Sustainable neighbourhoods:
Assessment tools for renovation and development

Published as: Blum, A. and Grant, M., (2006) Sustainable neighbourhoods: Assessment tools for renovation and development, Journal of International Research Publications, Present Online, Issue Ecology, Vol 1, p35-52 ISBN/ISSN: 1311-8978

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**KEYWORDS:**, European Union (EU), Research & development, Urban regeneration

**ABSTRACT**

The main results of the of the European FP5 Project “Sustainable Renovation of Buildings for Sustainable Neighbourhoods” (HQE²R – Haute Qualité Environnementale et Economique Réhabilitation; http://hqe2r.cstb.fr) are a general approach and the necessary tools to promote sustainable development and quality of life on the crucial and likewise challenging level of urban neighbourhoods: The HQE²R toolkit for sustainable neighbourhood regeneration.

This paper presents one of the major parts of the toolkit, the “HQE²R index and directory of assessment tools for the built environment”. After a short section on “What is a sustainable neighbourhood”, theoretical basics of the assessment of urban development projects are presented. The third part gives a brief description of selected examples of existing European evaluation approaches and certificates for sustainable construction on building and neighbourhood scale including an introduction to the HQE²R tools “INDI” (INDicator based sustainability Impact assessment), “ENVI” for environmental concerns and “ASCOT” for the estimation of sustainability related construction costs. The paper concludes with a summary of the assessment experience made within the demonstration neighbourhoods being partners within the project.

1. **INTRODUCTION**

This paper presents the “HQE²R index and directory of assessment tools for the built environment”. This directory of assessment tools for the sustainable development of urban neighbourhoods was compiled as a deliverable within the European FP5 research and demonstration project HQE²R (http://hqe2r.cstb.fr). HQE²R stands for “High Quality Environment and Economy in Regeneration” – the target of the project under the full title “Sustainable Renovation of Buildings for Sustainable Neighbourhoods”. The main outcome of the project is a methodological framework and toolkit to support the decision making process at different stages of neighbourhood development processes (Charlot-Valdieu et. al., 2004). One element of the toolkit is the directory which is designed to give information on the different existing approaches and instruments for inventory, diagnosis, evaluation and monitoring purposes, together making up the HQE²R understanding of the term “assessment” (Fig. 1). Not all the tools listed will be directly applicable to a particular local context, but the information and examples provided will in support the choice and/or design of locally suitable approaches to the assessment of neighbourhood regeneration projects towards sustainability.

**Figure 1:** Scheme of the HQE²R-approach and stages of assessment (Inventory, Diagnosis and Evaluation/Monitoring) for urban neighbourhood regeneration projects (Charlot-Valdieu et. al., 2004)

2. Strategic d

ecision

for sustainable

regeneration of the

neighbourhood

4. Shared SD

**d**

**iagnosis**

of the

neighbourhood

(potential,

dysfunction,

cohesion)

Participation of residents and users

Partnership (public / private)

Local Governance

12.

**Monitoring and**

**evaluation**

of the

project

: SD

monitoring indicators

9.

Urban planning

regulations including SD

recommendations

11. Projects upon the

neighbourhood with

SD specifications

10. Projects for

Sustainable Buildings

(new & existing) with SD

specifications

5. Strategic priorities

for the

neighbourhood and

definition of

objectives for SD

1.

Identification of

problems

(

social,

environmental, technical

)

that need actions

PHASE 1 : DECISION

PHASE 2 : ANALYSIS

PHASE 3 : DECIDING UPON THE ACTION PLAN

PHASE 4 : ACTION and EVALUATION

Source: HQE²R Project (

http://hqe2r.cstb.fr

)

SD: Sustainable

Development

3.

**Inventory**

based on the

21 targets and the

integrated SD indicators

system (ISDIS)

6.

Generation

and

discussion of

scenarios

(to

identify options for

SD action)

7.

**Evaluation**

of

the scenarios

against SD

targets (INDI,

ENVI, ASCOT)

8. Action plan for

the neighbourhood

* 1. ***What is a sustainable neighbourhood?***

Any neighbourhood can be seen in as many ways as the numbers of different actors and activity fields. The identity of a neighbourhood often has more to do with its sociological context than a definition based on topography, land use or administrative categories.

