



Environmental Policy Integration and Spatial Planning

An evaluation of the MILO and LOGO
methodologies for integral environmental and
spatial planning

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Preface

This thesis is the result of graduation research as part of the Master programme Sustainable Development at the University of Utrecht. The research was conducted during an eight months internship at the National Institute for Public Health and Environment (RIVM) in Bilthoven.

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Abstract

In The Netherlands the living conditions are under pressure due to environmental problems and a constant pressure on land consumption, which has led to a growing awareness that environment and land use planning should be integrated. Over recent years it has become increasingly difficult for government to solve complex societal problems on their own. Today, land use policy is therefore often made in wider networks cooperating with civil society and the 'market' in relatively open and participative ways, differing from generic traditional policy-making in being area-based and more interactive. In the environmental realm similar changes took place, whereby the focal point of environmental policy is no longer only on legislation and enforcement, but is also directed towards achieving urban environmental quality and quality of life. This shift to *decentral area-specific policy-making* implies a more important role for local policy-makers, making it their task to achieve urban environmental quality or quality of life by integrating environmental aspects into local plans. Because this is an intricate matter, several initiatives were taken to facilitate these processes.

This study assesses, by means of three case studies, the applications of two of those initiatives, the MILO method (*Milieu In de LeefOmgeving*, meaning environmental aspects of the living conditions) and the LOGO method (*Lokale Gebiedstypologie and Omgevingskwaliteit*, which means local area typologies and quality of life). Both methods comprise several steps and offer tools to determine differentiated environmental (MILO) or quality of life ambitions (LOGO), as well as recommendations how to integrate these ambitions into operational plans.

Before conclusions were drawn, the outcomes of the three case studies were confronted with a frame for analysis. This frame consists of a dozen requirements for assessment, which were found on the basis of theory and a series of pilot interviews especially conducted with the aim to find the critical success factors of integral area-based policy-making.

The results show that the methods can only reduce complexity up to a certain extent and the effects largely depend on the amount of 'environmental room' to play with in the area concerned. Apart from the basic physical characteristics of the area, this 'room' is determined by the environmental pressure and the existing functions in and around the area, together responsible for the complexity of an integrating project. Yet another crucial factor with regard to this 'room' is the municipality's dedication to the environment. Moreover, a major result found in this study is that higher level decision-making neglecting the environmental consequences thereof at the area level, can seriously impede environmental integration and frustrate local initiatives to improve the quality of the living conditions.

The main recommendations are therefore that, as the need for environmental integration into urban planning is likely to become even more urgent in the near future, municipalities should be stimulated to develop integrated policy and further attempts should be made to reduce the complexity of environmental integration at the area-level by improving the existing tools and shedding more light upon the feasibility and costs of environmental measures. Means to do so, should preferably be allocated to the local level itself, as the local needs are best understood there. Besides that, environmental policy integration ought not to be limited to the area-level, but should ideally take place at higher levels of policy- and decision-making too.

Key concepts: *urban planning, urban environmental quality, quality of life, environmental policy integration (EPI), policy analysis, area-based policy, methodologies for EPI, interactiveness, effectiveness.*

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Often occurring abbreviations

EAV	Environmental Area Vision (milieugebiedsvisie)
EPI	Environmental Policy Integration
DCMR	Environmental Services for the Rijnmond Region
HEPI	Horizontal Environmental Policy Integration
LOGO	Local area typologies and quality of life (Lokale Gebiedstypologie en Omgevingskwaliteit)
MILO	Environmental aspects of the living conditions (Milieu in de Leefomgeving)
VEPI	Vertical Environmental Policy Integration
VNG	Association of Dutch Municipalities
VROM	Ministry of Public Housing, Spatial Planning and Environment
ROM	Space x Environment (Ruimtelijke Ordening x Milieu)

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Chapter 1 Introduction

1.1 Introducing the research issue

The research topic is land use and environment in The Netherlands, more specifically it is the integration of environmental policy in urban spatial planning. This means that planning and environmental policy-making are not two separate lines of policy-making, but that environmental objectives are explicitly incorporated into land use plans and policies. In The Netherlands there is a growing awareness of the need to bridge the gap between environment and spatial planning, because the environmental conditions determine the quality of living conditions. This is so because air, water, soil, noise, odour, external safety as well as the presence of parks and gardens, nature and cultural landscapes, influence human well-being in terms of health and safety (MILO guide, 2004).

But the living conditions not only depend on environmental factors and amenity, but on several other factors too, like employment, shops, recreational facilities, public transport, traffic safety, social safety, etc. (NMP4 2001). Many of these factors belong to the spatial realm, so there is a connection between planning and environment through the fact that a variety of factors from both domains affect the living conditions. In fact, turning this around, both planning and environmental policy-making share the higher goal of improving the quality of the living conditions or the quality of life (i.e. Chapin and Kaiser, 1979).

