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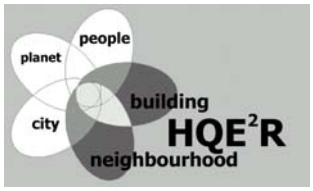

HQE²R – an European Assessment Tool Towards Sustainable Neighbourhoods

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INTRODUCTION

The Institute of Ecological and Regional Development (IOER) is the German contractor within the project "Sustainable Renovation of Buildings for Sustainable Neighbourhoods" (HQE²R – Haute Qualité Environnementale et Economique Réhabilitation), partially funded by the EC under the Fifth Framework Programme. The project started in July 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 ten European partners examining 15 international 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. HQE²R 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 generally applicable in Europe. The project is using the case studies as model neighbourhoods for the methodological framework to be provided.

This paper presents the basic cornerstones of the global HQE²R methodology as a part of work in progress. The works that are basic to this paper are the result of teamwork within HQE²R (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 development action represents an effective scale of intervention for dealing with certain ecological or social problems or for implementing a participative approach. 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 HQE²R 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 HQE²R started with the definition of a common subject of research. In a first instance this was defined very formal and physical: Subject of HQE²R 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 extend 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, HQE²R does not necessarily require a common understanding of the notion of neighbourhood. Nevertheless HQE²R 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:

- 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,
- 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 HQE²R has "renovation" in its core and 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 shape / the types of buildings and the architectural styles are often decisive in characterising the neighbourhoods and predetermining its development. These elements include the whole area occupied by the residential space including surface areas for common use and private green spaces on site.

Non – Residential space
This element includes both: Premises with 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. Private services to the individual (human services) should also be included in this category where they fulfil a "proximity" function.

The extend and structure of activities in the industrial and tertiary sectors establish the economic, industrial or commercial reputation 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 on site (see above). In fact, they are mainly public open spaces.

Infrastructure
It includes all the built elements and parts of the technical infrastructure present in the neighbourhood like railway tracks, roads, bridges, tunnels, sewage systems, gas pipes or power lines.

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 HQE²R-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 (see also Charlot-Valdieu et al., 2002a)

Neighbourhood Element	Structure	Use
Residential Space	housing stock, envelope and equipment quality…	inhabitants distribution by status, age, profession; energy consumption …
Non – Residential Space	building stock, envelope and equipment quality…	type of uses, users coming from inside the neighbourhood or not …
Non – Built Space	green spaces surfaces and quality...	use of green spaces, cleanliness, safety…
Infrastructure	networks quality, standard of public transport, technical state of built elements…	modal split, type of energy used…

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 HQE²R a common set of sustainable development principles and objectives was defined on a general basis, which are specifically adapted to the territorial scale of the neighbourhood.

Following the general concept of sustainable development with the three main topics economic efficiency, social solidarity and environmental caution the guiding principles of sustainable development were identified as follows:

- 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 (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 HQE²R. 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 HQE²R-case-study-areas. It is at the same time the starting point and nucleus for the further development of the final HQE²R-methodology.

THE HQE²R 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 HQE²R 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) according to 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: information (to give the information to the population), consultation (to ask for comments of the population), dialogue (to take into account advice of the population) and 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 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

	Residential Space	Non – Residential Space	Non – Built Space	Infrastructure
Improve Diversity				
Improve Integration				
Preserve and valorise Heritage				
Improve Quality of Life				
Reinforce Social Link				

20 analytical fields as a shared guiding framework and basis of the specific works in the case-study-areas.

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 and the set of core-indicators 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 will refine this pilot version in order to receive specific inventory sheets as a tool within the final HQE²R-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 approach encompasses all sectors and services of the city.

The diagnosis in a first step as a result of a “preliminary assessment” ensures the identification of main 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 of the neighbourhood 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 ...) on the basis of 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 HQE²R 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 HQE²R 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.

