may be used as an aid (see Appendix C: SA Excel Tool, p. 34).

- This sub-step is a key part of a detailed SA and usually one of the most resource-intensive. The operational side, i.e. identifying measurable indicators, is often very difficult and time-consuming because of the data situation. In any event, it is almost impossible to make general statements or give general instructions on how to proceed, as the way in which impacts are determined depends on the initiative and on the chosen methodological design (see sub-step A3).
- For further help in conducting this sub-step, please refer to the various data collection procedures described in Section A3b), as well as to the comprehensive literature on methods given in Section d) of the bibliography. Additionally, Section 0 of the bibliography lists examples of the uses of SAs and similar instruments that might also be useful. Further helpful information can also be found on the ARE website.[23]

B3 Overall impact summary

a) Aggregate findings into key statements about the impacts

Sub-step B2 will generally have produced results for all of the chosen criteria – possibly having been further refined and measured using certain indicators. Whether or not it makes sense to present such nuanced overall findings in summary form (i.e. aggregated) must be decided on a case-by-case basis in consideration of those involved and those affected. It can frequently be helpful to present findings using the three dimensions (environment, economy and society) or the 15 Federal Council criteria as a reference point.

- A central issue in all aggregations is the weighting of those elements that are to be aggregated. Each and every weighting implies a value judgment. There are no standards or rules here, so a transparent process is absolutely essential.
- Comparative value analyses (CVA) and utility value analyses (UVA) are the main instruments used to aggregate findings in this context.[24]
- The SA Excel Tool can also be used as another way of summarising (and presenting) the results of the impact analysis (see sub-step A2).
- All methods have their strengths and weaknesses. The choice ultimately depends on the context and the desired (level-appropriate) density of information.[25]

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[23] http://www.are.admin.ch/themen/nachhaltig/index.html?lang=en

[24] Other potential methods include cost-effectiveness analysis (CEA), cost-benefit analysis (CBA) and expanded cost-benefit analyses (CBA+). All of the analysis methods mentioned here are described and evaluated in detail in the VOBU guidelines, see Ecoplan/FOEN (2007), VOBU Volkswirtschaftliche Beurteilung von Umweltmassnahmen und Zielen (German), section 2 pages 21-30.

[25] For a more extensive discussion on this subject, please see Ecoplan/FOEN (2007), VOBU Volkswirtschaftliche Beurteilung von Umweltmassnahmen und Zielen (German), Section 2 p. 30

b) Show impacts in chart form

- A number of formats are suitable for displaying (aggregated) values from the impact analysis:
  - the charts included in the SA Excel tool are recommended for a relevance analysis and outline SA.
  - the charts included in the SA Excel Tool may also be used for a detailed SA, but other formats may also be appropriate here. The most common forms of presentation are introduced and described in the conceptual framework document.[26]
- The decision in favor of one or another format ultimately rests on the aggregation methods employed and how the findings are to be used at later stages of the process, as well as other factors.

A comprehensive overall impact summary now enables us to draw conclusions about the initiative, especially with regard to the question of optimisation and to next steps, as well as how the findings of the SA can be used in further work.

[26] cf. ARE (2004), Sustainability Assessment: Conceptual Framework and Basic Methodology, p. 53-59.

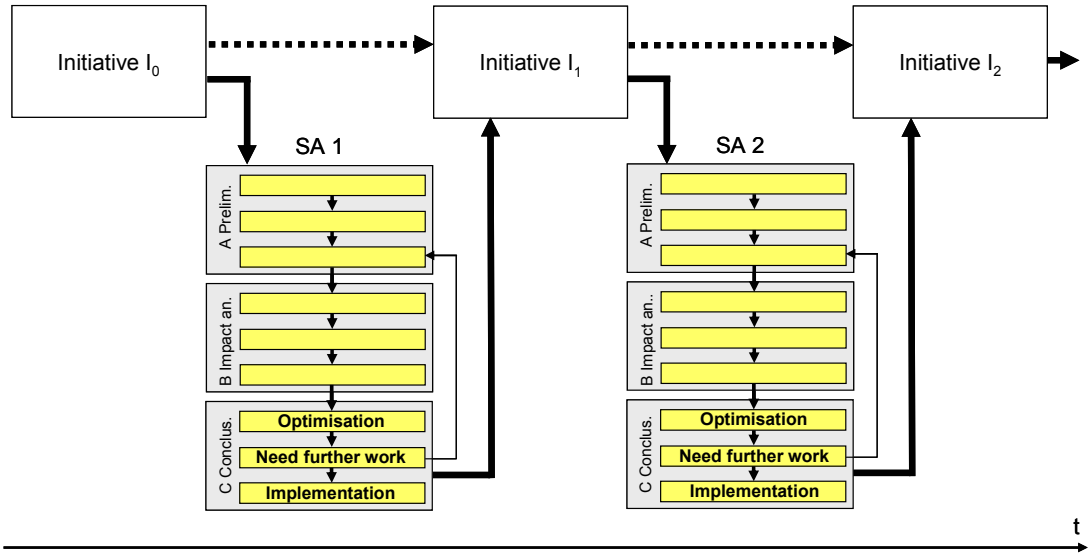
C. Conclusions

C1 Identify optimisation potential

- Drawing on the overall impact summary (sub-step B3), we can now identify whether or not the initiative needs to be optimised and, if so, where.
- If it is not possible at this stage to determine specific optimisation measures, the SA should at least show which critical impacts should be avoided and where conflicts of interest exist. Conflicts of interest may also exist between the primary objective of an initiative and its impacts on certain dimensions, as revealed the SA (see Section A2c).
- If there is a need for optimisation, consideration must be given to whether and how:
  - the initiative can be improved, so that these negative impacts no longer occur
  - ancillary measures may help to neutralise these negative effects.
- If negative impacts cannot be prevented, or if the necessary preventive action would generate other negative effects, then this fact must be stated.
- A decision should also be made on whether or not further SAs are required at a later stage (as a follow-up, see Figure 7) for specific implementation or sub-projects within the initiative, or for the optimised initiative as a whole. Depending on the result, it may be worth using an instrument other than a sustainability assessment, such as an EIA, an ex-post evaluation, or monitoring.
- A brief description and explanation should be given of optimisation options that cannot be realised, for example because technical implementation is not possible.

Proposals for optimising the initiative and for ancillary measures are intended to help improve the sustainability of the initiative. These proposals are only presented or outlined in a SA, however. They are not implemented at this stage. It is therefore important that these proposals be submitted to the responsible agencies so that they can actually be put into practice (see also sub-step C3).

Figure 7: Sustainability assessments and the initiative formulation process



C2 Identify need for further work

- Depending on the nature and scope of the findings from the impact analysis in step B, it may be necessary to investigate certain impacts in greater depth, for example if an estimate has not yet been possible. This need must be determined for each individual impact.
- Once it has been determined which impacts should be subject to further study, a decision must be made as to which of these studies will actually be carried out, based on the available time, staff and funding.
- Depending on the context, another SA may prove the right vehicle for more in-depth analysis. In such cases, sub-step A3 "Determine study design" provides the foundation for this more detailed study (see Figure 2). A different and more specific instrument, such as an RIA or an HIA, might also be used, however.

The addition of greater depth to the assessment should provide an even clearer picture of the way in which an initiative impacts on sustainable development. The findings of this in-depth analysis may reveal additional optimisation measures or adjustments that it would be wise to make to optimisation measures that have already been proposed (see sub-step C1).

C3 Address implementation issues

- A SA should be documented in its entirety, i.e. including all of the various sub-steps, and this documentation should be made available to the public, thereby:

  - creating transparency about the assessment as a whole
  - providing a sound foundation for further work.
- The precise format (electronic, hard copy) and extent (e.g. summary or full report) of this documentation depends upon:[27]
  - the chief requirements (see Section b) in the chapter entitled Foundations: What are these Guidelines for – and what is sustainability assessment?
  - the purpose of the SA, those involved and those affected (see sub-steps A1 and A3)
  - the level of detail presented in the sustainability assessment (outline vs. detailed assessment, see sub-step A3)
  - the available resources (funding, staff, time, see sub-step A3), and
  - the planned next steps in the process, e.g. have optimisation measures been planned, will a second SA be carried out, see sub-step C1).

