

THE PROJECT SUSTAINABILITY LOGBOOK



First Edition 2013



FIDIC SUSTAINABILITY PACK





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This 2013 Project Sustainability Logbook (PSL) - is essentially identical to the draft of the Project Sustainability Logbook (PSL²⁰¹²) published by the European Federation of Engineering Consultancy Associations (EFCA) and the International Federation of Consulting Engineers (FIDIC, from its acronym in French) in 2012 and released at the FIDIC World Consulting Engineering Conference in Seoul, South Korea, in September 2012.

The aim behind the Logbook is to accompany a built asset or a group of designated buildings, infrastructure facilities and physical plant of a component of the urban environment (for example, a city district or a city block, respectively) or is designed to meet a specific urban function (for example, public transport or water supply).

The Logbook, comprising a series of tables, offers a method of defining and monitoring the issues and objectives of sustainable development for a specific project or programme.

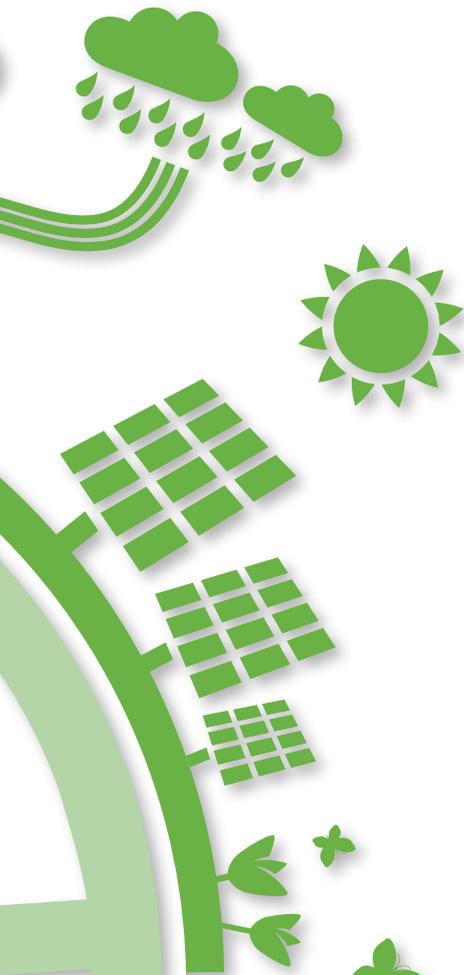
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- 2. clear and explicit references are made to the PSL trademark and the year of publication;*
- 3. the contents of PSL, notably columns A, B and C of the PSL monitoring tables, are not altered and must be made easily accessible in their entirety and without modification, and strictly adhere to the requirements of the relevant version of the PSL user guidelines.*

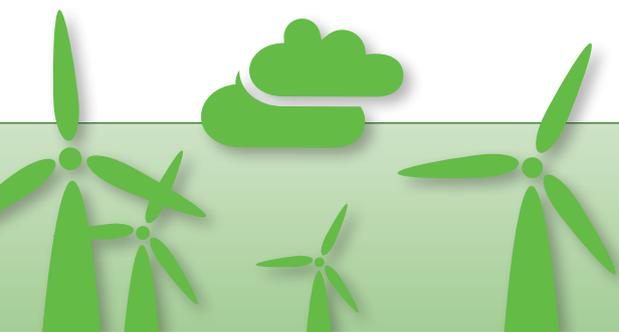
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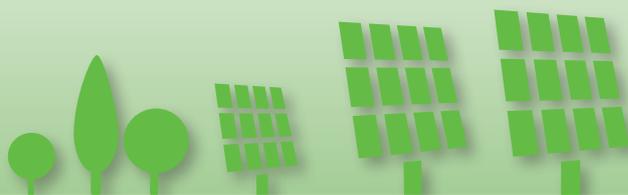
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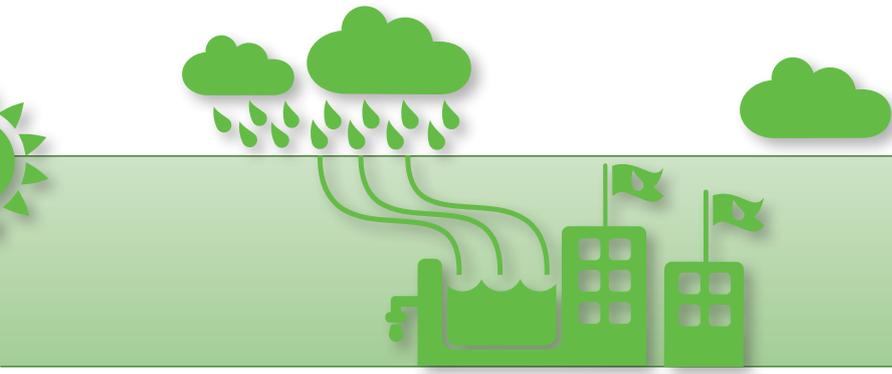
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Introducing the Project Sustainability Logbook

1. Preface

Respecting statutory norms and regulations and the like is a primary working concern for everyone contributing to the planning, design, construction, operation, and maintenance of projects or programmes. A project or programme may consist of a built asset or a group of designated buildings, infrastructure facilities and physical plant forming all or part of a component of the urban environment (city district, city block) or being designed to meet a specific urban function (public transport, water supply).

These activities have traditionally centered on the three goals of optimising of time, cost and performance. Sustainable development has introduced new requirements that may eventually be regulated and which encourage many stakeholders to undertake specific initiatives going beyond the legal requirements.

Sustainability initiatives are made difficult by the proliferation of analytical frameworks and heterogeneous methodologies. Moreover, these initiatives should not be limited to the design or renovation of plant and built assets but should address projects and programmes, including urban programmes, throughout the entire life-cycle of their components.

FIDIC and EFCA, the federations representing the consulting engineering industry throughout the world and in Europe, individually, support the industry's development of the pragmatic actions and tools which are needed to implement the goals of sustainable development within projects and programmes.

To bring sustainable development into perspective, FIDIC has developed Project Sustainability Management (PSM), which was revised in 2013, as a methodology for evaluating the sustainability requirements for industrial, building and infrastructure projects.

In line with this methodology, consulting engineers developed jointly with architects and local government representatives the 2012 draft of the Project Sustainability Logbook (PSL). The Logbook was reviewed by international experts representing both FIDIC and EFCA and published in 2013 as PSL²⁰¹³. In supporting sustainable development throughout the life of plant or a built asset, PSL represents an unique tool for facilitating discussions between political authorities, clients, project managers, engineers, designers, contractors, and operators and indeed all who aim to promote sustainable development.

2. PSL – a coordinated commitment to sustainable development

The PSL responds to the need to integrate the requirements of sustainable development, using a holistic approach, throughout the life of a project or programme from the initial planning stage. A PSL can be used for all types of projects or programmes including buildings, services infrastructure and industrial plant – both new and existing – at all stages from planning and design through to construction, operation and end-of-life. All dimensions of sustainability are taken up – economic, social, environmental, holistic, and governance.

A leading authority has remarked:

‘Sustainable development represents the search for a ‘global quality’ that integrates, aside from the life-cycle costs, all aspects of quality which, in the case of a built asset, will notably include the capacity to evolve, durability, integration into the environment, and of course the architectural quality. These features, which cover many externalities, are however neither measurable nor quantifiable in monetary terms. It is for this reason that the Logbook, which aims to be both progressive and pragmatic, has as its priority those issues that influence directly or indirectly the nominal value of the goods and services which form the basis for public procurement. An overview of all the factors must not be lost from sight when developing a procurement strategy and then taking a decision’.

A PSL is a technical and organisational tool that can be used:

- to support a sustainability initiative since it proposes benchmarks and a framework for rating all phases of a project or programme that allow the life-cycle cost to be estimated based upon a clear-cut evaluation of the performance that is to be maintained, and even improved, during the life of the project or programme;
- to integrate, at the community level, sustainable development objectives and assessment, which are monitored by means of a customised PSL;
- to support a systemic or holistic approach to the development and operation of buildings, infrastructure and plant so as to improve the global efficiency of the communities in which they are located.

Moreover, PSL encourages holistic approaches for cities and urban communities by aiming to reinforce urban planning and development. The *Rethink Cities* white paper published in



September 2013 by FIDIC, EFCA, and the Svenska Teknik & Designföretagen (STD), the organisation representing Swedish engineers and architects, noted that:

The planning of cities with concern for urban functions relates directly to the environmental, economic and social aspects. The total built environment requires sustainable overall solutions that ensure synergies between solutions for society as a whole, buildings, infrastructure, and technical systems. This feature is necessary to facilitate realising the full potential of each solution in terms of efficiency, productivity, the saving of natural resources, and the reduction in maintenance costs By creating synergies between different solutions we can achieve a comprehensive approach.

Sustainable development can both reduce emissions and vulnerability to climate change and many impacts can be avoided, reduced or delayed. Appropriate urban planning, including extending green areas as well as cool roofs in cities, has proved to be an efficient way of limiting the 'heat island' effect, thereby reducing cooling needs and sometimes also urban fires.

The PSL provides an overview of all the issues stemming from regulations and possible voluntary undertakings. It results in a clear appreciation of the issues thereby helping in ranking the issues and making the engagement for sustainable development more coherent.

A PSL does not replace certification and rating systems. Instead it offers a consolidated and organised overview, bringing forward the most significant considerations. In particular, an analysis by FIDIC and EFCA has indicated that many of the 14 PSL themes (sub-divided in the present version into 63 issues or objectives) which should be considered for infrastructure or plant are also taken up by the main indicator and assessment frameworks for buildings such as BREAM and LEED.

The PSL also allows one to extend considerations, both technical and financial, beyond legal requirements and regulations across some or all dimensions of sustainability with maximum effect and within the scope agreed with the project or programme's senior management.

3. PSL at a glance

A PSL undertaking is entirely voluntary

A PSL undertaking for a built asset is in principle the responsibility of an 'owner' or the owner's representative. However, there is nothing to prevent an existing or future stakeholder from proposing the PSL to the owner, for instance as part of the engineering design in a proposal. For an existing facility it may be difficult, nevertheless, to make full use of all

of the inputs that were previously taken into account, such as feasibility studies, risk, environmental assessment and the like.

The Logbook is a guide tool for the sustainable development of a project or programme (buildings, civil works, industrial plant, service infrastructure, etc.) both new and existing, from the start until the end-of-life of their components. The aim is to highlight sustainable development's 'power for excellence', which PSL renders tangible.

As a tool to summarise all requirements, legal obligations, decisions, and undertakings, PSL provides a coherent overview and simplifies the collection and analysis of all the information that is needed. Furthermore, it relates this information to the goals for sustainable development.

The PSL is also relevant for the management of the sustainable development of an existing project or programme. It can be used in part or in its entirety by senior management to encourage discussion with stakeholders (financial, political, technical, etc).

The PSL thereby testifies to an initiative for global quality in a way that is clearly stated, easily identified, and of value for stakeholders. It is the instrument of choice for coming to grips with the life-cycle cost of the components of a project or programme.