Nevertheless for the practitioner – both, professional and private – concerned with urban development, urban planning and especially urban regeneration, including renovation of the built environment, the neighbourhood always also has a strong physical reality. As such, the starting point often will be a smaller or larger cluster or ensemble of buildings which need renovation with the objective of greater levels of sustainability. This may be an urban (residential) area framed by large roads or other (linear) structures or a more or less homogenous ensemble of similar types of buildings, etc. At a deeper level, it is necessary to have a closer look at how far these elements of the urban built environment are congruent with different possible notions of neighbourhood (social, economic, administrative, communities, etc.). Therefore it is especially important that the perceptions of ‘neighbourhood’, as represented by different civic and user groups are taken into account. This means both that the neighbourhood may reach beyond the physical subjects and that our physical subjects may encompass more than one neighbourhood. Development needs and measures will then be derived from the interplay of the built environment and the identified neighbourhood(s) now understood in the sense of what may be issues for the local community including e.g. neighbourhood life, urban consciousness, social and political participation and the collective management of public property.

Within the contexts of neighbourhood development and regeneration a general understanding of the meaning of sustainable development is to balance social, economic and environmental requirements linked with urban development measures. In 1987, the World Commission on Environment and Development (the Brundtland Commission), agreed a definition of sustainable development that is now generally recognised as the standard: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Bruntland, 1987) Based on this broadly applicable definition, we define sustainable development at the neighbourhood-level as a “development that responds to the local needs without compromising the ability of people globally to respond to their own needs”. So for urban regeneration initiatives, the HQE²R approach proposes the following six guiding principles of sustainable development:

**1) Economic efficiency** demands that all efforts should concentrate on solutions which represent the greatest good for the collective whole. From a sustainable development point of view this means that decisions for action plans should strive to **include all of the external costs**, whether social or environmental.

**2) Social equity** encompassing the **principle of inter-generational equity**, which requires that the needs of the present are met without compromising the ability of future generations to meet their own needs. And the **principle of** intra**-generational equity**, stating that all people currently alive have an equal right to benefit from the use of resources, both within and between countries. In the context of neighbourhood development, social equity has a strong focus on issues like **employment and housing,** services to people and the fight against **poverty and social exclusion**.

**3) Environmental caution** is seen from the point of view of **access to resources** and the impact of **pollution from different sources**. Consideration must be given to nuisances and the deterioration of both the local and the global climate and therefore of the flora and fauna which depend on their environment. The human consumption of energy and materials, being the main cause of environmental pollution, has to be reconsidered. This principle includes emphasis on the **preservation of non-renewable resources** and the **use of renewable resources** and encouragement of such for users and practioneers. In the context of neighbourhood development we have to face that “the building sector accounts for around 25-40% of final energy consumption in OECD countries” and “for between one third and one half of the commodity flow in selected OECD countries” equalling a great share of material flows (OECD, 2003).

**4) Precaution and long-term consideration**: According to the precautionary principle – e.g. as defined by the Commission of the European Communities (COM(2000) 1) – decisions must no longer be taken on the basis of short-term impact and efficiency; they must include a **prospective** way of thinking **about the future impact of an action** (reversibility, exhaustion of resources, straining of sinks, long term costs etc.)

**5) Globality**: **The global** **in relation to the local**; this means considering the impact of actions at various territorial scales, both at the local level (neighbourhood, city, conurbation) and at more global levels (region, planet). This principle also leads to thinking about **the subsidiarity of decisions** i.e. that decisions should be made at the lowest appropriate level, either by those directly affected, or on their behalf, by the authorities closest to them.

**6) Governance**: Governance on the local level for the HQE²R context is defined as a global approach and administrative duty for citizen participation i.e. notably residents, users and major socio-economic actors. It is aimed at a general climate of **public trust** and consensual process through all stages of development decisions: Starting from the collection of an inventory, definition of a diagnosis, formulation of the problems (issues) and continuing via the definition of a strategy, objectives of a project and means to be involved to the implementation and follow-up and evaluation of a project. “Good governance ensures that political, social and economic priorities are founded on a broad consensus throughout society and that the weakest and most vulnerable voices are the heart of the decision-making process as regards the allocation of resources for development” (UNDP, <http://magnet.undp.org/policy/chapter2.htm>, 10/02/2006).