  The minimum requirements set out in Appendix A: Sustainability Assessment Standards, Standards for documentation (p. 29) also apply to the documentation that is produced.
- The same criteria are also relevant to the decision of whether – and to whom – the findings of the sustainability assessment will be actively communicated. Please refer also to the applicable standards in Appendix A: Sustainability Assessment Standards, Standards for publication/communication, p. 30.
- To fulfil its purpose, the sustainability assessment should, as a rule, be published before or, at the latest, at the same time as the consultation procedure (where one is planned). This will allow the findings to be incorporated into the political process. Please refer also to the applicable standards in Appendix A: Sustainability Assessment Standards, Standards for publication/communication, p. 30.[28]
- How the proposed optimisations might actually be put into practice should also be investigated, i.e. which agencies are responsible for implementation, how checks on implementation work, and who will review the optimisation measures that have been taken, etc.
- The same investigations (into responsibility) are also to be made in respect of any subsequent SA, for example as a means of following up initiatives that are not yet sufficiently specific.

This last sub-step in the SA ensures that the findings of the study are incorporated into further processes in their intended form.

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[27] It can be difficult to find a suitable publication format for parallel sustainability assessments – i.e. ones that support the formulation of an initiative right from the start, rather than simply delivering an assessment at the end. At least one set of documentation must be produced here, however. It must set out the major optimisation measures that have been incorporated into the initiative, and include the final assessment.

[28] The Transparency in Government Act (Öffentlichkeitsgesetz, BGÖ, SR 152.3) must also be observed here, as it may limit access to government documents especially during the internal governmental opinion-forming phase.

Appendix A: Sustainability Assessment Standards

A variety of standards apply to SAs. These are to be understood as minimum requirements that apply to different stages of the process (see the Guidelines). All standards are presented here in summary form.[29]

a) Minimum requirements / general standards

- In principle, SAs must follow the sequence of steps and sub-steps laid down in the Guidelines. Reasons must be given for any deviation from this sequence, and the deviation documented.
- The instructions formulated in the individual steps and sub-steps ("must" and "should" wording) must, as a rule, be observed. Clear reasons must be given for any deviations, and the deviations documented.

b) Standards on the use of sustainability assessments

The precise fields in which a SA is used, specifically where a SA is mandatory and where an outline or detailed assessment is appropriate, are currently still open. They may be determined separately at a later date.

c) Procedural standards

- A SA is generally conducted – or at least initiated and supported – by those who are responsible for the initiative.
- As a general rule, the ARE should be involved from the beginning as experts on methodological aspects. Its involvement should at least be sought. For resource-related reasons, the ARE's expert function will be limited to support for selected applications and to the provision of information.
- Other expert agencies are to be contacted with regard to the content aspects of a SA. The expert agency for environmental issues is generally the FOEN, while SECO should be consulted as a rule on economic matters, and one or more further, relevant federal agencies[30] will be responsible for social issues. The relevance analysis may reveal whether or not it would be helpful to involve other expert agencies.

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[29] cf. also SEVAL Swiss Evaluation Society (2000), Evaluation Standards of the Swiss Evaluation Society

[30] These might include, for example, the Federal Chancellery, the Federal Social Insurance Office, the Federal Office of Public Health, the Federal Office of Culture, the Federal Office for Gender Equality, or the State Secretariat for Education and Research.

These agencies must be informed about the forthcoming investigations right at the beginning of a SA. Whether and in what capacity the agency in question will support the further progress of the SA (by participating in a committee or submitting a written statement of position, etc.) is a matter for the agency itself.

- Where a SA is conducted internally, i.e. by the same agency as is responsible for the initiative itself, or by an agency that reports to the same superior agency (e.g. both agencies are part of the same federal office), then this must be stated explicitly in the SA. If external evaluators are employed, care must be taken to ensure their impartiality, and any conflicts of interest must be avoided. If this is not possible, then these conflicts must be documented clearly.

d) Standards applicable to external mandates

- Mandates (such as the analysis of impacts) that are awarded to external agencies are subject to the standards issued by SEVAL[31] and the guidelines for effectiveness reviews within the federal government.[32]
- The relevant provisions (submission procedure, procurement law) must be observed in the invitation-to-tender and contract award processes.

e) Standards applicable to analyses

- The Federal Council criteria always provide the foundation for the system of criteria that is to be used.
- The impact analysis in both the outline and detailed SA may deviate from the Federal Council criteria (additions, more in-depth analysis, different criteria). However, precise reasons must always be given for all changes, and both the changes and the reasons must be documented carefully.
- The Federal Council criteria should be retained for the relevance analysis. The use of the SA Excel Tool ensures automatically that these criteria are used. The use of the SA Excel tool is voluntary, however.

f) Standards for documentation

- Findings are to be documented comprehensibly in writing as a report or as part of another document (e.g. as an appendix to a report explaining the initiative). The documentation must provide information on the following, as a minimum:

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[31] SEVAL (2000), Evaluation Standards of the Swiss Evaluation Society .

[32] cf. Widmer (2005), Leitfaden für Wirksamkeitsüberprüfungen beim Bund. (German)

- the purpose of the SA
- criteria and indicators (reasons for any deviations from the Federal Council criteria, definition of indicators)
- methodology
- data collection and the data/data sources used
- aggregation method(s) and the weightings used
- any and all deviations from the prescribed standards.

g) Standards for publication/communication

In principle, the findings of a sustainability analysis will be published (see also the requirements of the Transparency in Government Act). The assessment must generally be published before or, at the latest, at the same time as the consultation procedure, so that its findings can also be incorporated in the political process.

The nature and extent of communications (e.g. press release) are determined on a case-by-case basis in accordance with the significance of the SA in question.

Appendix B: Table of concordance between sustainability assessment and other instruments

Table 3: Table of concordance between sustainability assessment, RIA and VOBU

	SA (Sustainability assessment)	RIA (Regulatory Impact Analysis)	VOBU (Economic assessment of environmental action and objectives)
Subject	– Political initiatives (general)	– Regulations on the part of the Federal Government (general)	– Environmental policy initiatives
Issue, impacts assessed	– Sustainability (environmental, economic and social aspects covered in full to the same degree)	– Economic assessment of the appropria-teness and consequences of a regulation (focus on national economy as a whole and on the individuals affected)	– Economic assessment (focus on economic aspects, incl. the economic aspects of environmental impacts; coverage of social aspects not comprehensive)
Aim	– To optimise initiatives with regard to their sustainability	– To review the economic need and appropriateness of a regulation (incl. enforcement) – To quantify the costs and benefits of initiatives (for the economy as a whole and for the individuals affected) – To identify the economic consequences of a regulation – To discuss possible alternatives to a regulation	– To quantify the costs and benefits of initiatives – To optimise the cost-benefit ratio of initiatives
Timing of the analysis	– Mainly ex-ante analyses – Ex-post and parallel analyses also possible	– Mainly ex-ante analyses	– Mainly ex-ante and ex-post analyses
Analysis level	– Impact (analysis of measures)	– Impact (analysis of measures) and target group analysis	– Primarily impact (analysis of measures) – Additional methods for target analyses and target group analyses (outcome)
Methods	– No binding requirements (sole criterion: it must be possible to record impacts)	– No binding requirements (there is simply a schedule of four points of analysis that must be examined, in accordance with the objectives of a RIA) – Differences compared to SAs can be found in objectives and at the analysis level	– No binding requirements (sole criterion: it must be possible to record impacts) – Differences compared to SAs can be found in objectives and at the analysis level