A PSL comprises a preamble outlining the rules to be followed and for its updating together with the three sections that need to be maintained throughout the life of an asset, namely:

- an updated description of the asset and the sustainable development challenges,
- an overall monitoring table from sustainable development perspective comprising 15 or more parameters or indicators and the manner in which each is evaluated,
- a schedule of documents comprising a list of standards, ratings, benchmarks, and the procedures that are used for their evaluation, records detailing changes and statements of earlier measures and indeed any document which is useful for maintaining the Logbook.

Establishing the PSL may commence in the initial planning stages of a project

The PSL is designed to accompany a project or programme from the moment it is 'invented' all the way through to the end-of-life of the project or programme's components. It therefore integrates the modifications and more important adjustments which are brought to a project or programme and the way in which the setting changes in terms of location, technicalities, regulatory environment, etc.

The PSL can also be created for an existing built asset on the basis of an overall evaluation and, if necessary, with the asset



being brought up to standard or even completely refurbished.

The PSL is relevant for projects developed by public-private partnerships or concessions.

Using PSL as a holistic, integrated approach for sustainability in the urban development

As noted by the FIDIC-EFCA-STD *Rethink Cities* white paper:

A strategy for sustainable urban development requires an awareness of the overall results of the various coordinated public and private responsibilities, as well as of the social environment, land use and urban planning being incorporated with environmental scheduling and coordinated development for infrastructure — an integrated planning methodology.

This design philosophy is characterised by a holistic integrated approach to sustainability, in order to find synergies between social, inclusive and economic responsibility jointly with different urban systems of structure and functions (energy production, distribution and consumption, waste management, water supply and sewage treatment, traffic and transportation, landscape planning, building design, environmental standards and also saving natural resources and maintenance costs).

Each part of a city must be seen as part of the contiguous city together with the city's rural and semi-rural surroundings. An integrated planning process needs to follow a holistic thinking from overall planning to construction and completion.

The PSL is organised so that it can be used to support such an approach. Issues or objectives listed in monitoring tables can be selected for an identified group of buildings, infrastructure facilities or plant, for a larger area including these assets, or for an entire city, for example. The framework may then serve as a reference document for all phases from overall planning to construction and completion:

- to provide an agreed common language for the various partners involved in each of the components,
- to define additional PSL objectives and issues for specific projects,
- to facilitate reporting,
- to help integrate partial assessments.

Logbooks developed for specific projects or programmes located in a city or community can be consolidated to monitor the global profile of the city or community, either totally or partially in terms of specific issues and objectives. FIDIC aims to develop a web-based platform to facilitate this type of PSL monitoring and assessment.

4. Summary

Developing a PSL allows one to extract the essentials of preliminary studies of a project or programme (planning, feasibility, impact assessment, risk, legal, and socio-economic assessment) whatever its type (town planning, building, civil works, industrial facility, etc.), whether newly developed or derived from existing built assets. Implementing the PSL then allows decision makers to profit from a sustainable development checklist to clarify the various options for a life-cycle cost evaluation and the approaches adopted.

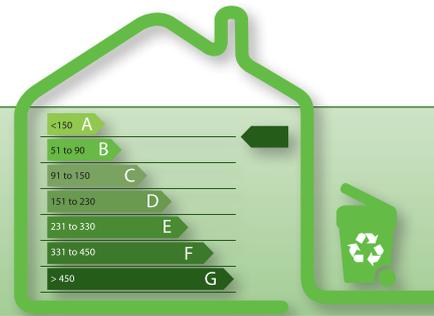
The PSL does not aim to replace existing rating schemes and certificates. Instead it aims to give an organised and coherent overview to ensure through a holistic approach that the expectations for a project or programme are consistent with city or community objectives.

The introduction to a PSL presents the main issues and objectives for sustainable development in the specific context of a particular project or programme. The PSL then ensures the updating of information as a function of what can take place within the project or programme (for instance, changes to the intended use, a different operator, modernisation and various types or work, etc.) or within the project or programme context (site, regulations, new technology, business strategies, etc.).

Monitoring tables are the product of presenting the issues and objectives. They are organised around 14 themes which are routinely adopted and formulated in a way that allows the level of performance to be evaluated. Indicators, tables and graphs facilitate the visualisation of progress towards quality goals.

The various parameters which can be chosen are among those proposed by the International Standards Organization (ISO) 14001 environmental management standard, the ISO 26000 guide to corporate social responsibility, and the *Global City Indicators Facility* indicators for urban services and quality of life. They must be selected on the basis of specific features of projects and programmes and their environment.

The PSL is a living document, regularly updated. So that it can be read easily, only the updated version is made available. It is however necessary to keep a record of the successive modifications, such as those for the values of indicators. These modifications are stored in the PSL's archives.



The PSL in practice

1. What does the PSL do?

This 2013 Project Sustainability Logbook (PSL) – aims to couch the planning, design, construction, operation and end-of-life of projects or programmes in a sustainable development perspective. It involves all stakeholders, including clients, project managers, designers, contractors, and operators.

The PSL is specific to a project or — or part of either, in the form of a built asset or group of assets — and that specificity remains regardless of changes. Moreover, the PSL applies equally to both existing and future assets. For the former, one tries wherever possible to relate previous objectives to the issues of sustainable development even though the sustainable development concept did not exist until fairly recently.

The PSL allows:

- the identification of the main issues for sustainable development relating to a project or programme (either envisaged or existing);
- the ranking of the issues in terms of their importance for each particular theme;
- the definition of the objectives for each of the issues, together with the way to evaluate outcomes, eventually using recognised standards, benchmarks, ratings, and certifications;
- the implementation of actions to ensure that objectives are met and applicable during every phase in the life of each component of the project or programme;
- the adoption of a monitoring and evaluation procedure for each action.

2. The monitoring tables

The PSL involves several tables:

- A summary table giving all the issues and objectives for sustainable development that have been identified to-date, organised by the sustainable development dimension and theme and taken up in the monitoring tables for each phase which follows. Each entry links to comments to help the users' understanding. An exhaustive list of sustainable development issues and objectives can be found in the chapter titled 'Explanatory Notes', organised in the same way as the summary table under the following themes: Governance; Social/Society; Environment; Economic. The table comprises three columns, namely the sustainable development dimension (Column A) and theme (Column B) and the associated issue or objective (Column C) selected from a pre-established list.

- An overall monitoring table to define the issues and objectives and their assessment for the project or programme being monitored (see Annexe). The table allows one to review the various aspects of sustainable development and to identify those that address the main issues or objectives (Columns A and B taken from the summary table). These aspects, that have been translated in the summary table into objectives or operational goals (Column C) are ranked according to their priority (Columns D, E and F). The objectives or operational goals can be annotated and complemented according to the requirements of standards and of rating and certification systems (Column G). Above all, they must be related to the envisaged level of performance and the method of evaluation (Columns H and I).
- Monitoring tables for the implementation and operation phases where the summary and overall monitoring tables' Columns A to C are repeated in worksheets corresponding to each phase of the project or programme, namely planning, design, construction, operation, and end-of-life. Each worksheet (or tab) contains line-by-line the proposed solution (Column J designated 'JP' for the planning worksheet, 'JD' for the design worksheet, 'JO' for the operation worksheet and 'JE' for the end-of-life) and the evaluation methods (indicators and observed outcomes, Columns Kx and Lx, designated by phase 'x').

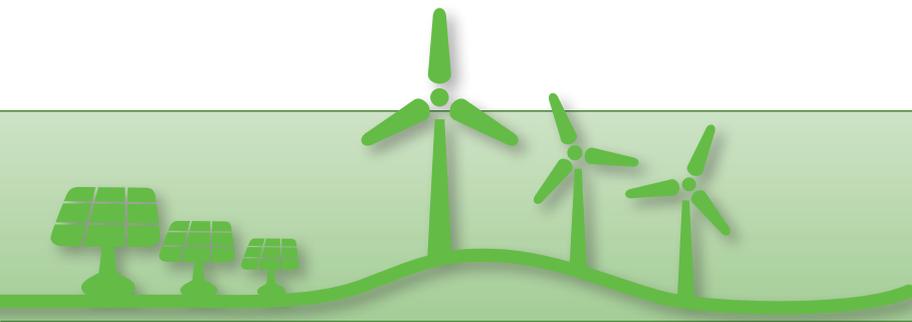
3. Instructions

How to read the tables

It is necessary to bring to the PSL process the rigour needed for a thorough analysis of the issues. This is to ensure that an important aspect has not been overlooked, and to provide flexibility for adapting to any eventuality by directing attention towards the phases, aspects of the project or programme and impacts (both positive and negative) that are the most relevant for sustainable development.

The PSL provides a pre-established framework for guiding those responsible for a project or programme: they must make choices within a framework, justify the choices and keep track of the justification. The proposed spreadsheets (corresponding to entries in tables) can be altered via additions and adjustments to correspond to actual site conditions and stakeholder concerns, where in all cases these additions and adjustments must be justified.

Column A comprises the main dimensions of sustainable development. Column B divides them into 14 major themes that reflect professional undertakings and benchmarks for sustainable



development. In balancing 'spontaneous' approaches and the many sectorial benchmarks, the list does not claim to be exclusive: it can be revised by the developers of PSL on the basis of feedback and new benchmarks following, for example, further work by the ISO Technical Committee 268. The list represents in effect core parameters that can be used by various engineering disciplines.

Column C must be completed for each project or programme or their components of whatever type (service infrastructure, building, industrial plant, town, neighbourhood, etc.) and with the same starting point. However, the various alternatives are to be selected based on specifics of the project or programme, such as the choices regarding sustainable development. The column gives the issues or objectives; entries must relate directly to the method of evaluation. The table thus serves as a reference, which can be modified provided choices are justified. It summarises benchmarks, if any (Column G), in such a way that the PSL can become 'naturally' a tool for seeking a minimum level of conformity with standards and rating and certification systems. The document ends with a guide (see below) that details each theme and proposes operational goals by summarising relevant benchmarks, standards and rating and certification systems, if they exist.

How to use the tables

The PSL must allow attention to focus on the most significant aspects for sustainable development. The follow-up that can then take place will be a tool for discussions between project or programme partners (clients, contractors, stakeholders, authorities, etc.). It is proposed to limit the number of issues or objectives to help in understanding the issues and their solutions. These issues or objectives are prioritised '1', '2' or '3', with those marked as priority '1' in the overall monitoring table. Their full realisation will constitute an indicator for success in terms of sustainable development since they summarise elements of existing benchmarks in a way that allows the various elements to be followed up by recognised initiatives (ratings, certification, etc.). Completing the overall monitoring table is therefore an important step in the life of project or programme or of their components. The issues or objectives which are established are then taken up automatically by the monitoring tables for the implementation and operation phases.

Priorities can evolve and be adjusted during the life of the project or programme. Accordingly, the monitoring tables will also evolve, with the obligation to keep an historical record and a justification of the choices made.

PSL tables

The collection of tables that make up the PSL comprises:

- a summary table which describes the works or group or works or plant being addressed by the PSL;
- an overall monitoring table;
- monitoring tables for the implementation and operation phases covering:
 - planning phase
 - design phase
 - construction phase
 - operation phase
 - end-of-life.