* 1. ***Why use an assessment tool?***

The HQE²R case-study experience shows, that in everyday practice of urban neighbourhood development the concept of sustainability still is somewhat unwieldy for the actors involved. The complexity of issues and their interrelation on the one hand and the usually limited resources (time, budget, manpower …) together with the urgency of problems on the other, often favour routine decisions and action.

Thus, assessment tools should support engaged actors in their decision making for sustainable development. In general a good assessment tool transfers data overload into information useful for better decisions (Fig. 2). To this end – and before assessment in the narrower meaning of the term takes place – assessment tools first and foremost need to be understood as a means for better communication. By this we mean a more structured communication, where the complexity is held within the tool, allowing participants to focus better on what is important at each stage. We also mean a more productive communication, since all participants can share a common framework that deals with issues progressively within a holistic system and decision-making is made more transparent to all parties.

**Figure 2:** HQE²R assessment: From the general concept of sustainability to a specific understanding of the local situation and priorities for action, based on the HQE²R Issues and Sustainable Development Indicators (Outrequin et. al., 2004).

Assessment tools do not take the burden away from the actors involved to make their own decisions. For example the ex-ante evaluation of different development options will not necessarily lead to the implementation of one of the evaluated options. One of the first purposes of undertaking an assessment process (described above as inventory, diagnosis and evaluation) is to gain a better understanding of the whole field of action and the different related areas of possible effects. Before providing results in terms of appraisal of development options, assessment tools are critically important in providing a ‘simple’ checklist for orientation and scoping. This helps the stakeholders to ask the right questions. Through this the assessment process may also lead to the discovery of new points of view and a final decision that goes beyond the initial options.

As such, assessment tools can play a significant role in capacity raising and learning for practitioners about what sustainability means in their locality. The assessment tool provides an impartial framework for exchange and consensus building between the involved stakeholders: A tool to talk. And even if the final decision – as will most probably be the case – does not score the maximum value in all the issues assessed, the process nevertheless leads to better awareness of detailed requirements of sustainable development for the future. Attempting an assessment of sustainability issues for development projects may be seen as a foot in the door for a process that step by step leads in the right direction and keeps sustainable development issues on the agenda. Moreover, assessment processes also have the potential to be the starting point for long term approaches of monitoring future change.

For these purposes it is essential to choose an approach, that is not too tightly drawn in scope, or – if tools for specific issues are needed – not to just rely on only one of them. Obviously, the choice of an assessment approach or tool to a certain extent predefines the results. Some typical questions guiding the choice of assessment tools in practice are briefly discussed in the next section

1. **PRACTICING ASSESSMENT IN NEIGHBOURHOOD REGENERATION PROJECTS**

The experience from the HQE²R case studies led to the general recommendation for the practitioner interested in sustainable development to adopt a two level approach:

1. To start with an overarching screening tool for a first orientation and then
2. to apply selected tools suitable for specific tasks (e.g. the assessment of environmental impacts) or identified details (as for example the energy efficiency of buildings).

The HQE²R directory of assessment tools for sustainable neighbourhood renovation and development particularly supports this second step. It provides information about existing tools and approaches for different specific issues and levels of operation.

* 1. ***What kind of development are you involved with?***

It makes a major difference, whether the development concerns new building projects or deals with the existing building stock. New building projects facilitate the employment of the most recent technology, materials and experience to build, for example, superior energy or access standards. Developments using the existing building stock contribute to the conservation of natural resources (material, land in particular) and cultural heritage and identity.

In the first case, tools are needed to ensure that the opportunities of new build are really used by applying tough criteria for all issues of sustainable development. In the second case tools are more important for the assessment of the initial situation e.g. the presence of harmful substances, also it may be necessary to deal with demolition tasks (e.g. reuse/recycling of building materials / building waste separation etc.)

For developments concerned with technical infrastructure or built and unbuilt open spaces of the city there are hardly any specific assessment tools. However, the HQE²R framework was designed to be applied and offer guidance for these developments.