Cont'd. 1 Table 3: Table of concordance between sustainability assessment, RIA and VOBU

	SA (Sustainability assessment)	RIA (Regulatory Impact Analysis)	VOBU (Economic assessment of environmental action and objectives)
Criteria	– Environment (as per Federal Council criteria)	– The analysis only asks about benefits for the environment; no further criteria	– Contained in full, although the focus is on benefits for the environment
	– Economy (as per Federal Council criteria)	– Essentially the same criteria, but broken down differently Focus not only on economy as a whole - also looks into impacts on the individuals affected	– Essentially the same criteria, but broken down differently and more detailed
	– Society (as per Federal Council criteria)	– There are basically no "social" criteria, as this is not the point of a RIA – Where consequences for society have an economic dimension (e.g. distribution issues), these are factored in	– Contains: - So1: Health, security (listed under environment) - So5: Solidarity (listed under economy) – Does not contain: - So2: Education, personal - So3: Culture, social heritage and resources - So4: Equality before the law, legal certainty, equal rights

Cont'd. 2 Table 3: Table of concordance between sustainability assessment, RIA and VOBU

	SA (Sustainability assessment)	RIA (Regulatory Impact Analysis)	VOBU (Economic assessment of environmental action and objectives)
Additional costs/resources compared with other instruments	*Compared with the RIA:* – Analysis of the economic consequences of a regulation, with a sharper focus on their sustainability – Assessment of the consequences of a regulation in terms of the sustainability of the environmental and social dimensions (this may already have been done to some extent, in which case these findings can be analysed from the sustainability perspective) – Identification of optimisation potential where sustainability is concerned	*Compared with the SA:* – Assessment of the appropriateness of an initiative in economic terms – Quantification of the costs and benefits for the individuals concerned (possibly also for the economy as a whole) – Discussion of possible alternatives to an initiative either in addition to or more closely with regard to the economic suitability aspect	
	Compared with the VOBU: – Complementary assessments for the missing criteria in the environmental and social dimensions (with a focus on sustainability) – Poss. analysis of VOBU findings with a sharper focus on sustainability – Identification of optimisation potential where sustainability is concerned – If the VOBU analyses target groups or targets rather than measures: conduct a full sustainability assessment		*Compared with the SA:* – Identify any concordance with the Federal Council criteria, as the criteria system is broken down differently – Poss. quantification of costs and benefits for the economy as a whole – Identification of optimisation potential in the cost-benefit ratio – If the VOBU analyses target groups or targets rather than measures, a SA usually delivers information that is too imprecise in relation to the targets or target groups in question

Appendix C: SA Excel Tool

- This SA Excel Tool is available on the ARE website (www.are.admin.ch).
- It is designed as an aid to carrying out a relevance analysis (sub-step A2 in the Guidelines) and an outline SA (sub-step B2 in the Guidelines), as part of the production of an overall SA.
- The entire tool is based on the present Guidelines.
- Essentially:
  - *Sections 2 and 3* ("*Relevance Analysis Inputs*" and "*Relevance Analysis Evaluation*") are designed to support a *relevance analysis*, while
  - *Sections 4 and 5* ("*Outline SA Inputs*" and "*Outline SA Evaluation*") are to be used for an *outline sustainability assessment*
  - The tools may nonetheless be used interchangeably, depending on the background situation and objective of the analysis.
- The tool can be used to evaluate a maximum of four variations of an initiative.
- The following pages show a fictitious example (see Figure 8, Figure 9, Figure 10 and Figure 11).

Figure 8: SA Excel Tool – Relevance Analysis Inputs

SA for a tourist resort in the Alps (fictitious example)

Input of impact ratings for the Relevance Analysis

Title of initiative
Tourist resort in the Alps

Date:
31.07.2008

Brief description of initiative:
A tourist resort comprising six hotels and a golf course is to be built in the Alps

Conducted by:
Felix Walter (Ecoplan)
Hans-Jakob Boesch (Ecoplan)

Reference trend selected:
The economic and population trends determined by the SFSO provide the reference trend

Comparison of variants: number and type
4 different variants, each resting on different assumptions about economic and population growth

Evaluation criteria (Federal Council criteria)

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Economy					
Ec1	Incomes and employment	unknown	20.0%	low	No impact rating can be given at present -> further investigation required.
	Incomes and employment are to be maintained and increased, taking socially and spatially acceptable distribution into account				
Ec2	Productive capital	3	20.0%	high	
	Productive capital, based on social and human capital, is to be at least maintained and its quality improved				
Ec3	Competitiveness and innovative capacity	1	20.0%	none	
	The competitiveness and innovative potential of the economy are to be increased				
Ec4	Market mechanisms and true costs	-1	20.0%	low	
	Market mechanisms (prices) are to be the primary instrument, factoring in key scarcity factors and external costs				
Ec5	Public-sector business	-2	20.0%	medium	
	The public sector is to manage its business in a way that will not be paid for by future generations (e.g. in the form of debt or neglect)				

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Environment					
En1	Natural habitats and biodiversity	-1	20.0%	low	
	Natural areas and biodiversity are to be maintained				
En2	Renewable resources	-3	20.0%	medium	
	The use of renewable resources is to be kept below the regeneration or natural level				
En3	Non-renewable resources	-1	20.0%	high	
	The use of non-renewable resources is to be kept below the development potential of renewable resources				
En4	Pollution suffered by the natural environment and humans	-2	20.0%	none	
	Pollution suffered by the natural environment and by humans is to be reduced to a negligible level				
En5	Environmental disasters and accident risks	-3	20.0%	low	
	The impact of environmental disasters is to be prevented or reduced; accident risks entered into only where no permanent lasting damage				

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Society					
So1	Health and security	-1	40.0%	none	The regions affected react particularly sensitively to changes in this area, so weighting increased.
	The health and safety of humans are to be comprehensively protected and promoted				
So2	Education, personal development and individual identity	3	15.0%	low	
	Education, and with it the growth, development and identity of the individual, are to be guaranteed				
So3	Culture and social heritage	1	15.0%	medium	
	Culture, as well as the maintenence and development of social values and resources are to be encouraged in the interests of social capital				
So4	Equality before the law, legal certainty and equal rights	0	15.0%	high	
	All people must be guaranteed the same rights and same legal certainty (esp. gender equality, minorities and recognition of human rights)				
So5	Solidarity	0	15.0%	none	
	Solidarity is to be encouraged, both between generations and world-wide				

Cont'd. Figure 8: SA Excel Tool – Relevance Analysis Inputs

Additional criteria

No.	*Description*	*Scale of problem*		*Uncertainty rating*	*Remarks*
1	Problem status	medium		low	Criterion En2 Renewable resources is particularly relevant in this regard
	Will the initiative further exacerbate an already critical situation?				
2	Trend	unknown		medium	
	Will the initiative further strengthen an existing negative trend?				
3	Irreversibility	medium		high	
	Will the initiative result in negative impacts that are difficult or even impossible to reverse?				
4	Burden on future generations	low		medium	
	Will the negative impacts be felt only at a later point in time? Will this place a particularly heavy burden on future generations?				
5	Risks/uncertainties	unknown		none	
	Is the initiative associated with major risks[1] and major uncertainties[2]?				
6	Minimum requirements	medium		none	
	Are minimum social, economic or environmental standards (e.g. thresholds or limits) violated?				
7	Spatial impact perimeter	none		high	
	Will the negative impacts be felt across a wide area (spatial perimeter)?				
8	Conflicts of interest and trade-offs	none		medium	
	Do conflicts of interest exist between the various dimensions of sustainability, and with regard to political objectives?				