1. Summary table: sustainable development issues and objectives

A Domain	B Theme	C Issue or objective
1. Governance	1.1 Oversight	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis
	1.2 Stakeholder involvement	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 Transparency	1.3.1. Implementing monitoring
		1.3.2. Implementing certification
		1.3.3. Dedicated communications
2. Social/Society	2.1 Health/Safety	2.1.1. Hygiene and air quality
		2.1.2. Other health risks (electromagnetic, laser light, etc.)
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others
		2.1.4. Ensuring safety and security during maintenance
	2.2. Social cohesion and employment	2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
	2.3. Living environment	2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
		2.3.6. Integration into the site; integration into the landscape
	2.4. Cultural diversity	2.4.1. Enhancing the cultural identity
		2.4.2. Landscape quality
		2.4.3. Respect for the built heritage
2.4.4. Respect for the natural heritage		

A Domain	B Theme	C Issue or objective
3. Environment	3.1 Biodiversity	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 Climate change	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3. Resource management	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials distribution
		3.3.5. Consideration of materials life-cycle
	3.4. Waste management	3.4.1. Limiting air pollution
		3.4.2. Waste management
		3.4.3. Protection of water tables, watercourses and soils
3.4.4. Limiting hydraulic and hydrogeological impacts		
4. Economic	4.1. Economic justification	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2. Economic development	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3. Life-cycle costing	4.3.1. Simple evaluation (investment and operation and maintenance)
		4.3.2. Whole life costing (including external costs, dismantling and costs avoided)
		4.3.3. Risk limitation costs

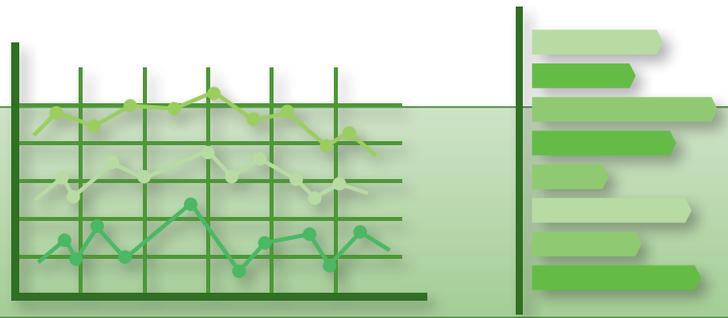
2. Overall monitoring table

Columns are completed by indicating the summary table's issues ('I') or objectives ('O') that are chosen for a particular project or programme (with an 'X' indicating no distinction between an issue or an objective) and by noting their priority (priority 1 being greater than 2 and 2 greater than 3) in columns D, E and F. If a

priority is not indicated then the corresponding issue or objective is not considered.

The example below gives the limited number of issues or objectives that have been selected for a particular project and the priority assigned to each of the selected issues or objectives.

A Domain	B Theme	C Issue or Objective	D E F Priority		
			1	2	3
1. Governance	1.1 Oversight	1.1.1. Risk Management	O		
		1.1.2. Cross-cutting		O	
		1.1.3. Innovation			
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis			I
	1.2 Stakeholder involvement	1.2.1. The response to a local request			I
		1.2.2. Information, consultation and coordination		O	
		1.2.3. Specific organisational aspects of the construction phase			O
		1.2.4. Staff and user awareness	O		
	1.3 Transparency	1.3.1. Implementing monitoring			O
		1.3.2. Implementing certification			
1.3.3. Dedicated communications					
2. Social/Society	2.1 Health/Safety	2.1.1. Hygiene and air quality	I		
		2.1.2. Other health risks (electromagnetic, laser light, etc.)			
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others.			
		2.1.4. Ensuring safety and security during maintenance	I		
	2.2 Social cohesion and employment	2.2.1. Professional insertion and return to work	O		
		2.2.2. Job creation		I	
		2.2.3. Fighting exclusion; personal mobility			
		2.2.4. Facilitating access to services (employment, education, etc)			
		2.2.5. Facilitating accesses and exits		I	
		2.2.6. Forced displacement of people			
	2.3 Living environment	2.3.1. Respect for the neighbours' and users' living environment			
		2.3.2. Thermal comfort; climatic comfort		I	
		2.3.3. Acoustic comfort			
		2.3.4. Visual comfort			
		2.3.5. Quality of the indoor and outdoor environments			
		2.3.6. Integration into the site; integration into the landscape	O		



Explanatory Notes

The issues and objectives of sustainable development as applied to a specific project or programme being monitored by the PSL.

1. GOVERNANCE

1.1. OVERSIGHT

1.1.1. Risk Management

This issue involves consideration of the management of risks in order to anticipate their control, not only during the project or programme development phases but also during operation.

During project or programme development, all current and future phases need to be examined: planning, design, construction, operation and end-of-life. Only completed phases are omitted from consideration. Nevertheless, traceability for earlier phases is essential.

During operation, the only phases considered are those for actual operation and the end-of-life of components of the project or programme.

Continuously identifying risks is the aim here. By grading them in terms of probability and impact, we can establish their relative significance, say, the extent to which a certain risk may be greater than another. We may further evaluate and elaborate upon those risks — for example, by assigning to each a cost or time value — as this would be particularly constructive when it comes to determining a management strategy and appropriate action plan.

This activity relates to all types of risk – natural, political, project management, social, technological, health and safety, environmental, technical, etc.

1.1.2. Cross-cutting

The goal is to involve even more the decision makers (or the principal stakeholders) in all of the dimensions covered (governance, social/society, environmental, economic) and to promote the adoption of a responsible approach.

Depending upon the circumstances, this will require a multidisciplinary team working in a concerted manner with public authorities and the relevant organisations (humanitarian, ecological and environmental organisations; engineering firms; contractors; banks; insurance companies; service providers) so as to increase the positive impacts, both direct and indirect, on sustainable development and to limit as much as possible the negative impacts.

Certain topics or choices may need careful monitoring and special attention such as:

- Corporate Social Responsibility (CSR)
- ethical behaviour and other CSR best practice
- the setting up of incentives or contractual provisions
- applying benchmarks developed by relevant regional authorities and the consideration of their sustainability practices (for instance, their Agenda 21 undertakings notably in relation to governance)
- the sharing of knowledge and information
- the promotion of partnering best practice with sectorial associations and organisations and others
- joint projects
- responsible lobbying and use of media relations
- business governance aspects
- incentives for user, stakeholder and public involvement.

1.1.3. Innovation

This issue concerns the capacity to innovate in favour of the project or programme through a diversified range of stakeholders and exposure to new perspectives.

This capacity can be stimulated, and even optimised, notably by means of a process to manage innovation geared towards implementing techniques and management tools for creating the most favourable conditions for innovation. The process can take several forms depending upon the project or programme.

A wide-ranging and fair competition stimulates innovation and efficiency, reduces the cost of goods and services, guarantees the same opportunities for all organisations, and encourages the development of new or improved goods and services. In the long term it promotes economic growth and improves the standard of living.

The aim here is to highlight the way in which innovation not only allows an original response to current environmental and social problems, but also makes the project less vulnerable to resource scarcity, climate change or stricter regulation, to mention only these three risks.



1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.

For the features listed below, the client should clarify or confirm the selection criteria so the selections made be validated.

Items to clarify are:

- For a civil works project location: the choice should not lead to constraints that may jeopardise the project, for instance, the presence of a residential building or housing estate or a distant location with difficult access.
- Boundary of the works (the area affected by the works), project or programme, especially an urban programme.
- Involvement of occupiers, users, neighbours, and other stakeholders.
- Extent to which systems take sustainable development into consideration: a system-by-system analysis of sustainable-development features confirming whether they include a life-cycle analysis of materials; a carbon footprint; resource efficiency; the development and use of an 'environmental and health report card' covering each part of the works, the (industrial) product, if any, and the urban impact.
- Project phases being considered (planning, design, construction, operation, recycling, etc.).
- Consideration of criteria concerning an industrial product, confidentiality constraints and similar issues.

1.2. STAKEHOLDER INVOLVEMENT

1.2.1. The response to a local request

The project or programme will generally reflect a request (social, economic, environmental) or a local initiative in response to a demand, for which the motives can be varied. It is necessary to articulate and scope the project or programme so that it matches that demand, and to confirm that it falls within the policies for sustainable development of the local authorities involved.

The project or programme can, for example, reflect local Agenda 21 or environmental objectives, an energy-climate plan or political undertakings.

Stakeholders involved in the project or programme, after having defined its content, have much to gain by re-examining the demand across all dimensions of sustainable development and by enlarging the scope by envisaging all the repercussions, both positive and negative. They will thus ensure a long-term perspective, even though such a vision is not articulated by those seeking to meet the demand.

The demand can also refer to an existing benchmark (notably

certification) that will generally help in formulating environmental and other requirements.

Here, it is indirectly the overall relevance of the project or programme that is the underlying issue. One needs to ensure that the specific interests of certain individuals (for instance, neighbours) are reconciled with the general interest, which is often at odds with the specific interests.

1.2.2. Information, consultation and coordination

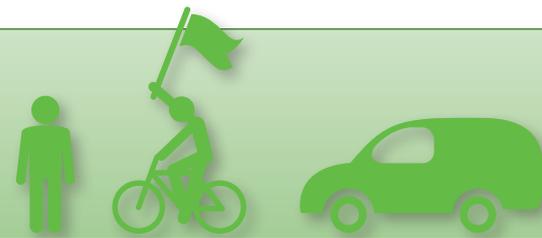
This issue addresses the interaction with interested parties (those affected by the project or programme) throughout the life of the project or programme.

Stakeholders: these are very varied. Included are professionals whose competence is needed for the project, citizens, future users (staff and service consumers), the owner or senior management, architects and engineers, future management, neighbours, the politicians who are responsible, elected officials, local authorities, local associations, insurance companies, etc.

Information, consultation, interaction, and reformulation promotes decisions being taken that are as consensual and transparent as possible, thus allowing all those involved in the project or programme to make the most of advice from interested parties and to manage different points of view.

Aside from obligatory regulations, one needs to ensure that coordination at key stages, especially documents for public debate:

- gathers together the needs and expectations during the feasibility stage
- integrates future users into the jury for a prize competition, if any
- involves stakeholders before the design phase, and specifically before validation of the preliminary design
- uses powerful practical methods for project visualisation, such as a digital model, as far upstream as possible
- provides several variants of the project or programme
- informs interested parties on the progress and validation of the project or programme and invites them to react to and adopt the project or programme
- involves interested parties in choices relating to the design or finishing
- makes known the difficulties that may arise in reconciling all objectives, whether financial, legal, technical, or targeting specific requirements



- invites interested parties to visit the works' site and deals with any complaints that arise during the construction phase and/or owing to modifications made necessary by on-site developments or by changes to regulations and standards during this phase and ultimately up to acceptance of the works
- asks interested parties whether they are satisfied soon after they occupy a new facility or use equipment, and leads to user surveys dealing with not only the facility but also the ways in which concertation and taking into consideration users' concerns were or were not carried out, and draws from these surveys conclusions for future projects and programmes
- alerts and eventually trains, before commissioning the works, users and operators about the operating conditions and the requirements which need to be met in order to achieve the expected performance, notably for instance, energy use
- during the operation phase, questions users regularly as to the serviceability of the facility and equipment so as to be able to intervene in a timely fashion and implements corrective measures, with information generated by a monitoring programme to keep the project or programme in conformity with regulations.