* 1. ***Where are you in the planning process?***

From a sustainability point of view assessment of developments is not effective with an end of pipe approach, this would amount to just identifying “bad practice”. It is widely recognized, that modification becomes more difficult the further a process is advanced. Any assessment approach should start at the earliest phase. Although it is never too late to get engaged with sustainable neighbourhood development. One entry point may be the stage at which it is necessary to judge the outcomes of a call for tenders.

When reviewing options and alternatives for action examination needs to be more detailed in the later stages and therefore more detailed decision support tools are needed. It may however be useful to engage a more general scoping tool like the HQE²R INDI even if sustainable development considerations appear for the first time in later stages. A fast screening at later stages will help to ensure that the most important issues are addressed and help to identify blind spots. In the latter case, a review of specific elements of the process may be appropriate so as to include the issues that had been overseen previously.

* 1. ***How much time do you have?***

A fundamental principle of sustainability assumes careful consideration (precaution) and when applied to the development processes would tend towards reduction of pace.

However, under condition of limited time it is essential to make sure that at least all relevant issues have an equal chance to be considered and that decisions are justified (and not just taken by routine, because “it always worked like that …”). Transparency is another important principle for sustainable processes.

A starting point here might be a checklist, which comprehensively covers basic sustainability issues. According to the governance principle of sustainability this should be dealt with in a participatory process involving all actors concerned. The checklist should enable documentation of the reason for decisions in favour of or against specific issues and the respective positions and attitudes of different interest groups. In addition – under pressure of time – assessment prior to decision should especially take into account the changeability and reversibility of actions.

* 1. ***Do you want a comprehensive appraisal or are you concerned with a specialist assessment topic?***

According to the precautionary principle any development process towards sustainability should start with a comprehensive appraisal: “Finding the correct balance so that the proportionate, non-discriminatory, transparent and coherent actions can be taken, requires a structured decision-making process with detailed scientific and other objective information.” (Commission of the European Communities, 2000) A minimum requirement would be the use of a fast screening tool. This would ensure a rapid check of all issues of sustainable development in order to identify strong and weak points and areas requiring in depth assessment.

In depth assessments; dealing with specialist topics of sustainable neighbourhood development, like energy consumption, diversity of social structure, diversity of housing etc., need specific tools. The toolkit (Charlat-Valdier, 2004) documents such tools for the assessment of specific elements in the urban built environment.

* 1. *What resources do you have?*

A comprehensive inventory is one of the first steps of every urban/neighbourhood development initiative. Especially when resources are tight, integrating sustainable development issues at a very early stage is highly recommended. Experience shows that, in all cases, it is more expensive to introduce additional issues at later stages. At the same time examples – like the German “Planning Cell” approach producing qualified “citizen reports” (see Dienel, 1992; for a short description) show that dialogue with a concerned interest groups should be considered not a barrier to implementation but a resource for valuable input.

HQE²R provides a methodological framework and toolkit that can be utilized on different levels by interested actors without external expertise to a great extend. Nevertheless the employment of external expertise may be helpful (e.g. for the management of participation procedures or concerning detailed analyses of specific issues).

* 1. ***Who is your audience?***

Assessment processes in general have three basic columns: Documentation, Appraisal and Communication (Fig. 3)



**Figure 3:** Three columns of performance assessment (modified from Blum, 2001)

In order to support decision making processes the output of assessments has to be designed according to the requirements of the target group(s). While experts may be able to deal with extensive reports, political actors or the general public may favour short, sometimes even symbolic representations of main results. The assessment tool(s) employed should therefore be able to tell the same “story” in different ways.

1. **ASSESSMENT TOOLS ON SINGLE BUILDING AND NEIGHBOURHOOD LEVEL – EXAMPLES**

As a baseline for the development of the HQE²R assessment toolkit an inventory of existing approaches to the assessment of the built environment was conducted. A diversity of schemes exist. However most of them have a strong focus on environmental issues and the majority are designed for the building scale on the one hand or looking more globally at the urban scale on the other. One of the challenges of the HQE²R research was to define an appropriate level of detail for the neighbourhood scale. For a first impression a selection of tools is briefly introduced on the following pages: The BREEAM scheme (UK) that may be considered the “mother” of building assessment schemes, the “ImmoPass” approach (D), a well institutionalized approach explicitly directed towards sustainability, and the HQE²R ASCOT model that focuses on sustainability related construction costs and savings; all are examples of (single) building scale tasks. Following these the HQE²R INDI, a fast screening tool, HQE²R ENVI, for environmental issues and the Regeneration Balance Sheet (UK), a pragmatic baseline setting scheme; are examples at the neighbourhood scale.