[1] Very high potential damage/loss, even if the probability is low

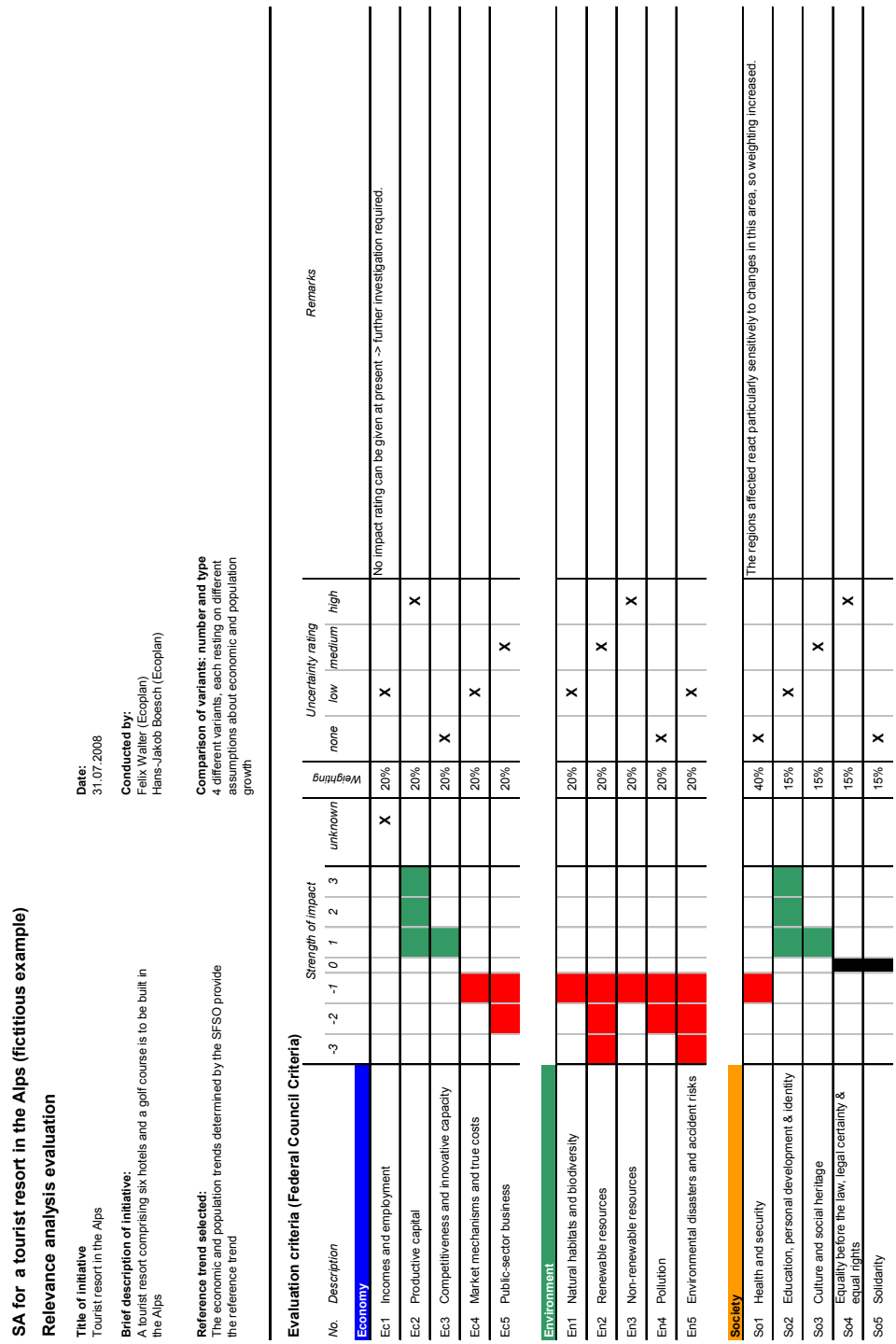
[2] Insufficient knowledge of the dangers linked to impacts, or about future trends

Commentary/summary

Incl. information on primary impacts, the further work that needs to be done, the choice of criteria, etc.

Many ratings are still (very) uncertain. Furthermore, some figures are not yet known. Further investigations are needed in both cases.
Impacts on the economy and environment dimensions are on the (modestly) negative side, but the overall impact on society is positive. Only a small number of problems are anticipated with the additional criteria.

Figure 9: SA Excel Tool – Relevance Analysis Evaluation



SA for a tourist resort in the Alps (fictitious example)

Relevance analysis evaluation

Title of initiative
Tourist resort in the Alps

Date:
31.07.2008

Brief description of initiative:
A tourist resort comprising six hotels and a golf course is to be built in the Alps

Conducted by:
Felix Walter (Ecoplan)
Hans-Jakob Boesch (Ecoplan)

Reference trend selected:
The economic and population trends determined by the SFSO provide the reference trend

Comparison of variants: number and type
4 different variants, each resting on different assumptions about economic and population growth

Evaluation criteria (Federal Council Criteria)

No.	Description	Strength of impact: -3	-2	-1	0	1	2	3	unknown	Weighting	Uncertainty rating: none	low	medium	high	Remarks
Economy															
Ec1	Incomes and employment								X	20%		X			No impact rating can be given at present -> further investigation required.
Ec2	Productive capital									20%				X	
Ec3	Competitiveness and innovative capacity									20%	X				
Ec4	Market mechanisms and true costs									20%		X			
Ec5	Public-sector business									20%			X		
Environment															
En1	Natural habitats and biodiversity									20%		X			
En2	Renewable resources									20%			X		
En3	Non-renewable resources									20%				X	
En4	Pollution									20%	X				
En5	Environmental disasters and accident risks									20%		X			
Society															
So1	Health and security									40%	X				The regions affected react particularly sensitively to changes in this area, so weighting increased.
So2	Education, personal development & identity									15%		X			
So3	Culture and social heritage									15%			X		
So4	Equality before the law, legal certainty & equal rights									15%				X	
So5	Solidarity									15%	X				

Cont'd. 1 Figure 9: SA Excel Tool – Relevance Analysis Evaluation

Additional criteria

No.	Description	Scale of problem: none	low	medium	high	unknown	Uncertainty rating: none	low	medium	high	Remarks
Additional questions											
1	Problem status							X			Criterion En2 Renewable resources is particularly relevant in this regard
2	Trend					X			X		
3	Irreversibility									X	
4	Burden on future generations								X		
5	Risks/uncertainties					X	X				
6	Minimum requirements						X				
7	Spatial impact perimeter									X	
8	Conflicts of interest								X		

Weighted impacts

Impacts

Number of uncertain impact ratings (medium and high uncertainty)

Economy	2
Environment	2
Society	2

Number of criteria without impact rating (impact rating unknown)

Economy	1
Environment	0
Society	0

Commentary/summary

Incl. information on primary impacts, the further work that needs to be done, the choice of criteria, etc.

Many ratings are still (very) uncertain. Furthermore, some figures are not yet known. Further investigations are needed in both cases.
Impacts on the economy and environment dimensions are on the (modestly) negative side, but the overall impact on society is positive. Only a small number of problems are anticipated with the additional criteria.