1.2.3. Specific organisational aspects of the construction phase

Complementing the objective for information, consultation and coordination and to respond to specific issues during the construction phase, the project owner may decide to reinforce the normal undertakings. Before the construction phase, which generates environmental impacts and nuisance that must be anticipated and controlled, the most notable undertakings relate to the need to consult neighbours, safeguard a sensitive environment and implement specific controls on the works' site.

Neighbours, that is to say users if the works are being constructed on an occupied site, and their exposure to nuisances will first need to be identified. Neighbours, or users already present on the site of the works, can be met to discuss the impacts and nuisances and the ways these can be reduced. A procedure for communication, in both directions, should be put in place from the start of construction to collect, and treat, any complaints or suggestions. A 'site bulletin' could be prepared and distributed to inform on the progress of the works and the control of impacts and nuisance.

Regarding sensitive environments, it is necessary to undertake the steps needed to protect an environment which is particularly sensitive from the perspective of, say, water or ecological habitats. The relevant experts and public authorities are won over by being involved ahead of and during the works in helping to find suitable solutions and to monitor and control their implementation.

Regarding external control of the works, with transparency as a goal (see above) and depending upon characteristics of the works and the site (issues, vulnerability, risks) external specialists with specific advanced skills in certain domains can be brought in to complement the classic project management role. Activities may involve noise suppression, controlling the effectiveness of certain types of environmental protection measures, the separation and recuperation of waste, etc.

Relevant for this issue are:

- the organisation of site visits (which can involve neighbours, local associations, representatives of local government, students, professionals, future users, etc.);
- the preparation, and communication to certain stakeholders, of a record sheet for the construction phase demonstrating the proper management of the various impacts and nuisances and of waste recuperation, and indicating the difficulties encountered and the corrective measures.

1.2.4. Staff and user awareness

It is necessary to make staff and users aware of the challenges and objectives for sustainable development that will be specifically addressed in the project or programme, and the concrete solutions which are selected. The senior management of the project or programme staff, the operator and the contractors involved in constructing the works, and stakeholders during the operational phase should be distinguished from users. Thus for a hospital, the boiler operator will be considered as staff and the medical personnel, like patients, as users.

This awareness raising should take place during all project phases once the issues and objectives have been prioritised.

The aim is for the staff and those representing users to share with decision makers the 'why' and 'how' of the project, from the perspective of sustainable development. They must learn about the overarching goals for the project design and its consequences, from their own perspective in terms of operation and daily use.



The environmental performance of the project or programme, and indeed all types of performance, is the result of efforts by several contributors, namely, the project owner or senior management who conceived the project, operators (of technical systems), the project manager and his technical staff, the operator's staff — e.g. hospital medical staff, school teaching staff — and the consumers of services (patients, schoolchildren, etc.).

These aspects are related to the various organisations' responsibility towards society.

Staff play a key role in reaching objectives and respect for the issues raised by the project or programme. So that the sustainable development initiative is effective, it is crucial to explain the interest shown by the project owner or senior management and each of the contributors to the project or programme in participating in the initiative.

For example, it is important to maintain deadlines for validating key phases with experts, the incorporation during upstream phases of environmental specialists or landscape architects, and adherence to the facility's optimum operating conditions in order to minimise resource consumption.

Staff awareness can be developed through meetings, special attractions during a 'sustainable development week', email messages or a blog, a brochure, and the like. To respond to questions and to gauge understanding, it is important to meet people: simply circulating a brochure won't do.

The adjoining instructions distributed to site workers and the occasion they are presented offer ideal opportunities to flag up the need to respect the environment, neighbours and site cleanliness. Explanations and supporting material should be adapted to the experience of staff, from the cleaning lady to the managing director.

Messages for users should be adjusted depending upon the frequency with which a user visits a facility. For example, daily e-mail messages to remind staff in a building to turn off equipment on leaving or occasional notices urging motorists to separate out their rubbish at motorway rest areas.

During operation it is useful for staff and users to be informed periodically of the facility's performance, the improvements and the possible deviations from plan and of the corrective measures that are being proposed, if they are involved. Site notices, publications and an active website are all tools that can be exploited.

1.3. TRANSPARENCY

1.3.1. Implementing monitoring

Transparency refers to 'access to information relating to decisions and actions impacting the challenges and objectives for sustainable development as encapsulated in the PSL for a facility, works or plant, and a willingness to ensure that communications are clear, accurate, opportune, honest, and complete' (this PSL definition is derived from the ISO 26000 guidance, Clause 2.1.24).

Monitoring the PSL should be organised according to procedures that are the most appropriate for the project or programme's issues and objectives. These could extend to setting up a permanent monitoring committee, possibly with external members. The committee's composition and working procedures would be established so as to guarantee the required transparency.

Arrangements for this commitment to transparency should be organised in the way that is most appropriate for the issues. They could extend to establishing a permanent monitoring committee with the possibility of appointing outsiders as members. The committee will guarantee the transparency that is defined by the committee's membership and way of working.

It should be noted that public sector authorities often make use of an Agenda 21 approach to support and govern their sustainable development initiatives.

1.3.2. Implementing certification

Implementing a recognised certification such as a standards-based environmental management system based on ISO 14001, a rating such as BREEM, LEED, HQE, etc. or certifications covering certain PSL objectives needs to be clarified by referring to information regarding the proposed certification that allows one to understand the certification's relevance in relation to PSL objectives.

1.3.3. Dedicated communications

Dedicated communications adapted to correspond to the challenges at hand, and under the control of the monitoring committee, if any, should report upon the results achieved for the PSL objectives.

In general, it is preferable to draw upon the initiatives already in place, for example, a monitoring committee, and upon instruments under its direct control such as a project website, the project owner's or senior management website, etc. In the case of major projects, there is often a site bulletin.



2. SOCIAL/SOCIETY

2.1. HEALTH AND SAFETY

2.1.1. Hygiene and air quality

The issue here is to consider from the planning phase the project or programme's impact on air quality, for both indoors and outdoors, exceeding the regulatory requirements.

The critical or chronic character of risks effectively depends upon the project phase.

The potential targets are people, either on- or off-site, and the site's environment since the site influences its environment and vice versa.

Different levels of impact are to be considered: positive effects; neutrality; potential ongoing inconvenience; jeopardising a person's well-being (the term 'inconvenience' goes beyond the simple concept of comfort to cover the potential impact).

It is also necessary to extend considerations to cover concepts such as the quality of the working conditions.

2.1.2. Other health risks (electromagnetic, laser light, etc.)

According to current understanding and existing regulations, the issue here is to catalogue the sources of electromagnetic radiation within the project or programme and its equipment, characterised in terms of frequency, intensity and the number of items of equipment.

It is also necessary to (a) identify potential harmful effects on the health and integrity of staff, visitors and neighbours so as to be able to ensure best user practice, and (b) create incentives for user and citizen involvement through measurements, communication and incentives for the correct behaviour.

The undertakings aim to reduce the impact of the project or programme's radiation emitting equipment that may possibly be deemed harmful. It is also necessary to understand the extent to which the potential harmfulness of the environment is taken into consideration in defining work instructions which are fully consistent with the principles of medicine at work so that they define the required staff skills on the basis of a complete understanding of the facts.

Two impact levels are to be considered:

- the malfunctioning of materials and equipment that indirectly affects human safety (for example, malfunction owing to disturbance of the electromagnetic field);
- bodily harm and/or harmful effects if it is anticipated that radiation may directly affect personal well-being.

2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others

The issue here is to take into account personal safety measures from the planning phase by making a distinction between security measures for neighbours from those for whoever is active on the construction site (workers, supervisors, etc.), individual and group protection and the organisation of coordination.

This comes from information and awareness provided by the project or programme owner or senior management, together with their firm undertakings.

Most importantly, it is necessary to anticipate the risks and constraints that arise during construction, operation, use, and access to the works in allowing for the full range of possible situations (for instance, different degrees in the limitation of movement as a function of a person's age, situation, etc.)

As a component of improved working conditions, it is also necessary to alert and train operating staff and those responsible about safety measures over and above the legal requirements through appropriate staff safety as part of improved working conditions.

2.1.4. Ensuring security during maintenance

The issue here is to take account, from the planning phase, of the safety of qualified personnel carrying out repairs and maintenance. This requires information and awareness training provided by the project or programme owner or senior management together with their strong engagement. Hence the importance of the profile, especially the experience, of the coordinator of sustainable development activities (for instance, a 'safety and security engineer') in being able to propose workable and optimised solutions and to obtain the owner or senior management's commitment.

It is essential to anticipate limitations on repair and maintenance that may emerge by anticipating all possible scenarios in setting up these operations and by providing training and assistance to those involved (designers, future project leaders, operating staff, etc.) on the problems which arise.

2.2. SOCIAL COHESION AND EMPLOYMENT

2.2.1. Professional insertion and return to work

This issue concerns professional insertion and reinsertion, return to work and capacity building. Have job seekers — for instance, young staff under professional training or apprentices, retirees, handicapped persons and the like — participate in the realisation of works or in their operation and maintenance



with the aim of facilitating professional insertion, securing professional careers and developing skills.

Taking in trainees can also be envisaged as an intermediate step towards eventual professional insertion.

Indicators to be used could for example deal with the percentage of young staff or job seekers as a function of the total number of salaried project/programme staff.

One can identify from the beginning of the project the types of skills and the tasks (including those required during operation and maintenance) that would enable associations for professional insertion in activities such as gardening, cleaning and painting to qualify for tenders.

2.2.2. Job creation

The issue here is to contribute to job creation to ensure that continuing service needs are covered while ensuring the project or programme's overall economic viability.

Employment linked to the project or programme should be placed on a permanent basis as much as possible by, for example, employing operators or assistants requiring a minimum amount of reconversion.

Indicators to be used could for example deal with the number of jobs created directly and indirectly or the ratio of the number of new staff to the total number of salaried staff.

On major construction sites, partnerships could be developed between the project or programme manager and national training or job creation organisations so as to anticipate, for example, the demand for specialised workers.

2.2.3. Fighting exclusion; personal mobility

The issue here is to manage and organise human resources mobilised for the project or programme in a manner that contributes to the project owner or senior management's commitments with regard to professional equality between men and women, the employment of senior citizens, diversity, and the promotion of the mobility of salaried staff for those seeking this opportunity, both internally and externally.

Indicators could include the contribution to improving quantitative targets for each of the project owner or senior management's commitments.

2.2.4. Facilitating access to services (employment, education, etc.)

The issue here is to promote access to essential services (health, education, shopping, etc.) by facilitating movement, or by creating services or contributing to their creation. For example: local communities can recreate neighbourhood services in rural

areas or in densely occupied isolated areas; a project owner can create a crèche in an isolated region.

Considerations should also:

- take into account eventual equal opportunity regulations and the opportunities for participation by, and the integration of, handicapped persons;
- promote the employment of handicapped persons, by considering for example, partnerships with relevant associations;
- support handicapped persons in their daily lives, including their accredited reinsertion programmes;
- establish a managed dialogue to adapt as much as possible workplaces and if necessary working hours.