Especially in Holland, a densely populated and relatively highly urbanised country, the living conditions are under pressure. This is due both to environmental problems, as well as to urban land use change and the constant pressure on land consumption (see for instance RIVM, 2000).

Environment and planning used to be separate worlds, due to both domains having different laws and regulations, different ways of working, as well as scientific and cultural differences. For integration it is therefore necessary for the two domains to become acquainted with each other, to speak and understand each others 'languages' and cultures, and to cooperate (Hidding, 2002). In the nineties of last century several new spatial planning policies were launched, which incorporated environmental aspects. There was a policy called the ROM-policy which was the first one pre-eminently focussing on the integration of environment and planning (ROM stands for Ruimtelijke Ordening x Milieu; Spatial Planning x Environment) (Hidding, *ibid.*).

At present both the Dutch national policy for land use and the national environmental policy (VROM; Nota Ruimte 2004 and NMP4 2001) acknowledge the intertwinement of environment and planning, as well as the need to further strengthen the coherence between the two domains.

For integration purposes it is helpful that spatial planning and environment share basic characteristics. Both fields of policy-making are *multi-level*, taking place at different levels of governing, namely at the European, national, regional and the local level. They are also *multi-sector*, involving more domains than their own, like social and economic sectors. Besides that, they are *multi-dimensional* because there are many dimensions to spatial planning and environment, whereby the basic environmental dimensions of air, water and soil are elementary to planning too. And finally, in both planning and environmental policy-making there is often a multitude of stakeholders involved, so they are *multi-actor* (adapted from Hidding, 2002).

On their own, both the fields of land use planning and environmental policy are highly complex, and despite the described shared characteristics, the integration of the two is no sinecure. It is therefore that at different levels of government initiatives were taken to develop methodologies and tools to facilitate environmental integration into planning. Two examples of such initiatives are methods called MILO and LOGO. The aim of this research is to evaluate these methods and analyse which factors influence their use and the effects of their application on environmental integration processes in urban spatial planning at the municipal level.

1. 2 Background

1.2.1 Changes in land use planning and environmental policy making

The theme of this research, MILO and LOGO's effectiveness in contributing to environmental integration in planning, must be seen against the background of changes in policy-making in the two domains. As we have seen in the introduction, the ROM-policy from the Vierde nota ruimtelijke ordening (Fourth national land use plan, 1988) was the first example of a policy striving for environmental integration in land use planning. But the ROM-policy was also a break with former policy-making in the way it envisages an area specific approach of policy-making. It implies tailor made solutions for specific areas. These *tailor made plans* were a break with traditional generic policies and plans, and with those specific plans per area the complexity of land use issues further increased. This is due to the fact that general nationwide norms, views, and standards are less decisive for decision and policy making purposes, as they may vary per area. Instead, the *function* of the area concerned has become decisive and therewith gained importance, notwithstanding the fact that national legal standards and norms should still be adhered to. In spatial planning 'function' is an important concept. It concerns the societal purpose served in or by an area. The societal goal often is a specific form of use, like agriculture, industry, living, recreation, water purification or land filling (waste). It can also concern prevention of some types of uses; for example a buffer zone or groundwater protection. And the ambitions can be protection or development too. These last type of functions are for example cultural monuments, nature reserves or natural developments. All those cases are societal functions, depicting certain societal goals. In planning it is at the one hand important that a good balance is found between the different functions, and at the other hand that the natural system is taken into account whilst determining the functions (Hidding et al, 2002).

This shift to an area-specific way of working can be characterised as *decentral* policy-making, giving the local policy-makers a more important role (Kamphorst, 2006). The idea behind this is that local administrators know the local situation best and are therefore the best administrative tier for area-specific policy-making (De Roo and Visser, 2004).

In the field of environmental policy there were changes too. Specifically relevant for this research is chapter eleven of the national environmental plan NMP4 (2001), in which municipalities are given the responsibility to locally determine the quality of the living conditions (and therewith the environmental quality). This was the impetus for the development of the MILO method. In fact, as a result of NMP4 there was an administrative agreement called BALK (Bestuurs Akkoord LeefomgevingsKwaliteit) in which the national government, association of municipalities (VNG), union of waterboards (UvW) and the interprovincial coordinating council (IPO) decided to make the MILO method (Knoppert, 2006, De Boer, 2006).

So, the role of the national government changed from generic nationwide policies to more decentralised policy making. These changes in both land use policy and environmental policy have increased the need for more *area specific* and *integrated* policies and plans at the local level (Kamphorst, 2006).