Cont'd. 2 Figure 9: SA Excel Tool – Relevance Analysis Evaluation

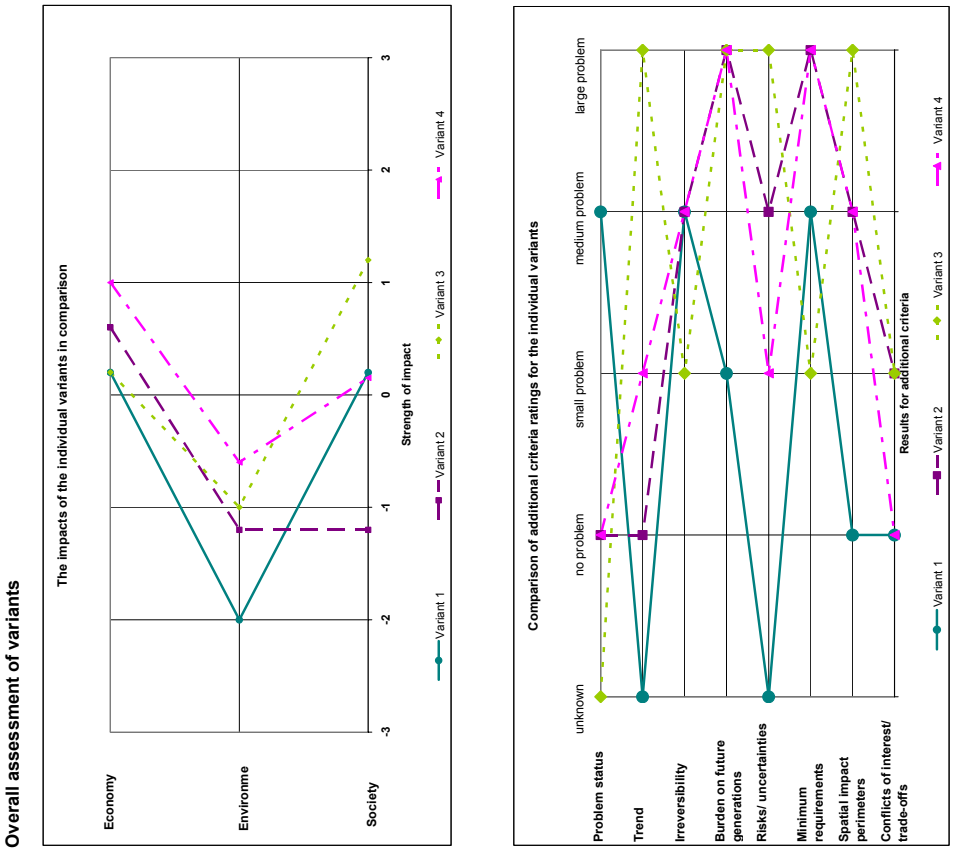


Figure 10: SA Excel Tool – Outline Sustainability Assessment Inputs

SA for a tourist resort in the Alps

Input of impact ratings for an outline sustainability assessment

Title of initiative
Tourist resort in the Alps

Date:
31.07.2008

Brief description of initiative:
A tourist resort comprising six hotels and a golf course is to be built in the Alps

Conducted by:
Felix Walter (Ecoplan)
Hans-Jakob Boesch (Ecoplan)

Reference trend selected:
The economic and population trends determined by the SFSO provide the reference trend.

Comparison of variants: number and type
4 different variants, each resting on different assumptions about economic and population growth

Evaluation criteria (Federal Council criteria)

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Economy					
Ec1	Incomes and employment	unknown	16.7%	low	
	Incomes and employment are to be maintained and increased, taking socially and spatially acceptable distribution into account				
Ec1.1	Increase in incomes	unknown	50.0%	low	
Ec1.2	Increase in employment	unknown	50.0%		
Ec1.3	not needed	unknown	0.0%		
Ec2	Productive capital	-0.67	16.7%	high	Very high uncertainty owing to a lack of data; criterion should be re-examined.
	Productive capital, based on social and human capital, is to be at least maintained and its quality improved				
Ec2.1	Sub-category 1	unknown	33.3%	high	
Ec2.2	Sub-category 2	1	33.3%		
Ec2.3	Sub-category 3	-3	33.3%		
Ec3	Competitiveness and innovative capacity	2.00	16.7%	medium	
	The competitiveness and innovative potential of the economy are to be increased				
Ec3.1	Sub-category 1	2	33.3%	medium	
Ec3.2	Sub-category 2	3	33.3%		
Ec3.3	Sub-category 3	1	33.3%		
Ec4	Market mechanisms and true costs	0.50	16.7%	none	
	Market mechanisms (prices) are to be the primary instrument, factoring in key scarcity factors and external costs				
Ec4.1	Sub-category 1	unknown	50.0%	none	
Ec4.2	Sub-category 2	1	49.0%		
Ec4.3	Sub-category 3	1	1.0%		
Ec5	Public-sector business	-0.67	16.6%	medium	
	The public sector is to manage its business in a way that will not be paid for by future generations (e.g. in the form of debt or neglect)				
Ec5.1	Sub-category 1	3	33.3%	medium	
Ec5.2	Sub-category 2	-2	33.3%		
Ec5.3	Sub-category 3	-3	33.3%		
Ec6	Structural change	0.00	16.6%	none	
	Change in situation of weak sectors as sign of structural change				
Ec6.1	Structurally weak sectors	0	100.0%	none	Additional criterion required as major impacts on economic structures are possible.
Ec6.2	not needed	0	0.0%		
Ec6.3	not needed	0	0.0%		
Ec7	Criterion 7	0.00	0.0%	none	
	Description of criterion				
Ec7.1	not needed	0	0.0%	none	
Ec7.2	not needed	0	0.0%		
Ec7.3	not needed	0	0.0%		

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Environment					
En1	Natural habitats and biodiversity	-1.67	20.0%	medium	
	Natural areas and biodiversity are to be maintained				
En1.1	Sub-category 1	-3	33.3%	medium	
En1.2	Sub-category 2	-3	33.3%		
En1.3	Sub-category 3	1	33.3%		
En2	Renewable resources	-1.00	20.0%	low	
	The use of renewable resources is to be kept below the regeneration or natural level				
En2.1	Sub-category 1	-2	33.3%	low	
En2.2	Sub-category 2	-2	33.3%		
En2.3	Sub-category 3	1	33.3%		

Cont'd. 1 Figure 10: SA Excel Tool – Outline Sustainability Assessment Inputs

En3	Non-renewable resources	-1.00	20.0%	medium	
	The use of non-renewable resources is to be kept below the development potential of renewable resources				
	En3.1 Sub-category 1	0	33.3%		
	En3.2 Sub-category 2	-1	33.3%	medium	
	En3.3 Sub-category 3	-2	33.3%		
En4	Pollution suffered by the natural environment and humans	-1.33	20.0%	low	
	Pollution suffered by the natural environment and by humans is to be reduced to a negligible level				
	En4.1 Sub-category 1	1	33.3%		
	En4.2 Sub-category 2	-2	33.3%	low	
	En4.3 Sub-category 3	-3	33.3%		
En5	Environmental disasters and accident risks	-1.67	20.0%	medium	
	The impact of environmental disasters is to be prevented or reduced; accident risks entered into only where no permanent lasting damage				
	En5.1 Sub-category 1	-3	33.3%		
	En5.2 Sub-category 2	-2	33.3%	medium	
	En5.3 Sub-category 3	unknown	33.3%		
En6	Criterion 6	0.00	0.0%	0	
	Description of criterion				
	En6.1 Sub-category 1		0.0%		
	En6.2 Sub-category 2		0.0%		
	En6.3 Sub-category 3		0.0%		
			0.0%		
En7	Criterion 7	0.00	0.0%	0	
	Description of criterion				
	En7.1 Sub-category 1		0.0%		
	En7.2 Sub-category 2		0.0%		
	En7.3 Sub-category 3		0.0%		
			0.0%		

