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# **HQE<sup>2</sup>R – Sustainable Renovation of Buildings for Sustainable Neighbourhoods – Global Methodology**

**Andreas Blum**

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# **HQE<sup>2</sup>R – Sustainable Renovation of Buildings for Sustainable Neighbourhoods – Global Methodology**

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## **INTRODUCTION**

The Institute of Ecological and Regional Development is the German contractor within the project “Sustainable Renovation of Buildings for Sustainable Neighbourhoods” (HQE<sup>2</sup>R – Haute Qualité Environnementale et Economique Réhabilitation), funded by the EC under the Fifth Framework Programme. The project started in June 2001 and will continue until December 2003. Co-ordinated by CSTB France (Centre Scientifique et Technique du Bâtiment) it combines research and demonstration aspects by co-operation of 10 European partners in connection with 15 municipal case studies.

The project’s objective is to develop a new methodology and the necessary tools to promote sustainable development and quality of life on the crucial and likewise challenging level of urban neighbourhoods. HQE<sup>2</sup>R will be a decision support tool for municipalities and their local partners, focussing on the aims of inhabitants and users of neighbourhoods. In its integrated approach it is meant to be a framework generally applicable in Europe. The project is using the case studies as model neighbourhoods for the methodology to be provided.

This paper presents the basic cornerstones of the global HQE<sup>2</sup>R methodology as a part of work in progress. The works that are basic to this paper are the result of teamwork within HQE<sup>2</sup>R (see references). Nevertheless the author remains responsible for the contents and correctness of this paper.

## **THE NEIGHBOURHOOD AND SUSTAINABLE DEVELOPMENT OBJECTIVES**

The neighbourhood as the object of research and (proposals for) development action is not only relevant because it represents an effective scale of intervention for dealing with certain ecological or social problems or for implementing a participative approach. Apart from this, it is a real-life terrain – frequented daily, committed or not, but never neutral. And even if neighbourhood life no longer characterises urban life, it still hasn’t disappeared and might even benefit from a revival. Nevertheless it is quite difficult to agree on a common definition of what is a neighbourhood especially within an international project. So the first steps within HQE<sup>2</sup>R were about clarifying the neighbourhood and sustainability-approach.

### ***The Neighbourhood***

The neighbourhood can be seen in as many ways as activity fields do exist for the subject, starting from sociology, via urban- and regional planning and architecture to economy. To make it even more difficult, what is regarded a neighbourhood may also differ with the different actors / users involved.

Therefore HQE<sup>2</sup>R started with the definition of a common subject of research. In a first instance this was defined very formal and physical: Subject of HQE<sup>2</sup>R first of all is a cluster or ensemble of buildings / built urban environment with a need for renovation towards sustainability of the built environment. 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. (“urban structural types”) and might be chosen quite liberally. Once having identified these clusters – roughly predefined by our case-study-areas and structured along spatial elements (see below) – we will in a second step look a little closer how far

these “micro-urban territories” are congruent with different possible notions of neighbourhood (social, economic, administrative, related to user groups etc.) or to what extent we have to widen (or sharpen) the scope of investigation as far as the sustainability of neighbourhood(s) is concerned. Thereby we should especially take into account the perception of “neighbourhood” as represented by different user groups / stakeholders within these areas. This means the “neighbourhood” may reach beyond our physical subject or our physical subject may encompass more than one neighbourhood.

Following this approach of explication rather than definition, HQE<sup>2</sup>R does not necessarily demand a common understanding of the notion of neighbourhood. Nevertheless HQE<sup>2</sup>R comes with an underlying consensus, that the identity of a neighbourhood has more to do with a sociological context than a purely geographic or administrative definition. Starting from this, we can retain several features which will have great importance in defining neighbourhoods (Charlot-Valdieu et al., 2002a). Each of these issues contributes to the identification, explanation and role of a neighbourhood within the urban context:

- The inhabitants having a sense of community, or belonging to the community, derived from local centres, services and a sense of place or specific symbolic elements, neighbourhood life, the collective management of public property.
- Urban consciousness, social and political participation, founding history of the neighbourhood.
- Economic characteristics.
- The area’s functions and role in the city.
- Physical cohesion created by the dominant architectural style and the arrangement of public space.
- Urban morphology as well as its topography and natural aspects.

As already introduced above these last two points describe the physically or rather spatially defined starting point when approaching a neighbourhood – at that time merely a “micro-urban territory”: Since HQE<sup>2</sup>R has “renovation” in its core and “renovation” in its core is directed towards the built environment, the elements for analysis are represented by different built and non-built structures. Therefore the following four categories, together with the sustainable development objectives (see below) define the framework for analysis and further work:

### **Residential space**

The habitat always lies at the centre of urban refurbishment policies and the forms and styles of housing/dwelling are often decisive in characterising the neighbourhoods and predetermining its development. This element includes the whole volume occupied by the residential space including gardens and private spaces around housings.