1.2.2 Changes in the societal context

Government and policy making used to be top-down, while there was a strong belief in, what is called in Dutch, the 'maakbaarheid van de samenleving' (the government's ability to shape society) (Hidding, 2002, De Roo and Visser, 2004). But due to economic growth, a growing population and increased mobility, the Dutch society has become more dynamic and complex. There has been a growing demand for space, but the amount of available space is decreasing. For government it is increasingly hard to combine societal processes with spatial developments, and in

general it is difficult for government to solve complex societal problems¹ on their own (De Roo and Visser, 2004).

Government has therefore become 'governance', whereby the old constellation 'tipped over' and the new constellation that emerged shows new relationships between the state, the market and civil society. Policy objectives are now often reached in association with business, non-governmental organizations and citizens in the form of agreements, co-management and public-private partnerships (Driessen and Glasbergen, 2002). Implications thereof are:

- that policy making takes place in 'wider' networks;
- that ways of policy making have changed towards participative, interactive ways (Vermeulen, 2005);
- that besides internal administrative and political support, policies require more and more societal support (Glasbergen and Driessen, 1993).

This societal support concerns both supportive parties, as well as opponents. In our information and knowledge society, citizens and other parties often have sufficient means to block or frustrate land use plans if they feel their own interests are at stake. To obtain as much support as possible, policy- and decision-making has become more open and participative. (De Roo and Visser, 2004) Therefore, this new decentral way of land use policy-making not only differs from traditional policy making in content (area specific), but also in the processes concerned (e.g. interactive methods).

1.2.3 Changes in the European context

Meanwhile the influence of the European Union on the context of national policy making has increased. At the one hand an area based approach fits very well into one of the principles of European rule, namely the subsidiary principle. This is a rule that policy -, decision making and implementation must take place at the lowest possible administrative tier (Neelen et al, 2003). At the very same time there are generic European (environmental) laws and regulations. The principles of 'priority of the community law' and 'community dedication' imply amongst others that European law comes first, that national law may not contradict European law and that member states are obliged to contribute to the realisation of goals resulting from European law (Peters et al, 2004). So, generic European law can conflict with area based policies at the local level (adapted from: Kamphorst, 2006). It can happen, for instance, that the European directive for the water quality demands a higher quality level, than the quality necessary for the chosen function of the water concerned.

1.2.4 Practical aspects of environmental integration into land use planning

Impediments for environmental policy integration (EPI) into planning are partly caused by the fact that traditionally, planning and environment are separate domains, having different types of legislation, cultures, ways of working, scientific approaches, terminologies, and maybe even their own ways of thinking. (Hidding et al, 2002) This separation is further enhanced by both domains separately, along their own sectoral lines, providing funding for plans and policies, even if these plans and policies concern the same project in the same municipality (adapted from: Kamphorst, 2006).

That the domains of planning and environment have different ways of tackling problems, ideally reflecting the nature of problems in their respective domains, is illustrated by the following example. In the early stages of designing and choosing a location for a fire station, the planner is interested in the dimensions of the building and the exact location with regards to the existing

¹ What is complexity in this context? In general complexity of a system or process can be described as the amount and variety of both elements and relations between those elements (Emery, Trist and Kickert in: De Roo and Visser, 2004). With regard to land use planning, a problem is complex if there are many actors with a great variety of interests and needs, and if there is no dominant actor in the position to steer these interests. Another reason can be that there is little insight into the problem, and as a consequence there is a lot of uncertainty connected to the problem (De Roo and Visser, 2004).

road network: can the fire engines reach all the properties in the municipality in an acceptable amount of time? But for the environmental permit it is necessary to know the exact location of oil storage on the premises. So, in case of designing a fire station the planner normally disregards the inside of the building, whereas from an environmental viewpoint the floor plan is already required at an early stage (Van Veen, 2006).

The above example does not stand alone when it comes to the necessity to integrate environmental issues into policies and plans at the earliest possible stage. The following example illustrates this. The performance of solar panels is best if the panel faces south (SenterNovem, 2006). Yet the majority of the 264 houses in the Houten quarter Wernaar built in 1983 and 1984 have roofs sloping towards the east and west. Over the last ten years, a substantial amount of people living in Wernaar installed solar systems, but obviously the environmental (and economic) gains will never be as optimal as if solar panels had been included in the early stages of the design of this quarter.

This is a clear example that *early* integration of environmental issues is important. Once plans, designs etc. are in an advanced stage, the possibilities to integrate environmental issues become smaller and smaller, if not impossible. In a worst case scenario the omission of environmental issues may even lead to changes that are irreversible (De Vries, 2004).