CASE STUDY DRESDEN- LOEBTAU

In Germany the case study will be carried out in Dresden-Loebtau. Loebtau residential area is a traditional workers quarter, cut off from the city-centre by large roads, railroad infrastructure and extensive brownfield sites. Although renovation works have been supported by declaring parts of the district as "redevelopment areas" according to the federal Building Code, Loebtau is facing a high residential vacancy. There has been achieved a considerable success in renovations on building level in comparison to the extremely bad state of the buildings in the neighbourhood at the beginning of the 1990ies. The challenge is how this relative progress on the building level can be extended into sustainable neighbourhood development. Main targets therefore are to identify urban development measures towards sustainable development, especially in socio-economic terms and to find an appropriate methodology to estimate or assess the environmental effects arising from different combinations of socio-economic, urban planning and urban infrastructure measures.

The analytical grid of the HQE^{2}R methodology supplemented by a list of 21 targets specifying the sustainability objectives is now used as a framework for the analysis of the neighbourhood. The task coming up is to adjust the preliminary set of indicators derived from this analytical grid to the local condition in all the neighbourhoods observed. This will be done with the help of the local authorities and stakeholders in the neighbourhood. As the IOER is the lead partner of the project as far as the level of the buildings / the built element is concerned we like to illustrate some of the difficulties occurring in this process:

The relevance of the provisional indicators chosen within the HQE^{2}R project for the assessment of the investigation area in Dresden Loebtau depends on the specific

conditions in the investigation area. The process of building renovation in Loebtau is widely completed. Since declaring Loebtau as a redevelopment area in 1994 the vast majority of the residential buildings have been rehabilitated including the redesign of the immediate surroundings of the buildings as long as they belong to the property. This happened mainly with the help of public subsidies. For further renovation of the buildings as well as of the surroundings e.g. in respect to a stronger orientation towards sustainability it is impossible to receive bank credits due to a vacancy rate in the neighbourhood still remaining over 20%. Therefore financial preconditions for the improvement of buildings according to the principles of sustainable development can only be met for those properties to be rehabilitated in the near future. But this category consists only of a small number of cases. For the future there is only very little construction work in the private sector to be expected in the neighbourhood.

But also for the assessment of public buildings occur several problems. Even though the public buildings are not rehabilitated yet the renovation of these public buildings can not serve as an example to achieve larger effects on the process of rehabilitation of other (private) buildings as the private buildings have already been rehabilitated. Nevertheless a sustainable renovation / construction of public buildings in the neighbourhood can have positive effect as examples for the sustainable renovation of other public building in the city. But this is only relevant on the city level. These effects on the whole city can not be used for the assessment of the neighbourhood development. Besides the effects on the whole city the sustainable renovation or construction of public buildings has a positive effect on the image of the neighbourhood within the city and possibly for the identification of the residents with their neighbourhood. The assessment of these effects meets some difficulties due to the small number of public buildings in the neighbourhood. There is only one school to be rehabilitated and one day-care centre to be newly constructed. Furthermore the area the pupils come from is not the same as the investigation area.

The monitoring of the indicators at the building level will probably show a stagnancy. Nevertheless possible development needs in the neighbourhood will be shown. Even though in the short and middle term there will hardly be a great possibility for action due to financial constraints it is necessary to know the development needs. As the building level only represents one aspect of the development of the neighbourhood a stagnancy with little possibilities for action possibly stated by the monitoring of the development in this sector does not affect the usability of the set of indicators on the whole.

On the other hand the public infrastructure in the neighbourhood (sewage systems, road network etc.) is still at the beginning to be rehabilitated. Therefore indicators referring to the level of the buildings and built elements in the investigation area should attach importance to this part of the built environment. Yet the indicator “use of recycled materials for road construction“ is the only one in the preliminary list of core indicators referring to the technical infrastructure of the neighbourhood. Having the specific conditions of the Loebtau investigation area in mind the set of core indicators should be modified towards an appropriate rate of indicators measuring built elements.

A possible modification must be seen under the condition that the final set of core indicators should be suitable for international comparison. With the help of the local partners in all the neighbourhoods we now have to examine if it is possible to develop a set of core indicators allowing an international comparison of the sustainable development of neighbourhoods and the respective conditions guaranteeing the usability of the indicators and the significance of the expected results. The first workshop with all the communities involved in the project coming up soon will be of great importance to make another step forward in this investigation process.

Dresden 2002

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