### **Non – Residential space**

This element includes both: Buildings and spaces hosting *facilities and services* and *activities in the industrial and tertiary sectors* which are present in the neighbourhood. Facilities and services contribute towards the social link by providing also the flows of information needed by the neighbourhoods’ inhabitants. Public, social, and cultural services will be included in this category, together with public amenities. Private services to the individual (human services) should also be included in this category where they fulfil a “proximity” function.

*Activities in the industrial and tertiary sectors* bear witness to the economic, industrial or commercial vocation of the neighbourhood. They may form the structuring backbone, as was the case in the past for the textile or mining industries. The activities may also form poles of attraction for the city or conurbation (cultural, sporting, economic etc...).

For these two categories - facilities and services on one hand and activities on the other - the dividing line is that of spatial relevance. In the first category, we find close-to-hand amenities and activities, mainly (but not exclusively) to meet the local needs of the neighbourhood inhabitants whereas, in the second category, we find amenities or activities physically present in the neighbourhood but the purpose of which is to meet the requirements or operate with populations coming from the entire city or conurbation or from even greater distances.

### **Non-Built space**

This element includes all the parts of the neighbourhood which are not built even if they are not really natural. They are the green spaces, the woods and all the natural areas. These spaces are distinguished from the housings and from private green space surroundings (see above). In fact, they are mainly public open spaces.

### **Infrastructure**

It includes all the technical infrastructure present in the neighbourhood: roads, streets, pavements and networks (electricity, gas, water, district heating, communication, ...)

These four elements constitute the physical superstructures of the neighbourhood which must be used by the inhabitants and the users. In addition to its basically physical character therefore these elements are represented also at a more social scale: The uses of the structures. In consequence within the HQE<sup>2</sup>R-methodology each element will be studied at these two scales: The structures and the uses (Table 1).

Table 1.: Neighbourhood-elements by structure and use (Charlot-Valdieu et al., 2002a)

<b>Neighbourhood Element</b>	<b>Structure</b>	<b>Use</b>
<b><i>Residential Space</i></b>	housing stock, envelope and equipment quality,...	inhabitants distribution by status, age, profession; energy consumption, ...
<b><i>Non – Residential Space</i></b>	building stock, envelope and equipment quality,...	type of uses, users coming from inside the neighbourhood or not, ...
<b><i>Non – Built Space</i></b>	green spaces surfaces and quality,	use of green spaces, cleanliness, safety,...
<b><i>Infrastructure</i></b>	roads length, networks quality, public transport supply,...	Mobility of inhabitants, inter-modal distribution, energy, water and material flows,...

### ***Sustainable Development Objectives***

To apply a procedure for sustainable neighbourhood development, it is necessary to define sustainable development objectives for the neighbourhood. These local objectives must finally be set by the local community, in accordance with joint consultation procedures that will have to be defined. As a starting point for this process within HQE<sup>2</sup>R a common set of sustainable development principles and objectives was defined on a general basis, which have to be specifically adapted to the territorial scale of the neighbourhood.

Resting on a general concept of sustainable development with the idea of a triple dividend – economic efficiency, social solidarity and environmental caution – in its core, the following guiding principles of sustainable development were identified:

- Thinking global: Territorial approaches can only be sustainable when they are accompanied by an analysis of the territory in terms of its local (neighbourhood, city) and global (agglomeration, region, country, planet) environment.
- Taking long-term-developments into consideration as well as its relation with the present (conceiving future changes and possible reversibility / adaptability).
- Participation of the population in the decision making process.
- Principles of precaution and prevention, integration and solidarity.

With regard to these principles, five (A to E) overall objectives are proposed for building and neighbourhood development towards sustainability: A - to improve Diversity, B - to improve Integration, C - to preserve and valorise Heritage (natural and cultural), D – to improve Quality of Life, E - to reinforce Social Link

Together with the general elements of a neighbourhood these 5 overall objectives (and 21 more detailed general targets below them) build the basic framework for the analysis and development toolbox for neighbourhoods to be elaborated within HQE<sup>2</sup>R. Resting on this framework a global methodology was developed that will serve as a common core for analysis, diagnosis and action planning towards sustainability within the HQE<sup>2</sup>R-case-study-areas. It is at the same time the starting point and nucleus for the further development of the final HQE<sup>2</sup>R-methodology.