The indicator to be used could for example deal with the number of handicapped staff working on the project or programme as a function of the total number of staff.

It is also necessary to maintain and reinforce social ties.

2.2.5. Facilitating accesses and exits

This issue deals with not only physical access (accessibility) but also social links (access to employment and to cultural activities and the like):

- respect at least legal and regulatory requirements concerning accessibility for handicapped persons);
- improve the access to roads, open spaces and buildings;
- create an integrated journey sequence for handicapped persons aimed at full access to public transport with planning for road access and the development of open spaces;
- install entrance aids fully integrated into accesses and exits for those with all types of impairment (mobility, eyesight, auditive, cognitive, etc.).

2.2.6. Forced displacement of people

The forced removal of the local population must be monitored whenever a project or programme is likely to entail an involuntary resettlement, impact on livelihoods, land acquisition or restricted access to natural resources. The main requirements are:

- Any involuntary resettlement must be minimised or avoided as much as possible in planning the project or programme.
- Whenever it is impossible to avoid resettlement, resettlement activities must be designed and implemented as sustainable development programmes by putting in place sufficient resources such that persons displaced by project activities can profit from the advantages of the programmes which are undertaken. They must



be consulted and must participate in planning and implementing resettlement programmes.

- Displaced persons must be helped during their efforts to improve their standard of living or to at least ensure its reinstatement before resettlement.

2.2.7. Poverty alleviation

Combating poverty is the primary objective of the Millennium Development Goals (MDG), which aim to halve the number of people with incomes below \$1.25 USD per day (see the United Nations' MDG website).

Impoverished people depend heavily upon natural resources for their basic needs, including food, drinking water, heating, drugs, hygiene, etc. They are the first victims of environmental degradation or the over-exploitation of natural resources.

Major projects or programmes to develop and exploit natural resources by creating, for instance, new cities, mines, dams, and oil production facilities can give rise to displaced populations which then find themselves in a state of extreme poverty.

Such projects or programmes must respond to an increasingly more stringent obligation to consider their social, societal and economic impacts.

The general tendency is towards surveys static in terms of time and geography rather than economic or sociological comprising: studies limited to the area directly affected; no ex-post evaluation; compensatory measures limited to reproducing an equivalent economic situation. They represent a regrettable defensive appraisal because major projects and programmes can, and should, have a leverage effect that promotes ambitious development at the local and national levels.

These major projects and programmes can act as levers for combating precarity and local or county-wide poverty by encouraging economic development in compensation for the exploitation of natural resources and the environmental impacts affecting the local population.

For developing countries, consideration of social, societal and economic aspects is often limited to ensuring a project or programme's conformity with current regulation - regulation whose application is poorly controlled (the government lacks resources; the weakness of regulatory authorities) and is relatively unrestricting with regard to the level of impact a major project or programme can have on a region.

2.3. Living environment

2.3.1. Respect for the neighbours' and users' living environment

This issue concerns all project phases. The concept of a 'living environment' is broad and includes the noise, olfactory, thermal, and visual environment as well as functional aspects (mobility; serviceability), the eventual vulnerability of neighbours (for example, a health establishment's patients), nuisance such as dust, mud and vibration (during the construction phase but perhaps also during operation), and indeed other aspects linked to specifics of the project or programme context or to a possible vulnerability of residents (patients as opposed to the health establishment).

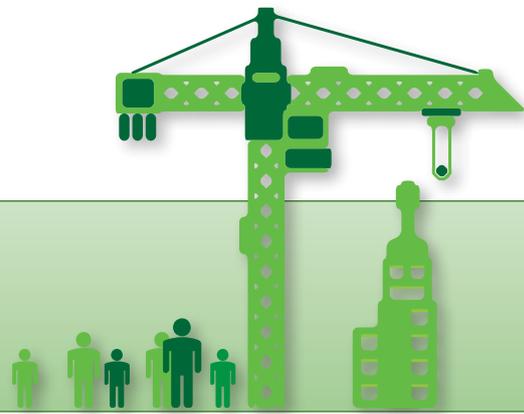
The negative impacts on the living environment of neighbours must be limited and, if possible, an improvement sought. The handling of this objective or issue presupposes establishing some form of interaction with neighbours (see the section on Governance).

It is necessary to monitor the following:

- nuisance induced by traffic, deliveries and waste collection
- restrictions on mobility and parking
- respect for areas for resting, socialising and providing privacy
- the emission of pollutants (during construction and operation)
- discomfort linked to wind close to high-rise buildings
- the risk of invasive aspergillosis during construction if close to a medical facility
- limiting dust, vibration and olfactory nuisance
- impact on the quality of scenery (hidden views; changes to the landscape; poor aesthetics)
- impact on rights to sunlight, light, peace and quiet, and good health
- installation of noisy equipment along site boundaries (boilers; ventilation equipment; heat exchangers)
- nighttime light pollution (exterior lighting; signs) and indirect glare
- increase in certain risks to neighbours (pollution, flooding, etc.) owing to the presence of the project or programme.

The project or programme can also contribute to the revival of its neighbourhood and to an improved living environment through:

- improved local circulation
- improvements in the appeal and attractiveness of the neighbourhood
- creation of bicycle lanes, good quality open spaces or acoustic barriers



- partnerships with local associations in discovery walks and enhancement of the site.

2.3.2. Thermal comfort; climatic comfort

This issue relates to ensuring comfort in the interior and exterior space generated by the project or programme by proposing natural and understated solutions.

Beyond regulation, it is necessary to ensure that the indoor hygrometric (atmospheric humidity) comfort at all seasons is adapted to the use. This stems for the most part from prior attention to the building envelope (thermal isolation, inertia, solar protection, natural ventilation, climatic design) before addressing systems (central heating and cooling, dehumidification, ventilation) and their management.

Equally, it is necessary to ensure climatic comfort (temperature, sunlight, hygrometry, wind, rain, etc.) in the outdoor environment (surroundings, courtyards, terraces, pathways, etc.). This involves the balance of sunlight, the balance between sunlight and shaded areas, the attractiveness of the outdoor environment at all seasons, if possible, protection from wind and rain, exterior lighting, the creation of a microclimate using elements such as water and vegetation, and limitation of the heat island effect.

The complexity and individual appreciation of comfort calls for the comprehensive involvement of stakeholders and users through measurements, the communication of results and incentives for correct behaviour. It is especially important during operation and use to be able to ensure a high level of functionality and to achieve the expected performance.

2.3.3. Acoustic comfort

This issue concerns the users' acoustic comfort in internal areas and the way it is adapted to various uses. It requires prior work on the building envelope — orientation of the building and its windows, zoning, insulation that meets or even exceeds regulatory requirements, special designs — before the consideration of corrective measures (acoustic correction, noise limitation at source for equipment, sound traps, etc.).

The issue also involves (a) assuring acoustic comfort in external areas (surroundings, courtyards, terraces, paths, etc.) to limit acoustic nuisance and reverberation or amplification effects regardless of whether noise sources are outside the site or built into the project or programme, and (b) using the topography, surroundings and buildings to create quiet areas.

The project or programme owner or senior management will on the other hand implement the acoustic protection required by legislation and monitor the evolution of the noise level experienced by neighbours (for example: the noise level in spaces next to a renovated building following installation of

air conditioning plant outside buildings; for the communities affected, the noise level resulting following the widening of a road or motorway). In establishing protection relating to 'comfort' (i.e., in exceeding regulatory requirements), the project or programme owner or senior management would be able to envisage co-financing agreements with the individuals or local authorities that benefit from these additional measures.

2.3.4. Visual comfort

This issue concerns a visual comfort in internal and external areas that is adapted to users and the use.

Regarding indoor areas, one is interested in:

- natural lighting, notably access to views and to natural light, protection against direct or indirect glare and against direct solar rays (at the very least this is desirable in certain types of areas), and the adjustment (manual or automatic) of natural light. The arrangements made will be designed according to the type of area, and adapted to the use and the type of users (for example, elderly people), and equally important,
- artificial lighting, through criteria such as light uniformity, luminance equilibrium, absence of glare, colour temperature, colour rendering, adjustment by users or automatic adjustment, once again according to the types of area, use and users.

Concerning the outdoor environment, one can for example adjust sunlight and shaded areas, protect against glare, both direct and indirect, balance contrasts, and consider the quality of night lighting for both visual comfort and safety (for example, to prevent falls). These considerations will affect, amongst other aspects, the choice of materials and colours, the mineral or vegetal treatment of surfaces, the configuration of spaces and their visual appeal at any time of the day and at all seasons.

One can add to this issue management issues concerning the preservation of privacy, and at the other end of the scale, transparency, lines of sight, multi-angled visibility aiming for surveillance, functionality, and entertainment (for example, viewing a sports hall from a bar).

Simulation tools and virtual reality can be profitably used at different phases of the project or programme to optimise designs, examine alternatives and communicate ideas.

2.3.5. Quality of the indoor and outdoor environments

This issue addresses the quality of the environment from a qualitative perspective. An environment through its architecture generates feelings, emotions, significance, behavioural patterns, and the like. An environment is conceived in order to be experienced and to have a social impact which one hopes is positive, but can be negative.



In jointly configuring spaces, users, and use - given that all three are interlinked - one may be seeking to design spaces that stimulate well-being and conviviality, or indeed an intimacy that creates a specific experience (relaxation, stimulation, exotic, reassuring, etc.). An atmosphere also brings meaning and can evoke history, culture, a vision for the future, a symbol, an ambition, values, etc.

The quality of exterior views and their depth, seen from either indoors or outdoors, is also important, since by relating to the architectural and landscape context of the project or programme in its setting and using the most interesting and rewarding views, exterior views preserve the visual and psychological relationships with the immediate surroundings.

Moreover, through an appropriate design of spaces one seeks to avoid certain feelings, namely claustrophobia, agoraphobia, spatial disorientation (the need for visual guides), insecurity, vertigo, isolation, and a loss of contact with the exterior.

Addressing such issues implies a detailed architectural study at different levels and scales. Involving a psychologist can be useful.

For instance, one can consider:

- the balance between the mineral and vegetal aspect of external areas
- making use of facades, views and vegetation
- the volume and colour of spaces
- natural and artificial light; night lighting
- urban infrastructure
- the sound quality of spaces
- the creation of olfactive sensations
- the equilibrium between the opacity and the transparency of spaces
- the depth of field of internal and external views
- sensory links to the external environment and the perception of time and the seasons
- signage and visual marks
- the possible taking over of spaces and their multifunctionality
- the dynamics/kinetics of users' movements and flow management
- symbolic and cultural elements
- the scope for works of art.

2.3.6. Integration into the site; integration into the landscape

This issue deals with the integration of the project or programme into the site and the landscape. It is necessary to examine the impact on views, mutual visibility, the harmony with natural features or the built environment, the cohesion that is to be kept,

and respect for and development of the site and the landscape. Integration in or disruption of the architecture or landscape must be taken into account.