* 1. ***Building scale tools***
		1. *The BREEAM scheme (UK)*

The Building Research Establishment Environmental Assessment Method (BREEAM) has been widely adopted in the UK and provides a simple means of comparison of buildings with a focus on environmental criteria. It is relatively easy to use (although some specialist work may be required) and the results are readily understood.

BREEAM was developed by the main UK building research institute (Building Research Establishment; BRE) as a way of encouraging the production of environmentally friendly buildings by government and by private sector building owners. BREEAM initially found a demand in the (office) building industry for certification of superior environmental performance buildings (BRE, 1993). Currently users users are housebuilders and developers of larger groups of buildings. BREEAM schemes today cover offices, homes (Rao et. al., 2000), industrial units, retail units and schools.

The scope of the tool encompasses the three levels “global”, “local” and “indoor”. Advice is given to those concerned with the design, management and maintenance of buildings. The elements covered may partly be specified by architects, surveyors or engineers. Mandatory issues are: CO2 emission rate, ozone depletion potential, sustainable solid timber and timber panels, waste management, formaldehyde emissions. Results are expressed in the form of “added value” which will improve a new building’s position in the market place.

The assessment is based on “credits” awarded against a set of performance criteria. To obtain certification at least 12 out of 22 issues have to be assessed (6 mandatory, 6 optional). To fulfil the criteria, the performance has to exceed legal requirements. The assessment, carried out at the design stage, leads to a result of pass, good, very good or excellent. The formal outcome is a certificate which enables owners to gain recognition for their building’s environmental performance.

Although the title of this tool suggests an orientation primarily towards environmental issues this method is appropriate for assessment of all development activities at the building scale on a wide range of sustainability issues.

* + 1. *The “ImmoPass” approach (D)*

The German “ImmoPass” (“Real-Estate-Passport”) is a checklist, documentation-structure and assessment tool for sustainable building qualities, edited and supplied by DEKRA Umwelt GmbH on initiative of HypoVereinsbank, Germany (DEKRA, 2000). DEKRA is a group of enterprises offering technical inspection, assessment, consultancy, and certification in different fields of engineering; DEKRA Umwelt is the environmental branch of Dekra. HypoVereinsbank is one of the largest German real estate financing institutions.

The approach aims at sustainability issues (“holistic approach” combining healthy housing, energy savings, good quality and environmentally friendly building). It was designed for new and existing buildings and claims that it is suitable for all types of buildings. It is suitable at different stages of the planning and construction process. The six topics of certification are the building (conception), open/green space, healthy housing, environment, domestic services/plumbing (water, heating etc.) and building-quality after completion.

Main categories of criteria are

* Economy: cost-optimum for the realisation of the need for a building looking at the whole life-cycle (building, use, maintenance (lifecycle of building elements), refurbishment, dismantling/demolition and deposit)
* Ecology: energy, recycling, minimisation of the use of land, avoiding damages in buildings, avoiding toxic substances (indoor and outdoor)
* Social: user-friendly, payable housing, integration of users in planning and maintenance, interlinkage of housing, working, culture, supply, recreation, health characteristics.

The assessment process has two phases. It starts with a planning check on the basis of plans and specifications and continues with three quality-audits on the building site including a final analysis of indoor climate.

The assessment follows a credit-scheme with more than 80 pass/fail criteria with one credit each. To receive certification (“Building Passport”) a minimum of credits has to be achieved for the six checked topics. The results are presented as a detailed report listing all criteria, the reports of the quality-audits on site and a rose-chart, presenting the percentage of credits relative to the minimum for each of the six topics. The final document thereby gives a quick orientation about the overall quality of the building, backed up by more comprehensive information.

* + 1. *The ASCOT model (HQE²R)*

The purpose of the ASCOT tool (Mørck, 2004)is to assist the user in evaluating and optimising the economic costs of a building renovation project in relation to sustainable development issues. Ascot was developed by Cenergia Energy Consultants under the framework of the HQE²R project. The tool is primarily intended for use in the early stage of the design process and can be used for new construction and renovation.