### **THE HQE<sup>2</sup>R GLOBAL METHODOLOGY**

Sustainable development must lead to a “policy and strategy aiming at continuing development in time of economic and social development, whilst complying with the environment and without jeopardising the natural resources that are indispensable to human activity” (European Commission, 1992). It must also reside on true governance, defined as an overall approach to the participation of inhabitants, users and socio-economic players of the neighbourhood in expressing the problem, defining the objectives of a project and defining the strategy including the means assigned, in implementing, monitoring and evaluating the project. These principles also lie at the heart of Local Agenda 21 processes and in fact the starting point for sustainable neighbourhood development might be described as entering an LA21 process on the neighbourhood scale, ideally embedded into an urban LA21 process.

In general HQE<sup>2</sup>R will be a strong decision aid tool for municipalities and their local partners (such as public administration, social owners, city planners, residents, local economy...) which will direct them towards sustainable reconstruction of their cities and improved quality of life. In its core it is to assess different development paths for neighbourhoods (scenarios) against defined sustainable development targets. Thereby the term assessment encompasses the three stages inventory, diagnosis and evaluation. A crucial principle of the approach is participation of all involved or concerned parties from the beginning. This participation will encompass different forms from information (to give the information to the population) via consultation (to ask for comments of the population), dialogue (to take into account advice of the population) up to co-operation (to decide and possibly act in a common process).

The process starts with an inventory, that analyses the starting situation with a wide scope. This inventory must concern both all the fields of sustainable development (economy, social and environment) and bring up items of information applicable to each of the global sustainable development objectives.

Thereby the scope is defined by crossing the sustainable development objectives (and targets with the neighbourhood elements. This cross-coverage leads to the drawing up of an analytical grid consisting of 20 major fields, as shown in table 2.

Table 2: The analytical grid for the built environment and neighbourhood: Sustainable development objectives by spatial neighbourhood-elements

	<i>Residential Space</i>	<i>Non – Residential Space</i>	<i>Non – Built Space</i>	<i>Infrastructure</i>
<b>Improve Diversity</b>				
<b>Improve Integration</b>		20 analytical fields as a shared guiding framework and basis of the specific works in the case-study-areas.		
<b>Preserve and valorise Heritage</b>				
<b>Improve Quality of Life</b>				
<b>Reinforce Social Link</b>				

The analytical grid comes into action first within the inventory of the case-study-areas. For each of the 20 fields an inventory checklist is prepared to set up a framework guiding the works in the case-study areas. The checklists provide an explanation of the understanding of the sustainable development objective for the specific field and a set of suggested questions to be answered and information to be collected during inventory and diagnosis. Furthermore a set of indisputable core-indicators was designed as a consensus on a minimum scope for assessment (Charlot-Valdieu et al., 2002b). The checklists at the moment have provisional character for the use in the case-study-areas. The results and experience of these demonstration works will be used to further develop and refine these pilot version into specific inventory sheets as a tool within the final HQE<sup>2</sup>R-methodology.

After finishing the inventory the definition of what is essential in the neighbourhood is achieved by establishing a *diagnosis*. The objective of the diagnosis is to highlight the situation of the neighbourhood for optimal definition of the strategies or plans of action towards sustainable development. It is not a matter of evaluating public policies as a whole (municipal policies and those of the partners involved) but of proposing scenarios on how the neighbourhood might develop towards the five global objectives of sustainable development as well as the 21 targets. By definition, this is a cross-cutting approach, encompassing all sectors and services of the city.

The diagnosis in a first step as a result of a *“preliminary assessment”* ensures the identification of issues (energy consumption, healthy housing, social services, networks, local economic development ...) meaningful for the further development of the neighbourhood. It presents the strong and weak points and will be the basis to derive, to justify and to argue the proposals for actions or solutions with respect to the situation defined in the inventory.

On completion of the phase of diagnosis the local objectives of sustainable development are determined by defining the *stakes* for sustainable development of the neighbourhood. This is done at a given moment with regards to the positions and interests of the different local stakeholders (inhabitants, local elected officials, municipal services, consultants, entrepreneurs ...) but cross-checking the global sustainability targets. Defining the stakes first of all is understood as a means to organise the identified development issues and problems into a *hierarchy of action* in terms of such to be tackled at short, medium and long term. For this *“ex-ante evaluation”* on the basis of development scenarios it might in a second step be necessary to analyse defined crucial issues in greater detail with the help of specific tools – *“decision support”*. For this purpose HQE<sup>2</sup>R comprises also a comprehensive documentation and discussion of tools and methods for the assessment (inventory, diagnosis and evaluation) of the built environment towards sustainability existing in the partner countries (Antonini et al. 2002) and will furthermore as a final result suggest approaches specifically adapted for the use on the neighbourhood scale.

The last phase within HQE<sup>2</sup>R comprises the choice of sustainable development indicators for *evaluation*. This choice has to reflect the neighbourhood's specific sustainable development issues and objectives but is supported by the set of pre-defined ("indisputable") core indicators (Charlot-Valdieu et al, 2002b). According to the local situation the evaluation might furthermore be designed as the starting point of a long term monitoring.

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