No.	*Description*	*Impact rating*	*Weighting (∑=100%)*	*Uncertainty rating*	*Remarks*
Society					
So1	Health and security	2.67	40.0%	none	The regions affected react particularly sensitively to changes in this area, so weighting increased.
	The health and safety of humans are to be comprehensively protected and promoted				
	So1.1 Sub-category 1	3	33.3%		
	So1.2 Sub-category 2	2	33.3%	none	
	So1.3 Sub-category 3	3	33.3%		
So2	Education, personal development and individual identity	0.67	15.0%	medium	
	Education, and with it the growth, development and identity of the individual, are to be guaranteed				
	So2.1 Sub-category 1	0	33.3%		
	So2.2 Sub-category 2	-1	33.3%	medium	
	So2.3 Sub-category 3	3	33.3%		
So3	Culture and social heritage	1.67	15.0%	low	
	Culture, as well as the maintenance and development of social values and resources are to be encouraged in the interests of social capital				
	So3.1 Sub-category 1	3	33.3%		
	So3.2 Sub-category 2	1	33.3%	low	
	So3.3 Sub-category 3	1	33.3%		
So4	Equality before the law, legal certainty and equal rights	-1.33	15.0%	high	
	All people must be guaranteed the same rights and same legal certainty (esp. gender equality, minorities and recognition of human rights)				
	So4.1 Sub-category 1	-3	33.3%		
	So4.2 Sub-category 2	-2	33.3%	high	
	So4.3 Sub-category 3	1	33.3%		
So5	Solidarity	-2.33	15.0%	none	
	Solidarity is to be encouraged, both between generations and world-wide				
	So5.1 Sub-category 1	-2	33.3%		
	So5.2 Sub-category 2	-3	33.3%	none	
	So5.3 Sub-category 3	-2	33.3%		
So6	Criterion 6	0.00	0.0%	0	
	Description of criterion				
	So6.1 Sub-category 1		0.0%		
	So6.2 Sub-category 2		0.0%		
	So6.3 Sub-category 3		0.0%		
			0.0%		
So7	Criterion 7	0.00	0.0%	0	
	Description of criterion				
	So7.1 Sub-category 1		0.0%		
	So7.2 Sub-category 2		0.0%		
	So7.3 Sub-category 3		0.0%		
			0.0%		

Cont'd. 2 Figure 10: SA Excel Tool – Outline Sustainability Assessment Inputs

Additional criteria

No.	*Description*	*Scale of problem*		*Uncertainty rating*	*Remarks*
1	Problem status	high		low	
	Will the initiative further exacerbate an already critical situation?				
2	Trend	none		medium	
	Will the initiative further strengthen an existing negative trend?				
3	Irreversibility	low		high	
	Will the initiative result in negative impacts that are difficult or even impossible to reverse?				
4	Burden on future generations	medium		medium	
	Will the negative impacts be felt only at a later point in time? Will this place a particularly heavy burden on future generations?				
5	Risks/uncertainties	unknown		none	
	Is the initiative associated with major risks[1] and major uncertainties[2]?				
6	Minimum requirements	high		none	
	Are minimum social, economic or environmental standards (e.g. thresholds or limits) violated?				
7	Spatial impact perimeter	medium		high	
	Will the negative impacts be felt across a wide area (spatial perimeter)?				
8	Conflicts of interest and trade-offs	medium		medium	
	Do conflicts of interest exist between the various dimensions of sustainability, and with regard to political objectives?				

[1] Very high potential damage/loss, even if the probability is low
[2] Insufficient knowledge of the dangers linked to impacts, or about future trends

Commentary/summary

Incl. information on primary impacts, the further work that needs to be done, the choice of criteria, etc.

The impacts cancel each other out almost entirely overall, but there are major differences within the individual dimensions. An additional criterion was added to the economic dimension in the interests of a more detailed picture.

Figure 11: SA Excel Tool – Outline Sustainability Assessment Evaluation

SA for a tourist resort in the Alps

Outline sustainability assessment evaluation

Title of initiative
Tourist resort in the Alps

Date:
31.07.2008

Brief description of initiative:
A tourist resort comprising six hotels and a golf course is to be built in the Alps

Conducted by:
Felix Walter (Ecoplan)
Hans-Jakob Boesch (Ecoplan)

Reference trend selected:
The economic and population trends determined by the SFSO provide the reference trend.

Comparison of variants: number and type
4 different variants, each resting on different assumptions about economic and population growth

Evaluation criteria (Federal Council Criteria)

No.	Description	Strength of impact -3	-2	-1	0	1	2	3	unknown	Weighting	Uncertainty rating none	low	medium	high	Remarks
Economy															
Ec1	Incomes and employment								X	17%		X			
Ec2	Productive capital									17%				X	Very high uncertainty owing to a lack of data; criterion should be re-examined.
Ec3	Competitiveness and innovative capacity									17%			X		
Ec4	Market mechanisms and true costs									17%	X				
Ec5	Public-sector business									17%			X		
Ec6	Structural change									17%	X				
Ec7	Criterion 7									0%	X				
Environment															
En1	Natural habitats and biodiversity									20%			X		
En2	Renewable resources									20%		X			
En3	Non-renewable resources									20%			X		
En4	Pollution									20%		X			
En5	Environmental disasters and accident risks									20%			X		
En6	Criterion 6									0%					
En7	Criterion 7									0%					
Society															
So1	Health and security									40%	X				The regions affected react particularly sensitively to changes in this area, so weighting increased.
So2	Education, personal development & identity									15%			X		
So3	Culture and social heritage									15%		X			
So4	Equality before the law, legal certainty & equal rights									15%				X	
So5	Solidarity									15%	X				
So6	Criterion 6									0%					
So7	Criterion 7									0%					

Cont'd. 1 Figure 11: SA Excel Tool – Outline Sustainability Assessment Evaluation

Additional criteria

No.	Description	Scale of problem: none	low	medium	high	unknown	Uncertainty rating: none	low	medium	high	Remarks
Additional questions											
1	Problem status							X			
2	Trend								X		
3	Irreversibility									X	
4	Burden on future generations								X		
5	Risks/uncertainties					X	X				
6	Minimum requirements						X				
7	Spatial impact perimeter									X	
8	Conflicts of interest								X		

Weighted impacts

Impacts:

Number of uncertain impact ratings (medium and high uncertainty)

Economy	3
Environment	3
Society	2

Number of criteria without impact rating (impact rating unknown)

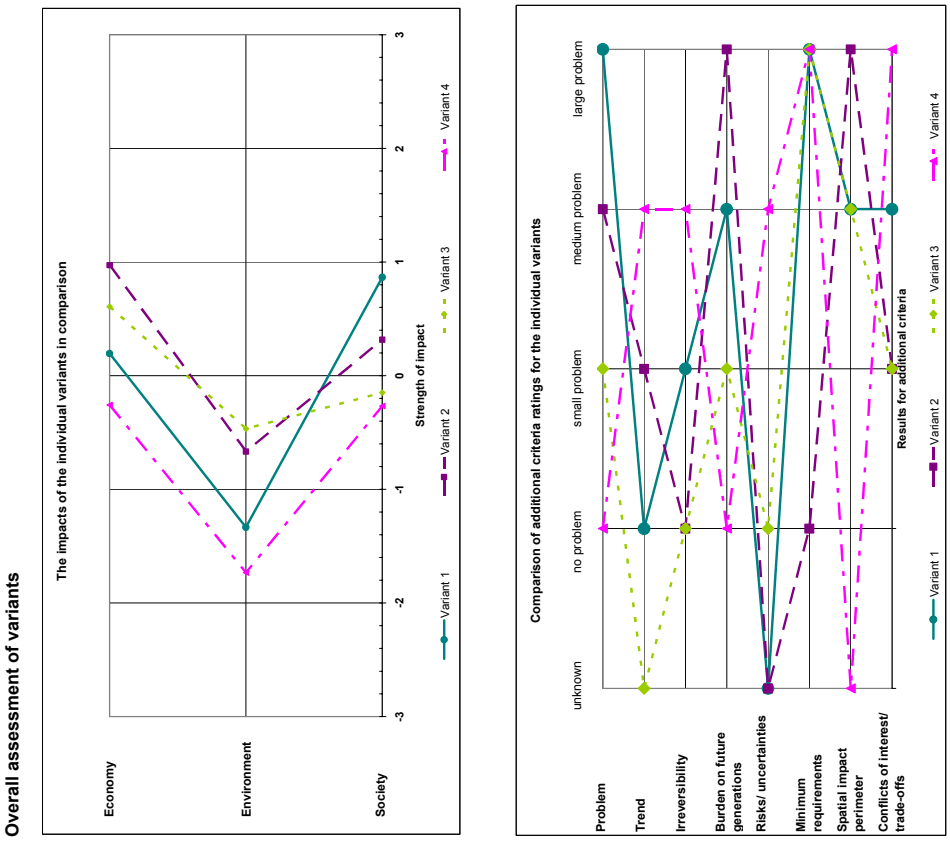
Economy	1
Environment	0
Society	0

Commentary/summary

Incl. information on primary impacts, the further work that needs to be done, the choice of criteria, etc.