It is necessary therefore to consider the intrinsic architectural and landscape aspects of the project or programme (ground plan; site planning) as well as an harmonious setting for the project or programme in its immediate environment or in a more distant environment, if necessary. Local urban planning regulations and obligatory procedures will of course be respected.

Considerations will be affected by:

- the architectural form and style and the choice of materials
- the choice and siting of vegetation (local plant species, etc.)
- modification of the landscape's contours (earthworks, creation of slopes, etc.)
- the use of certain colours
- the disruption of an existing continuity.

In the case of a particularly degraded site or a landscape that has little attraction, the related project can be scoped within a programme to improve the site and to contribute to restoring locally features of the site and the landscape, in the expectation that other projects will take over.

2.4. Cultural diversity

2.4.1. Enhancing the cultural identity

This issue deals with developing the project or programme in such a way that it can enhance and preserve the cultural identity of the area, by highlighting its history, place memories, local materials, ancestral skills, and local architecture, and uses both the past and the present.

It may involve cultural events or festivals (local community fairs; carnivals) linked to local activities, both rural and urban, and to famous deceased members of the community (artists, politicians, writers, musicians, etc.).

The cultural identity also includes the diversity of local inhabitants, their origins and the way in which the project or programme encourages cultural and linguistic exchange.

2.4.2. Landscape quality

The landscape, as part of the site's cultural identity, is something to which inhabitants and neighbours are deeply attached. The quality of the way the project or programme fits into the landscape depends not only on its integration in the landscape but also its acceptance by the local population. The landscaping, choice of materials and landscape features must correspond to the cultural identity of the site and its inhabitants.



The principal criterion for this objective is aesthetics: one takes into account not only enhancing the landscape from the perspective of a user of the works (the coherence of the landscape when viewed from the works; points of view) but also the new landscape created by the presence of a new element on the site, only in this case from the neighbours' viewpoint.

2.4.3. Respect for the built heritage

Setting aside remarkable buildings that are classified or registered, it is necessary to maintain and develop the built environment since it plays a special role in the landscape's make-up and contributes to the site's identity (buildings of interest; works of art when one is in a rural area; the type of habitat in an urban area).

For this issue it is necessary to indicate how the project or programme will allow the built environment to be protected, and even restored.

2.4.4. Respect for the natural heritage

This issue covers natural areas of interest, exceptional trees, interesting wooded hedgerows, rare or endangered species, streams, biodiversity, areas capable of hosting biotopes, and comparisons between the site's initial biodiversity and that arising from the project or programme. One can also raise in this context the preservation or development of traditional practices related to nature (the use of forests and the sea; paths).

It is necessary to indicate how the project or programme takes these aspects into account along with those which provide protection from and compensation for the project or programme's negative impacts, including possible restoration of the natural heritage. From the beginning it is necessary to make an exact diagnosis and inventory of the ecosystem, natural resources and the soils' agricultural capacity and to identify possibly polluted areas that would need to be restored.

Considerations also include the use of local species in landscaping. This offers numerous advantages, both ecological (adaptation to the climate; no risk of genetic pollution; avoiding invasive plant species) and economic (reduced maintenance; reduced watering). Health aspects for neighbours and users can also be raised in this context: it will be necessary to consider the choice of plants to avoid well-known allergies (ambrosia, for example).

Concerning animal species, the consideration of the impact of the site's nighttime lighting (light pollution) needs to be examined.

3. ENVIRONMENT

3.1. Biodiversity

3.1.1. Preservation of natural habitats

A project or programme has the capacity to impact sensitive natural habitats. This may involve habitats that are under the menace of disappearing or becoming reduced to a very small size, or habitats which host inherited flora and fauna species that are rare, vulnerable or menaced with disappearing.

Such a site may be the subject for protection by registration as a protected natural site

At all phases of a project or programme, including preliminary studies, impact assessment and project studies, it is therefore necessary to make an exhaustive inventory of species and habitats that may be impacted. It is then necessary to have experienced ecologists determine the impacts on the species and habitats and to determine measures aimed at reducing the impacts, including compensatory measures.

3.1.2. Maintaining ecological corridors

For all species, a territory has vital zones (biodiversity reservoirs) where individuals spend most of their lives. These reservoirs can be closely or widely spaced. Ecological corridors must allow transfer between the reservoirs.

These corridors can be mapped at the territorial level and represented as so-called green or blue networks.

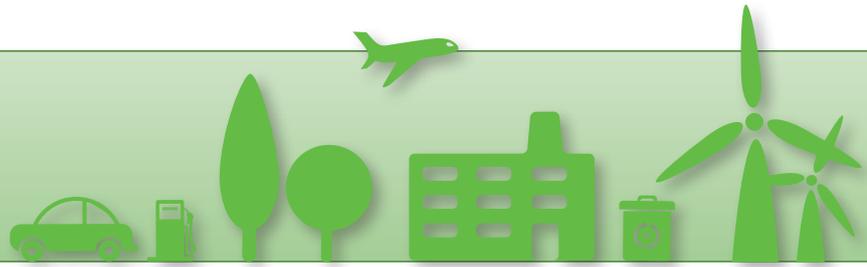
A project or programme, especially one that involves a linear structure, may therefore have an impact on the corridors. It is thus necessary to find an alignment which minimises impacts and to ensure that the project or programme has sufficient 'transparency' by creating specific features such as passages for large and small fauna, amphibian crossings, structures to house bats, etc.

3.1.3. Tackling light and sound pollution

Certain species are sensitive to glare or even night lighting, and may need ecological corridors that are plunged in darkness. The biorhythms of animals, plants and mushrooms are based upon natural light. Artificial night lighting upsets migrating species and the behaviour of 'natural' predators and benefits certain opportunistic species.

A project or programme's lighting can constitute a light barrier that either repels or fatally attracts these species.

It is therefore necessary to identify this potential impact and to modify, if possible, the project or programme's lighting to overcome the problems.



A high level of ambient noise disturbs birds since their song plays an essential role in the social functioning of many species. It has been established that birds in an urban environment modify their singing and shift their periods of song relative to those of the same species surrounded by a moderate level of ambient noise. However, not all species are adaptable so it is necessary to anticipate this issue.

3.1.4. Supporting inherited species

Even though a project or programme may potentially impact certain species, it provides the owner with an opportunity to enhance certain aspects, notably those which are inherited.

It may be necessary to create or develop a 'sensitive nature zone' which is connected to the project or programme and allows, with appropriate management, enhancement over the long term.

The project or programme itself, through its neglected areas or areas of scree (for example, chalk scree) can also serve this purpose.

The project or programme owner or senior management can also finance a project that is carried out by an association or a specialised organisation belonging to another project owner, thereby creating involvement and support for the proper implementation of the project or programme.

3.2. Climate change

3.2.1. Controlling emissions from the project or programme

It is necessary to support the fight against the greenhouse gas effect by controlling and reducing the project or programme's carbon emissions. The increase in the greenhouse effect results in an increase in the concentration of substances in the atmosphere (greenhouse gases) that are mainly anthropogenic in origin (carbon dioxide, methane, etc.). It leads to an increase in the Earth's temperature.

The reduction of carbon emissions must be sought for all of the project or programme's life-cycle phases, from planning to the end-of-life of the components. An evaluation of the carbon account helps in posing questions and reaching decisions not only during project definition (examination of various scenarios) but also during the design (eco-planning; carbon footprint reduction) and operation phases.

It is also necessary to take into account emissions generated both directly and indirectly by the project or programme. The emissions also represent an impact that stems from behaviour; they can be reduced by creating possibilities and incentives for correct behaviour.

3.2.2. Controlling emissions from induced traffic

It is necessary to consider the impact of the project or programme on mobility in terms of carbon emission. Transport is a major concern in the fight against climate change since it alone accounts for more than 30% of greenhouse gas (GHG) emissions in developed countries.

As an example, in the case of a project to construct a new building, when selecting a location it is necessary in the first place to take into account the journeys users will make between where they live and their place of work.

Issues to be addressed should include:

- Does the area in which the project or programme is sited provide infrastructure for alternative means of transport, walking, cycling, and the use of public transport?
- What can the area provide in terms of the services needed for working and day-to-day living that minimise unnecessary journeys?

Also to be included are the means, such as information, communication and telecommunications infrastructure for distance working, and the incentives and possibilities the project or programme provides for encouraging behaviour that reduces emissions.

3.2.3. Reducing the dependence on fossil fuel derived energy

Controlling and reducing the consumption of fossil fuel derived energy represents for the project or programme not only an ecological issue but also an economic issue owing to the risk of an increase in the price of fossil fuel derived energy. It is necessary to consider the possibilities made available for users and stakeholders to make the correct decisions through measurements, the communication of results, incentives for alternative investments, and the consideration of smart grids, centralised energy production, energy distribution networks, and essential infrastructure investments.

For example, it is necessary to seek for the project or programme:

- a reduction in the energy consumption during its construction
- a reduction in the energy consumption during operation after commissioning
- the use of renewable energy sources
- the possibility to reuse and recycle, including energy storage and back-feeding into the energy distribution network
- cooperation with regard to energy production and distribution networks.



These undertakings contribute to the sustainable management of resources, in this case fossil fuel derived energy.

3.2.4. Adaptation to climate change

Scenarios established by international experts envisage a temperature increase of two degrees Centigrade by the year 2030, and four degrees Centigrade by 2050.

In the context of sustainable development, to meet the risks it is necessary to ensure from today the adaptability and the capacity to evolve of constructed works (both buildings and infrastructure). In many countries climate change will bring about:

- the amplification of heat waves, cold spells and droughts;
- floods
- an increase in the intensity and/or frequency of storms;
- increased humidity
- a weakening or a reduction in the strength of materials owing to temperature changes
- modification of the landscape, vegetation and soils.

It is necessary to determine the potential effects of climate change on the project or programme. These effects may act upon:

- the project or programme itself
- users
- neighbours.

It is also necessary to understand the needs and willingness of future generations to live a good life without large contributions to and negative impacts on climate change. This includes the possibility to do right thing: in order to achieve positive results in all dimensions of sustainable development the possibility to become involved and make the right choices is important, not only for future generations but also today. Moreover, taking such issues into consideration will also promote economic and social sustainability

3.3. Resource management

3.3.1. Controlling energy production, consumption and distribution

From a holistic perspective, this issue leads in particular to decisions concerning the different components of the energy system by being able to manage and prioritise actions for:

- energy production (conversion)
- energy distribution
- energy use.

Depending upon currently available or future resources and the distribution infrastructure, a certain level of redundancy with regard to technical solutions makes possible significant

sustainability benefits. This may call for centralised and long-term decisions to be taken that lead to holistic sustainable solutions. The choices made with regard to production and distribution networks, smart grids and the like will have a major impact on the technical solutions that are chosen and the way individual projects or programmes are planned.

This issue requires:

- identifying the preferred energy source while taking into account operating costs and energy type: electricity, gas, fuel, coal, solar, photovoltaic, etc.
- ensuring the best possible thermal insulation
- designing central heating, ventilation, air-conditioning and electricity supply plant with the capacity to reuse energy and reduce operating costs
- providing possibilities for users to save energy through decentralised monitoring, communication and incentives.