The ASCOT model allows a comparison between a traditional (reference) building renovation and different sustainable renovation scenarios. This comparison takes into account usage savings during the total lifetime of the building and the frequency of future replacement of building components and systems (Fig. 4).

**Figure 4:** Example for an HQE²R ASCOT results page (Mørck, 2004)

The tool is designed to take into consideration:

* all investment and operation costs over the total lifetime of the building;
* the savings from the investments with respect to sustainable issues (energy, water, waste) over the total lifespan of the building
* the reduced environmental impact from the energy savings.

The ASCOT tool is characterised by a simple structure that is very flexible to future changes and upgrading. It is useful when a quick evaluation of the economic consequences of alternative sustainable solutions for a building project is required. Its use and results are easy to understand - enabling a steep learning curve. The ASCOT tool will be continuously developed – the intention is to cover all countries of Europe. This means that it will be possible to introduce new climates and to adjust energy prices and building component prices to local conditions. For future development it is also intended to integrate the social or environmental and other external costs.

* 1. ***Neighbourhood scale tools***
		1. *The INDI model (HQE²R)*

The INDI (INDicator-based Impact-assessment) model is a result of the HQE²R project developed under the leadership of the French partners CSTB and La Calade (Outrequin et. al., 2004). It was tested in different HQE²R partner neighbourhoods for sustainable neighbourhood regeneration in Europe. It is a communication and decision support tool, which visualises the results of impact assessment of different scenarios in a neighbourhood. The possibility of comparison between these scenarios supports the choice of measures and the design of an action plan for the neighbourhood.

The sustainability (potential) of the neighbourhood is measured on a “sustainability scale”. Sustainability within the HQE²R approach is defined by 6 principles (economic efficiency, social equity, environmental quality, long term, global, governance) and 5 global objectives:

* To preserve and enhance heritage and conserve resources
* To improve the quality of the local environment
* To ensure diversity
* To improve integration
* To reinforce social life

The model works with 63 sustainable development indicators, which are linked to the 5 objectives and their 21 more detailed targets. For each target the model proposes one to four indicators. The total number of indicators is intended to be a compromise between a usable tool which is easy and simple to work with and on the other hand the necessity of comprehensively covering the wide range of sustainable development issues and their interacting relations.

The tool consists of a spreadsheet where the user has to fill in the quantitative or qualitative values for the neighbourhood for each indicator. The values are then interpreted on a predefined but adjustable sustainability scale. The model then allows aggregations of the indicators in order to judge the performance of the neighbourhood according to each target and eventually the five sustainable development objectives. It can produce different charts of the results to stimulate discussion, for example to compare the impact of different scenarios.

Experience from the HQE²R neighbourhoods shows that beside assessment purposes, the INDI framework offers a valuable neutral space for the definition and prioritisation of locally relevant issues. Discussions amongst involved actors and adapting the default settings and weightings of the model to the local context supports the development of a shared local understanding of sustainable development.

* + 1. *The ENVI model (HQE²R)*

The ENVI (ENVironmental Impact) model was developed within the HQE²R project, researched by CSTB and La Calade (Outrequin, 2004), in association with partners from Electricité de France (EDF). The model gives a tool to municipalities and their local partners in neighbourhood regeneration projects, which calculates the different environmental impacts of various scenarios in the neighbourhood. Among other it is designed to support environmental impact assessments according to the European Directive 2001/42/CE.

For the practitioner the model is presented in a software calculation package with a menu to enter parameters describing the neighbourhood (e.g. population, surface area, transportation). For missing data the tool suggests default values which are for the pilot version tailored to the situation in France. The model has three major components mirroring the different sectors of the neighbourhood (residential, tertiary and mobility). For the evaluation of scenarios the tool assesses the impacts of scenarios on each variable in a quantitative way.

**Figure 5:** Screenshot of a results presentation on neighbourhood level from the pilot-version of the HQE²R ENVI model (Outrequin, 2004)

The tool shows the state and/or potential impacts along the following variables:

* Energy consumption, pollutants and greenhouse gas emission linked to the buildings and the transportation system,
* Water consumption and rainwater reuse,
* Land use,
* Waste quantities (refuse not recycled or reused),
* Use of renewable energy sources

The output can be displayed as tables or charts as well as thematic maps (Fig.5).