The impacts cancel each other out almost entirely overall, but there are major differences within the individual dimensions. An additional criterion was added to the economic dimension in the interests of a more detailed picture.

Cont'd. 2 Figure 11: SA Excel Tool – Outline Sustainability Assessment Evaluation



Appendix D: Criteria

1 Federal Council criteria and synopsis with ISDC criteria[33]

Table 4: Federal Council criteria and synopsis with ISDC criteria

	Federal Council Criteria	ISDC criteria
Economic performance	Ec 1 Incomes and employment are to be maintained and increased in line with needs, taking socially and spatially acceptable distribution into account	Ec 1 GDP per capita (also: So 6: Solidarity, community)
	Ec 2 Productive capital, based on social and human capital, is to be at least maintained and its quality improved	Ec 2 Efficient infrastructure and services Ec 3 Value-adding investment Ec 7 Workforce potential
	Ec 3 The competitiveness and innovative potential of the economy are to be increased	Ec 6 Competitiveness Ec 8 Innovative capacity, productive research
	Ec 4 In the economy, market mechanisms (prices) are to be the primary instrument, factoring in key scarcity factors and external costs	Ec 5 Resource efficiency Ec 9 Regulatory framework
	Ec 5 The public sector is to manage its business in a way that will not be paid for by future generations (e.g. in the form of debt or neglected maintenance of value)	Ec 4 Affordable long-term public-sector debt
Environmental responsibility	En 1 Natural areas and biodiversity are to be maintained	En 1 Biodiversity En 4 Countryside, undeveloped areas and areas of cultural importance En 8 Soil, land area, fertility
	En 2 The use of renewable resources is to be kept below the regeneration or natural level	En 5 Water En 7 Energy
	En 3 The use of non-renewable resources is to be kept below the development potential of renewable resources	
	En 4 Pollution suffered by the natural environment and by humans is to be reduced to a negligible level	En 2 Climate En 3 Emissions En 6 Materials, organisms, waste

[33] cf. Swiss Federal Council (2008), Wachstumspolitik 2008-2011: Massnahmen zur weiteren Stärkung des Schweizer Wirtschaftswachstums (German), and Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011

	Federal Council Criteria	ISDC criteria
	En 5 The impact of environmental disasters is to be prevented or reduced, and accident risks are to be entered into only if no permanent damage lasting more than one generation would be done even in the worst possible case	En 9 Minimising environmental risks
Social solidarity	So 1 The health and safety of humans are to be comprehensively protected and promoted	So 2 Health, wellbeing, security, legal certainty
	So 2 Education, and with it the growth, development and identity of the individual, are to be guaranteed	So 1 Education, capacity to learn
		So 4 Identity, culture
	So 3 Culture, as well as the maintenance and development of social values and resources are to be encouraged in the interests of social capital in general	So 5 Conserving value
	So 4 All people must be guaranteed the same rights and the same legal certainty. This applies in particular to gender equality, equal rights and protection for minorities, and respect for human rights	So 3 Freedom, independence, individuality So 7 Openness, tolerance So 9 Equal opportunities, equal status, participation
	So 5 Solidarity is to be encouraged, both between generations and world-wide	So 6 Solidarity, community So 8 Social security, poverty rate

2 ISDC Sustainable Development Criteria[34]

Environment

- En 1 Biodiversity
  More and more species are becoming extinct, particularly in Switzerland, but also globally. It is happening very quickly in some areas, and is an irreversible destruction of resources on one of the largest scales we have ever seen. The long-term consequences and impacts are almost impossible to gauge. It will certainly impact on ecological equilibrium, but nobody can yet say how important this lost heritage – a potential resource – will prove to be in the future.
- En 2 Climate
  The feared man-made changes in the global climate will impact on the human race in many ways, some of them serious. The affected areas include food production, water supplies, coastlines, natural hazards and many more. The key point is always the impact that climate change will have on the human communities that it affects. The comparatively short time span in which this change has taken and will take place is a major consideration here. The thinning of the stratospheric ozone layer triggered by certain man-made materials, such as CFCs in particular, was not detected until the late 1980s. The resulting increase in UV radiation to the earth's surface has negative (sometimes carcinogenic) effects on all forms of life. The "hole" in the ozone layer initially appeared over the

[34] cf. Swiss Federal Council (2008), Sustainable Development Strategy: Guidelines and Action Plan 2008-2011, p. 52-57.

South Pole, but has now extended to populated areas and is increasingly to be found in the northern hemisphere. It is one of the most dramatic and undisputed effects of the progress of civilisation.

- En 3 Emissions
  Civilisation generates emissions of many types. Those addressed under this criterion are first and foremost pollutants released into the air (sulphur, nitrogen, fine particles, etc.), noise emissions and ionising and non-ionising radiation. They primarily affect human health and well-being, but also have many direct and indirect, short and long-term impacts on natural habitats and biospheres. Emissions are regarded largely as a local or regional problem, but as urbanisation spreads across the world and life becomes more and more technology-dependent, they are becoming increasingly important on a global scale.
- En 4 Countryside, undeveloped areas and areas of cultural importance
  Natural habitats provide an essential basis of life for humans, animals and plants alike. For humans in particular, their importance takes many forms, both direct and indirect (health, recreation, emotional ties, etc.). Undeveloped areas are therefore often areas of cultural importance, part of cultural property and national identity. In undeveloped areas, animals and plants are dependent on an ecological equilibrium that is changed and disturbed to a considerable degree by civilisation. The countryside, undeveloped areas and areas of cultural importance hold a particular significance in densely populated regions such as Switzerland, but they are also growing in importance around the world.
- En 5 Water
  Where this criterion is concerned, a distinction must be made between its quantitative and qualitative aspects. Water is both a resource and a habitat. Quantitatively, water resources are distributed very unevenly around the world. In Switzerland, water quantity is only a marginal problem. Instead, the clear focus is on quality, which is impaired by the varied burdens placed on the nation's lakes and rivers by civilisation. This affects both the resource and habitat dimensions. From the global perspective, regional water shortages are one of the most critical problems, and may even lead to political destabilisation.
- En 6 Materials, organisms, waste
  Materials in the broadest sense of the term are resources, but in many ways they also impact negatively on the (materials) eco-cycle, especially where their qualities are manipulated by man, they are used in excess, or where they are introduced "unnaturally" into natural cycles. The question of long-term impact and irreversibility, in particular, is often a very difficult one to answer. Although the problems that materials produce are generally local, they may lead by natural means – as well as by trade and transport – to pan-regional and global problems.
- En 7 Energy
  This criterion concerns the use of natural resources, but also the burdens (emissions, waste) that result from the generation and use of energy. At present, certain limited energy resources are being used inefficiently, while virtually inexhaustible resources are all but ignored. This results from distorted cost structures that do not reflect the reality of relative scarcities, as well as the production of considerable external costs. At the same time, energy is being generated using technologies that lead to still-unresolved problems in the ecocycle (nuclear energy). These problems are mainly of a global nature in both resource and pollution terms. It is local approaches that provide the key to their resolution, however.
- En 8 Soil, land area, fertility
  This criterion concerns both the quantitative loss of arable land owing to the continued spread of urban areas and transport networks in densely populated regions, and qualitative changes to that land brought about by different types of burden. Meanwhile, on a global scale the problem is the increasing loss – both quantitative and qualitative – of arable land as an important basis for food production. There are manifold reasons for this, including the climate, erosion, overuse with the resulting salinisation and compaction, etc.