3.3.2. Renewable energy use

This issue encourages the search for the best approach for, and source of, renewable energy that can be taken up by the project or programme and its immediate environment: solar energy; photovoltaic; geothermal; energy from waste; surplus energy; centralised conversion and/or distributed systems.

3.3.3. Controlling water resources

Limiting and controlling water consumption calls for several different types of elements, especially for a holistic approach and considering distribution, use and recycling as an example:

- special techniques for limiting consumption, notably with regard to watering and washing
- techniques to recover and store rainwater
- the treatment and recycling of waste water
- providing possibilities for users to make the correct decisions through monitoring, communication and incentives.

3.3.4. Controlling raw materials' consumption

The foremost preoccupation for this issue is to ensure, in conjunction with the preceding issue 'Controlling water resources', that the project or programme does not contribute to exhausting non-renewable resources.

During the project or programme's various life-cycle phases the project/programme owner and senior management and the project/programme manager will take into account the preservation of resources through the choice of construction materials (wood, metal, concrete, etc.), construction processes (limit water consumption during construction; promote recycling; reuse existing materials as much as possible, etc.)



and distribution during the operation phase (limit heating and air-conditioning requirements; encourage economic forms of heating and the use of renewable energy; create surrounding green areas requiring little watering; etc.).

3.3.5. Consideration of the life-cycle of materials

This issue implies estimating the probable lifetime of materials or processes and determining the methods and costs for end-of-life replacement or repair, thereby making the best initial choice.

It is necessary to create incentives for partners and stakeholders to make the correct choices concerning raw materials by considering, product and project life-cycle costs, operating costs, the preservation of resources, and recycling and reuse. It is important to relate these various aspects to the overall goals and vision for the project or programme.

3.4. Controlling emissions

3.4.1. Limiting air pollution

This issue covers the reduction of emissions into the atmosphere brought about directly or otherwise by the project or programme and by the built works that follow. It can refer to the legal framework covering atmospheric pollution, if and when it exists.

The stated objective in this case therefore concerns air pollution from the emitter's viewpoint.

Depending upon the type of project or programme, its location and its underlying rationale, one seeks to limit the causes of emissions from the works, processes (for instance, energy conversion) and induced activity (agriculture, road transport, residential and tertiary sector linkages, other forms of induced traffic, releases by nature, materials employed, etc.).

Examples include: choosing low polluting energy sources; choosing energy processing equipment that filters or limits emission of gas and particles; implementing techniques to reduce the emission of air pollutants arising from industrial processes; the treatment of exhaust gasses at the exit to ventilation shafts; encouraging the use of bio-carburants for the transport of construction materials.

An example of an indicator is the level of NO_x emission.

Note: this objective complements the Health and Safety theme and its issue of 'Hygiene and air quality' that relates to the health aspects of air quality from the point of view of the receiver of the pollution, that is to say neighbours, users or staff, etc.

3.4.2. Waste management

In the holistic 'city' perspective there is an organisational framework that needs to be managed to change the system and the mindset to envisage a reduced amount of well-handled and well-sorted waste as a resource through 'Reduced Waste, Reused Waste, Recycled Waste, and Energy Recovery'.

This issue complements the resource management theme through economies in raw materials that encourage the use of recycled materials.

The issue covers rationalising the waste produced by the project or programme and the works that follow in order to limit its volume and nocivity, and promoting effective traceability, waste separation and recycling.

Conversely, one can also demonstrate how an infrastructure project provides an opportunity for rehabilitating uncontrolled waste dumps.

The measures put in place will vary depending upon the project/programme phase (construction or operation). They will include, for example: the formal accounting of construction waste by contractors and suppliers; establishing selective waste cycling; encouraging the composting of vegetable waste for the occupants of a model home.

3.4.3. Protection of water tables, watercourses and soils

This issue deals with water pollution (water tables and watercourses) and soil pollution, with the understanding that these types of pollution are linked.

It is necessary here to envisage adequate water treatment and to fight the spreading or leakage of polluting or dangerous products both within and into the natural environment.

Mitigating measures may involve not only limiting the use of such products to the strict minimum but also proposing a treatment adapted to the waste water, such as rainwater that can wash away these products and then run off into watercourses or the soil.

Depending on the location of the works, one aims to guard against the indirect causes of emissions linked to the transformation of energy, agricultural activities, industry, transport (river and maritime), housing, community activity, and natural pollution (acid rain, suspended materials linked to erosion, radioactivity, etc.)

Once again, the project or programme can offer an opportunity to bring a built asset up to given standard during, for example, road widening.



The problems encountered relate to human health (drinking water) and biodiversity (quality standards for watercourses).

3.4.4. Limiting hydraulic and hydrogeological impacts

Note: hydrogeology is defined as an interdisciplinary science that deals with underground water. In this section one only takes into account the distribution and circulation of underground water, where the quality aspects of water are covered under the preceding issue.

The problems encountered relate to flooding, soil erosion and falling water tables. This issue covers hydraulic aspects linked to the project or programme, such as the impermeabilisation of soils, subtraction at the expansion zone of junctions and damming. It may also concern, for example, the drying up of wells or humid zones owing to the modification of water runoff.

It is necessary in this case to fight against the impermeabilisation of soils, the concentration of waste rainwater runoff, and the creation of blockages in both major and minor river beds. It is up to the project or programme owner to demonstrate how these impacts will be taken into account and their effects reduced.

In certain specific cases it may be desirable that a linear embankment acts as a protection dyke for the downstream population. In this case the hydraulic 'transparency' that is normally sought will be reduced. Such choices should be stated explicitly and justified.

4. ECONOMIC

4.1. Economic justification

4.1.1. Of the project or programme in the short term

It is necessary to provide an overview of the needs which the constructed works are intended to meet, by focusing on the economic rationale while indicating second-order effects relating to the development that is generated.

It is noted that this issue only covers the short term, including the start of the operation phase.

4.1.2. Envisaged future of the project or programme; capability to evolve

The key issues are:

- What are the possible end uses of the constructed works in the short-, medium- and long-term?

- What is the capacity for the constructed works to adapt to these end uses, regardless of whether the potential uses are known or unknown?

4.1.3. Serviceability

The serviceability expresses the capacity for the constructed works to reply satisfactorily to the various user expectations. From the economic point of view, an appropriate serviceability can have both direct and indirect economic impacts:

- direct impact on the built works since satisfactory performance allows one to avoid early investments to remedy malfunctioning in use and reduces in the middle- to long-term the risk of functional obsolescence
- indirect impact on the built works since a satisfactory serviceability will bring about improved productivity (for places of work) or success (for educational establishments).

Alternatively, the concept of serviceability can be analysed equally well in relation to the social context because it is linked to the quality of the surroundings, and to comfort (acoustic, thermal, visual) as well as to ergonomics and to health and safety. Interactions with governance also need to be monitored such as the involvement of stakeholders, or more exactly, the consideration of user needs and expectations.

4.1.4. Investment efficiency

Does the investment allow the objectives that were established to be reached with a minimum of financial resources envisaged and subsequently taken up? Does the investment consider the life-cycle and operational costs and the environmental impact as components of the decision to invest?

4.2. Economic development

4.2.1. Direct economic impacts

One can evaluate the direct negative and positive impacts that can be expected in terms of economic development once the works are functioning or operating.

For example, the direct economic impact expected upon the start up of a large shopping centre could be:

- a reduction in local shopping in areas near the centre;
- the development in the centre of commercial services that complement those supplied by the project or programme.

One can also take into account the impact on local employment: transport infrastructure can increase the economic influence of a region and increase distances between home and workplaces within the region; employment created through strengthening an area's economic activity could be, at least in part, in the form of local jobs.



4.2.2. Induced and indirect economic impacts

What are the positive and negative effects induced by a second-order effect which can be expected in terms of economic development once the project or programme is functioning or operating?

An indirect economic effect could be to alter the price of commercial premises in the region.

4.2.3. Regional development

To be listed under this issue are the effects of economic development that are expected on a regional scale. The definition of this area is based upon the population density of the area surrounding the project or programme. For a sparsely populated area one can consider the relevant area to be relatively spread out while, inversely, the area will be seen to be more limited if its surroundings are densely populated or already well developed.

4.2.4. Job creation

The analysis under this issue consists of an inventory that is both qualitative and quantitative of the jobs created, maintained and lost throughout the project/programme life-cycle. During the construction phase, one can for example quantify the accompanying employment as well as the jobs that will eventually be lost when operation on the site ceases and before renovation takes place. Thus, for the duration of the operation phase, one can make an inventory of the jobs created, both direct and indirect.

4.2.5. Economic partnerships

Under this issue one can clarify the link between two or more complementary planning processes. This complementarity may show up in different ways (for instance, with or without a time lag or on an identical plot of land that is either adjoining or remote).

The partnership can also be structured as a joint management of a project or programme to build a single facility, or as a group of operators to design, build and operate the works. It is then necessary to take into account the constraints arising from joint activities.

4.2.6. Synergies with other developments

It is necessary to synchronise and integrate the project or programme being considered with projects to develop other works within an appropriate area, in terms of the existing capacity, social and economic development, services (schools,

crèches, shops, etc.), demographics, access via various forms of transport (foot, automotive, etc.), the urban and environmental integration, etc.

4.2.7. Poverty alleviation

Combating poverty is the primary objective of the Millennium Development Goals (MDG), which aim to halve the number of people with incomes below \$1.25 USD per day (see the United Nations' MDG website).

Impoverished people depend heavily upon natural resources for their basic needs, including food, drinking water, heating, drugs, hygiene, etc. They are the first victims of environmental degradation or the overexploitation of natural resources.

Major projects or programmes to develop and exploit natural resources (the creation of, for instance, new cities, mines, dams, and oil production facilities) can give rise to displaced populations which then find themselves in a state of extreme poverty.

Such projects or programmes must respond to an increasingly more stringent obligation to consider their social, societal and economic impacts.

The general tendency is towards surveys static in terms of time and geography rather than economic or sociological comprising: studies limited to the area directly affected; no ex-post evaluation; compensatory measures limited to reproducing an equivalent economic situation. They represent a regrettable defensive appraisal because major projects and programmes can, and should, have a leverage effect that promotes ambitious development at the local and national levels.

These major projects and programmes can act as levers for combating precarity and local or county-wide poverty by encouraging economic development in compensation for the exploitation of natural resources and the environmental impacts affecting the population.

For developing countries, consideration of social, societal and economic aspects is often limited to ensuring a project or programme's conformity with current regulation - regulation whose application is poorly controlled (the government lacks resources; the weakness of regulatory authorities) and is relatively unrestricting with regard to the level of impact a major project or programme can have on a region.



4.3. Life-cycle costing

4.3.1. Simple evaluation (investment and operation and maintenance)

The overall objective is to encourage and optimise choices based upon a reasoning in terms of the life-cycle cost, from the initial concept to the end-of-life of the components of the project or programme. The life-cycle cost therefore incorporates the costs of design, construction and operation and maintenance. Additional costs at the design and construction phases are very often insignificant in relation to the savings that can be achieved during the operation and maintenance phase.

4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)

The overall objective here is identical to that for the simple evaluation, except that the lines of reasoning include, amongst other things, taking account of:

- the eventual financial impacts upon the neighbourhood and the environment (both positive and negative);
- the cost of dismantling components of the project or programme and their end-of-life.