As a pilot model the predefined leverage points, fundamental data (characteristic of energy production and consumption for example) and default values are reflecting the situation in France. For a use in other countries the tool has to be adapted.

* + 1. *The Regeneration Balance Sheet (UK)*

The Regeneration Balance Sheet (Robbins, 2002) is useful for ensuring that evaluation maintains a focus on the full range of benefits which might be derived from regeneration; social, economic and environmental. It is easily understood by all stakeholders and fulfils a number of different functions:

* It provides an easy to read checklist of the issues to be covered in an evaluation and summarises in a simple diagram the points that need to be considered.
* It provides a systematic basis for the collection of information.
* It offers a useful framework for presentation of evaluation results.
* It is a useful tool for explaining to non-professionals (i.e. local residents) what evaluation is about.

The Balance Sheet can be used in different ways: As a checklist; a tick being placed in each box to confirm that the information is available to make an evaluation. As a summary evaluation; with the boxes made much larger, you would be able to write into each box what had been the baseline, objectives, indicators and outcomes. The extent to which objectives had been achieved could be marked off and a simple observation about the direction of change could be made (i.e. better or worse). As well as individual themes, such as employment or housing, the balance sheet considers also procedural issues, e.g. how a partnership functioned and whether residents thought the neighbourhood had improved. A systematic approach is taken to each theme, moving from baseline to objectives, indicators and outcomes.

Any number of themes may be included in the balance sheet, according to the focus of the regeneration. Some typical ones are:

* Issues of sustainable development; Inhabitants and users, activities, mobility, housing, facilities, non-built spaces, ecosystem
* Processes of partnership; partnership and partners, community involvement
* Effectiveness; targeting, value for money
* Perceptions of benefit: resident satisfaction, image

The Regeneration Balance Sheet can be a useful tool for providing a structure to an evaluation and giving an overview of all its elements. Given the complexity of any neighbourhood regeneration process and if directed towards sustainability in particular this is by no means simple. It can be used at the later stage of the assessment, i.e. the ‘evaluation’ stage as opposed to the inventory or diagnosis stage. The table format is useful for giving an overview, summarising outcomes and making presentations and could also be used as the basis for an evaluation report, each cell being taken as a section of the report.

The tool has been developed in training materials produced by the Cities Research Centre at University of the west of England (UWE; <http://www.uwe.ac.uk/fbe/cities>) and commissioned by the UK Department of Transport, Local Government and the Regions. The balance sheet has proven to be a valuable and easy to use scheme for a quick start up.

1. **CONCLUSIONS**

The HQE²R case-study experience shows that in everyday practice of urban neighbourhood development the concept of sustainability still is somewhat unwieldy for the actors involved: The “Doeners” – term used in The Netherlands by and for “People who are doing”, implicitly distinguishing them(selves) from waverers – who are suspicious. The co-operation of research, consultancy and practice has been proven fruitful. The HQE²R-approach is one of “constructive irritation”; it is designed to contest usual perspectives and patterns of procedure and at the same time to provide a comprehensive, well structured and impartial framework and toolbox for analysis and action.

Although the HQE²R experience also shows that in general local urgent problems have to be addressed before the actors involved are open to sustainable development considerations, the comprehensive HQE²R-framework is very useful as a “foot in the door”. Once on the table it helps to keep sustainable development on the agenda by suggesting a framework of issues to be dealt with and criteria to measure success. Of course, the HQE²R-toolkit could still use some improvements – e.g. the treatment of externalities within the cost calculation model or methodological questions of the sampling of urban structural units for assessment at the neighbourhood level. But even if the HQE²R approach does not always provide the perfect answer in terms of facts and figures it helps at least to ask the right questions, which is not at all trivial.

The practitioners involved with the project agreed, that beside the purpose of assessment and certification of ecological better building practice; the catalogue of environmental criteria was very valuable as a “Tool to Talk”. Whether an assessment takes place in the end or not, the schemes can be and were used in discussions with the various players in the building sector making them more sensitive to a holistic view, integrating environmental, economic and social issues. This is an important outcome especially if we keep in mind that sustainable development – although scientifically discussed for some time – is, in practice still a young concept and we are only at the beginning of a long process.

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