- En 9 Minimising environmental risks
  This criterion essentially says that the impact of environmental disasters is to be reduced, and accident risks are to be entered into only if no permanent damage lasting more than one generation would be done even in the worst possible case Events that, although highly improbable, have a high damage potential, must be avoided as far as is possible.

Economy

- Eco 1 GDP per capital
  GDP (gross domestic product) is a measure of the economic output of a national economy within a given period. It corresponds to the value of all the goods and services produced domestically, and GDP per capita reflects average income per head of population. This is interpreted as an indicator of prosperity. Prosperity has many dimensions, and income is an important one, especially because, in addition to direct material wealth (consumption) it also affords access to the other dimensions of prosperity, such as personal assets, education, health, environmental quality, etc. The inclusion of this (not entirely uncontroversial) indicator is rooted in the theory that sustainable development is impossible if too many cutbacks are made in GDP per capita.
- Ec 2 Efficient infrastructure and services
  High-quality, efficient public-sector infrastructures and services generate benefits for society and therefore form part of that society's overall wealth. A fall in this indicator results in a loss of prosperity. This criterion targets quality and efficiency, not the scope of infrastructures and services provided by the public sector. The particular concern here is that service provision by the state (in addition to the private sector) for the general public should be both efficient and of a high quality.
- Ec 3 Value-adding investment
  The investment ratio (gross investment as a proportion of gross national product) maintains value if devaluation in the capital stock is offset at regular intervals by replacement investments. An investment ratio that maintains value is necessary to sustain a national economy's capital stock in both the private and public sectors.
- Ec 4 Affordable long-term public-sector debt
  A public sector budget that is balanced in the medium term – i.e. over the course of an economic cycle – is essential in ensuring that the government and government agencies can fulfil their remit. Long-term disequilibrium eventually renders the state unable to act and has a negative impact on economic growth.
- Ec 5 Resource efficiency
  Resources (capital, labour, land, environment, knowledge) are scarce. The efficient use of resources is therefore vital to sustainable development. Wasting resources makes it more difficult to satisfy the needs of present and future generations.
- Ec 6 Competitiveness
  Economic competitiveness refers to the ability of the Swiss economy to maintain and expand its position in international trade. As a small and open economy, it is important for Switzerland to maintain its economic competitiveness as a means of sustaining appropriate per-capita incomes in the long term, and thereby satisfying the legitimate needs of present and future generations.
- Ec 7 Workforce potential
  Alongside capital and environmental resources, labour is a key factor of production for any economy, and therefore one of the determinants of economic growth. The qualitative and quantitative potential of a workforce is the product of the population that is capable of gainful employment, multiplied by its skills and expertise. Maintaining or increasing workforce potential improves an economy's capability to satisfy the needs of present and future generations, and is therefore positive in sustainable development terms.
- Ec 8 Innovative capacity, productive research
  Innovative capacity is the ability of a national economy to create something new that results in the needs of society being satisfied in a better way. Productive research, and its practical application, is essential to an innovative, competitive economy.

- Ec 9 Regulatory framework
  This refers to the framework addressed in Article 94 of the Federal Constitution. Within the scope of their individual authorities, the federal government and the cantons must ensure that a favourable framework exists for private-sector business. This framework should be structured to serve the economy as a whole, rather than particular individual interests. Deviations from the principle of eco-

nomic freedom, especially measures that impair competition, are permitted only if they are provided for in the constitution or rooted in statutory cantonal regulations.

Society

- So 1 Education, capacity to learn
  Education supports personal development, socialisation and the ability of people to learn, thereby qualifying them for the labour market.
- So 2 Health, wellbeing, security, legal certainty
  The World Health Organisation (WHO) defines health as the complete physical, mental and social well-being of the individual. To some extent, "well-being" extends beyond health. It results, for example, from a pleasant climate in buildings, good air and peace in residential areas, healthy food and much more. This well-being is important to both quality of life and performance at work. Humans have a need for security in a wide range of different forms. These begin with the avoidance of violent conflict between peoples and factions, and extend to freedom from acts of violence and other crimes of everyday life. However, it also concerns security from disasters, and the individual's own safety from accidents. Where sustainable development is concerned, security policy must be understood as securing peace on a comprehensive scale, as well as defence against economic, social and environmental dangers. Article 8 of the Federal Constitution describes the principle of "equality before the law" right at the beginning in paragraph 1, with the statement that "all people are equal before the law". This statement is further strengthened by Switzerland's ban on discrimination. According to Article 9, legal certainty demands protection from arbitrary decision and action, and for good faith to be upheld.
- So 3 Freedom, independence, individuality
  In addition to the various freedoms contained in the list of basic rights (such as freedom of religion and moral belief, Article 15 of the Federal Constitution, etc.), Article 10 para. 2 declares the right to "personal freedom", namely freedom from physical and mental injury, and freedom of movement. This also includes the right to independence and individuality. Personal responsibility is addressed in the third chapter of the Federal Constitution (social aims), in Article 41, para. 1, which determines that state agencies should be brought into play only as a complement to "personal responsibility and private initiative".
- So 4 Identity, culture
  Protection for the dignity of each and every individual is crucial to personal identity. This is guaranteed by Article 7 of the Federal Constitution. The ban on discrimination laid down in Article 8, para. 2 also upholds freedom of personal identity. Meanwhile, Article 11 offers particular protection for the freedom from injury of children and young people. Culture provides an important basis for coexistence in Switzerland. Common values such as tolerance, solidarity and the human rights ethos form part of the nation's cultural property.
- So 5 Conserving value
  The preamble to the Federal Constitution lays down responsibilities for the nation and the state to preserve value for other people and for the environment, or "to creation and to future generations". It also expresses a will to live in "mutual consideration and respect". Article 2 (Object), para. 3 of the Federal Constitution refers to state intervention in favour of the "lasting conservation of natural habitats and a peaceful and just international order".
- So 6 Solidarity, community
  The preamble to the Federal Constitution also addresses endeavours to achieve solidarity. According to the "Object" article of the Federal Constitution, Switzerland should regard itself as a society built on solidarity, in which "the common prosperity ... internal cohesion and cultural diversity of the nation" are encouraged (Art. 2 para. 2). Social cohesion is promoted by factors such as "the security of the nation" (Art. 2 para. 1), to which a sense of "internal security" is also a contributing factor. Justice is demanded by the Rio Declaration, in which it is described as an equitable partnership between states. Meanwhile, the Federal Constitution states in Article 2 para. 4 that Switzerland is committed to a "...just international order". The objective of the second title of the Federal Constitution, "Basic rights, civil rights and social objectives", is to ensure justice for all.
- So 7 Openness, tolerance

The preamble to the Federal Constitution talks of "openness to the world", while Article 2, para. 4, commits the state to action on behalf of a peaceful and just international order. The freedom of religion and moral belief (Art. 15), the ban on discrimination laid down in Article 8 para. 2 and the prohibition of arbitrariness embodied in Article 9 might be interpreted as the basic conditions for a tolerant society.

- So 8 Social security, poverty rate
  Switzerland's social security system is intended to protect its citizens from the consequences of illness, disability, old age, accident, death and loss of earnings. It is also intended to ensure the subsistence of all those who are not able to do so for themselves. Article 12 of the Federal Constitution refers to "the right to help in situations of need" directly: anyone who is in need and who is not able to provide for themselves is entitled to assistance. This help must guarantee a dignified human existence.
- So 9 Equal opportunities, equal status, participation
  Under Article 2 para. 3 of the Federal Constitution, the Swiss Confederation is obliged to ensure the greatest possible equality of opportunity among its citizens. Article 8 para. 3 is intended to secure equal rights for men and women. Under Article 37, political participation at federal level is largely the preserve of Swiss citizens.

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