4.3.3. Risk limitation costs

This issue relates to estimating the cost to limit risk before, during and after the commissioning of an asset, whether it be works or equipment. The aim is to invest in economically justified and adapted preventive measures that generate a return in terms of the overall cost. Such measures are worthwhile moreover not only during a project planning, design and implementation phases but also during the operation and end-of-life phases of the works. In particular, applying a risk management methodology allows one to:

- anticipate and prepare oneself for the all possible events (having both positive and negative impacts)
- ask the important questions as an aid to decision making
- assess the project benefits (success) before and after optimising the risk balance.

To summarise:

- managing risk allows one to limit defects, delays and various lost returns (there is no unique response as each case is specific)
- the risks deal not only with the project itself or with the works (i.e., the internal risks) but also with the interface to the exterior, thereby relating to the exterior (i.e., external risks).

To illustrate, a non-exhaustive list of the types of risk includes:

- noise nuisance
- atmospheric pollution
- the neighbours' living environment
- adaption to climate change.

Annex

Monitoring tables for the sustainable development of a specific project or programme

1. Overall monitoring table
2. Monitoring table for planning phase
3. Monitoring table for design phase
4. Monitoring table for construction phase
5. Monitoring table for operation phase
6. Monitoring table for end-of-life

Annex:

- 0 - OVERALL MONITORING TABLE - Version 2013-R0

A	B	C
DIMENSION	THEME	ISSUE OR OBJECTIVE <i>In columns D-E-F: I = Issue, O = Objective, X = No difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
1.3.2. Implementing certification		
1.3.3. Dedicated communications		
2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY	2.1.1. Hygiene and air quality
		2.1.2. Other health risks (electromagnetic, laser light, etc.)
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others
		2.1.4. Ensuring safety and security during maintenance
	2.2 - SOCIAL COHESION AND EMPLOYMENT	2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
	2.3 - LIVING ENVIRONMENT	2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
2.3.6. Integration into the site; integration into the landscape		
2.4 - CULTURAL DIVERSITY	2.4.1. Enhancing the cultural identity	
	2.4.2. Landscape quality	
	2.4.3. Respect for the built heritage	
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
3.3.5. Consideration of materials life-cycle		
3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution	
	3.4.2. Waste management	
	3.4.3. Protection of water tables, watercourses and soils	
	3.4.4. Limiting hydraulic and hydrogeological impacts	
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
		4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)
4.3.3. Risk limitation costs		

Annexe

- 1 - PSL MONITORING TABLE FOR THE PLANNING PHASE		
A	B	C
DIMENSION	THEME	ISSUE OR OBJECTIVE
		<i>In columns D-E-F: I = Issue, O = Objective, X = No difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
		1.3.2. Implementing certification
		1.3.3. Dedicated communications
	2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY
2.1.2. Other health risks (electromagnetic, laser light, etc.)		
2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others		
2.1.4. Ensuring security during maintenance		
2.2 - SOCIAL COHESION AND EMPLOYMENT		2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
2.3 - LIVING ENVIRONMENT		2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
		2.3.6. Integration into the site; integration into the landscape
2.4 - CULTURAL DIVERSITY		2.4.1. Enhancing the cultural identity
		2.4.2. Landscape quality
		2.4.3. Respect for the built heritage
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
3.3.5. Consideration of materials life-cycle		
3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution	
	3.4.2. Waste management	
	3.4.3. Protection of water tables, watercourses and soils	
	3.4.4. Limiting hydraulic and hydrogeological impacts	
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
		4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)
		4.3.3. Risk limitation costs

Annex

- 2 - PSL MONITORING TABLE FOR THE DESIGN PHASE

A DIMENSION	B THEME	C ISSUE OR OBJECTIVE <i>In columns D-E-F: I = Issue, O = Objective, X = No difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
		1.3.2. Implementing certification
		1.3.3. Dedicated communications
	2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY
2.1.2. Other health risks (electromagnetic, laser light, etc.)		
2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others		
2.1.4. Ensuring safety and security during maintenance		
2.2 - SOCIAL COHESION AND EMPLOYMENT		2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
2.3 - LIVING ENVIRONMENT		2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
		2.3.6. Integration into the site; integration into the landscape
2.4 - CULTURAL DIVERSITY		2.4.1. Enhancing the cultural identity
		2.4.2. Landscape quality
		2.4.3. Respect for the built heritage
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
		3.3.5. Consideration of materials life-cycle
	3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution
		3.4.2. Waste management
		3.4.3. Protection of water tables, watercourses and soils
3.4.4. Limiting hydraulic and hydrogeological impacts		
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
		4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)
		4.3.3. Risk limitation costs

Annex

- 3 - PSL MONITORING TABLE FOR THE CONSTRUCTION PHASE		
A	B	C
DIMENSION	THEME	ISSUE OR OBJECTIVE
		<i>In columns D-E-F: I = Issue, O = Objective, X = No difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
1.3.2. Implementing certification		
1.3.3. Dedicated communications		
2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY	2.1.1. Hygiene and air quality
		2.1.2. Other health risks (electromagnetic, laser light, etc.)
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others
		2.1.4. Ensuring safety and security during maintenance
	2.2 - SOCIAL COHESION AND EMPLOYMENT	2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
	2.3 - LIVING ENVIRONMENT	2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
2.3.6. Integration into the site; integration into the landscape		
2.4 - CULTURAL DIVERSITY	2.4.1. Enhancing the cultural identity	
	2.4.2. Landscape quality	
	2.4.3. Respect for the built heritage	
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
		3.3.5. Consideration of materials life-cycle
3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution	
	3.4.2. Waste management	
	3.4.3. Protection of water tables, watercourses and soils	
	3.4.4. Limiting hydraulic and hydrogeological impacts	
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)		
4.3.3. Risk limitation costs		

Annex

- 4 - PSL MONITORING TABLE FOR THE OPERATION PHASE		
<i>A</i>	<i>B</i>	<i>C</i>
DIMENSION	THEME	ISSUE OR OBJECTIVE <i>In columns D-E-F: I = Issue, O = Objective, X = no difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
1.3.2. Implementing certification		
1.3.3. Dedicated communications		
2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY	2.1.1. Hygiene and air quality
		2.1.2. Other health risks (electromagnetic, laser light, etc.)
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others
		2.1.4. Ensuring security during maintenance
	2.2 - SOCIAL COHESION AND EMPLOYMENT	2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
	2.3 - LIVING ENVIRONMENT	2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
		2.3.6. Integration into the site; integration into the landscape
2.4 - CULTURAL DIVERSITY	2.4.1. Enhancing the cultural identity	
	2.4.2. Landscape quality	
	2.4.3. Respect for the built heritage	
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
		3.3.5. Consideration of materials life-cycle
3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution	
	3.4.2. Waste management	
	3.4.3. Protection of water tables, watercourses and soils	
	3.4.4. Limiting hydraulic and hydrogeological impacts	
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
		4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)
4.3.3. Risk limitation costs		

Annex

- 5 - PSL MONITORING TABLE FOR THE END-OF-LIFE PHASE

- 5 - PSL MONITORING TABLE FOR THE END-OF-LIFE PHASE		
A	B	C
DIMENSION	THEME	ISSUE OR OBJECTIVE
		<i>In columns D-E-F: I = Issue, O = Objective, X = No difference</i>
1 - GOVERNANCE	1.1 - OVERSIGHT	1.1.1. Risk Management
		1.1.2. Cross-cutting
		1.1.3. Innovation
		1.1.4. Strategies for selecting: site, materials, multi-criteria decision analysis, etc.
	1.2 - STAKEHOLDER INVOLVEMENT	1.2.1. The response to a local request
		1.2.2. Information, consultation and coordination
		1.2.3. Specific organisational aspects of the construction phase
		1.2.4. Staff and user awareness
	1.3 - TRANSPARENCY	1.3.1. Implementing monitoring
		1.3.2. Implementing certification
1.3.3. Dedicated communications		
2 - SOCIAL / SOCIETY	2.1 - HEALTH / SAFETY	2.1.1. Hygiene and air quality
		2.1.2. Other health risks (electromagnetic, laser light, etc.)
		2.1.3. Safety: access and exits, operation, etc. by neighbours, users and others
		2.1.4. Ensuring safety and security during maintenance
	2.2 - SOCIAL COHESION AND EMPLOYMENT	2.2.1. Professional insertion and return to work
		2.2.2. Job creation
		2.2.3. Fighting exclusion; personal mobility
		2.2.4. Facilitating access to services (employment, education, etc.)
		2.2.5. Facilitating accesses and exits
		2.2.6. Forced displacement of people
		2.2.7. Poverty alleviation
	2.3 - LIVING ENVIRONMENT	2.3.1. Respect for the neighbours' and users' living environment
		2.3.2. Thermal comfort; climatic comfort
		2.3.3. Acoustic comfort
		2.3.4. Visual comfort
		2.3.5. Quality of the indoor and outdoor environments
		2.3.6. Integration into the site; integration into the landscape
2.4 - CULTURAL DIVERSITY	2.4.1. Enhancing the cultural identity	
	2.4.2. Landscape quality	
	2.4.3. Respect for the built heritage	
	2.4.4. Respect for the natural heritage	
3 - ENVIRONMENT	3.1 - BIODIVERSITY	3.1.1. Preservation of natural habitats
		3.1.2. Maintaining ecological corridors
		3.1.3. Tackling light and sound pollution
		3.1.4. Supporting inherited plant species
	3.2 - CLIMATE CHANGE	3.2.1. Controlling emissions from the project or programme
		3.2.2. Controlling emissions from induced traffic
		3.2.3. Reducing the dependence on fossil fuel derived energy
		3.2.4. Adapting to climate change
	3.3 - RESOURCE MANAGEMENT	3.3.1. Controlling energy production, consumption and distribution
		3.3.2. Renewable energy use
		3.3.3. Controlling water resources
		3.3.4. Controlling raw materials' consumption
		3.3.5. Consideration of materials life-cycle
3.4 - CONTROLLING EMISSIONS	3.4.1. Limiting air pollution	
	3.4.2. Waste management	
	3.4.3. Protection of water tables, watercourses and soils	
	3.4.4. Limiting hydraulic and hydrogeological impacts	
4 - ECONOMIC	4.1 - ECONOMIC JUSTIFICATION	4.1.1. Of the project or programme in the short term
		4.1.2. Envisaged future of the project or programme; capability to evolve
		4.1.3. Serviceability
		4.1.4. Investment efficiency
	4.2 - ECONOMIC DEVELOPMENT	4.2.1. Direct economic impacts
		4.2.2. Induced and indirect economic impacts
		4.2.3. Regional development
		4.2.4. Job creation
		4.2.5. Economic partnerships
		4.2.6. Synergies with other developments
		4.2.7. Poverty alleviation
	4.3 - LIFE-CYCLE COSTING	4.3.1. Simple evaluation (investment & operation & maintenance)
4.3.2. Whole life-cycle costing (including external costs, dismantling and costs avoided)		
4.3.3. Risk limitation costs		

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