1.3 Tools for environmental integration into land use planning

1.3.1 Overview of methods

First a definition of 'method' is given, which is expanded to explain what is generally meant when methods such as MILO and LOGO are discussed. The word method derives from the Greek word 'methodos', which literally means 'way across'. A general definition of a method is a 'codified series of steps taken to complete a certain task or to reach a certain objective' (Wikipedia, 2006). According to Vermeulen (2005) methods differ from techniques, in the sense that techniques are more specific and concrete, a technique may for instance involve a specific tool. Methods are also of a higher order than techniques. Techniques can be used within methods.

Policy integration can be defined as: 'All significant consequences of policy decisions are recognised as decision premises, where policy options are evaluated on the basis of their effects on some aggregate measure of utility, and where the different policy elements are in accord with each other'. At the basis of this definition are the three criteria: comprehensiveness, aggregation and consistency (Underdal in: Lafferty and Hovden, 2003).

The MILO and LOGO method can thus be defined as: 'a specific series of steps taken in order to integrate environmental issues into planning with the objective to attain comprehensive, aggregated and consistent land use plans or policies.'

Besides MILO and LOGO there are several other methods dedicated to environmental integration into planning. Some of these were developed by the local authorities themselves and therefore reflect their own planning procedures, for instance Milieu op z'n Plek (Rotterdam), Milieuprestatiesysteem (Amsterdam), MIRUP (stadsgewest Haaglanden) en ROMBO (Den Haag).

The shared characteristics between the different methods are (according to De Roo and Visser, 2004):

- main aim is integration of environmental aspects into planning;
- area specific;
- tool for formulating environmental aspects;
- applicable throughout all the stages of the planning process: initiative, definition, design and decision making, and in some cases also implementation, monitoring and evaluation;
- relatively goal oriented and participatory (MILO does not score as high on these aspects as for instance MIRUP, Milieu op z'n Plek and ROMBO).

In this research the group of present day methods that have the same basic characteristics of MILO and LOGO, will be referred to as the similar methods. So, we will speak of the *similar methods*, despite some differences, both between the methods themselves, as well as with regard to their application. Examples of differences are that some methods focus more on the content, whereas others (i.e. MIRUP) have a relatively strong orientation on the process.

In the section underneath the MILO and LOGO methods are first discussed individually and subsequently a comparison between the two methods is made.

1.3.2 The MILO method

As pointed out earlier, there has been a gradual shift in environmental policy-making from central and generic, to decentral and area-specific. This is reflected clearly in the fourth national environmental plan (NMP-4, 2001) in which quality of life, and therewith environmental quality, is explicitly included. Not only does the plan express the importance of quality of life, but it also expresses the need of a practical tool for policy-making in these matters. As a result of NMP-4, there was an administrative agreement on quality of life called the BALK (Bestuurs Akkoord Leefomgevings Kwaliteit) agreement between the national government, association of municipalities (VNG), union of waterboards (UvW) and the interprovincial coordinating council (IPO). This BALK agreement resulted in the making of the MILO-method, its name being an acronym for Milieu In de LeefOmgeving (environmental aspects of the living conditions). MILO's main aim is to improve environmental quality by environmental integration into land use planning. The method is limited to environmental quality (the concept of environmental quality will be discussed in the next chapter), as a first step towards the much broader goal of quality of life. (De Boer, 2006, Knoppert, 2006, MILO-guide, 2004)

The aim of MILO is to strengthen the contribution of environmental policy to the quality of the living conditions by means of an integrated area specific approach at the local level. Choosing for an approach that may be different for each area implies that the aspired quality levels for areas can be different too. According to the designers of the method (MILO guide, 2004), MILO has the following advantages:

- MILO stimulates to pinpoint the environmental ambitions and those for the living conditions, so as to prevent the environmental quality ending up to be only at the legally required minimum level. This is the central idea of the MILO method; the ambition to realize high environmental quality, rather than a basic legally required quality level, see also fig x in paragraph 1.2.5. (c.f. NMP-4, 2001).
- MILO stimulates to draw up coherent and integrated plans and policies for both the environmental and the living conditions. This has the following advantages:
 1. by already involving other sectors and parties at an early stage of the plan or policy making, they can better anticipate the environmental aspects.
 2. the quality of the decision making improves because 'educated' choices can be made in an open and transparent way.
 3. this way of working increases the support for the plans or policies, so that they can be better implemented.

The MILO method is not a goal in itself, but it is a step towards the integration of the environment into the overall quality of the living conditions and therewith to sustainable land use. It was largely based on the experiences of highly urbanised municipalities, but it can also be used on different geographical scales and for rural areas.

MILO consists of two parts. The first part is the part where environmental ambitions are formulated. The second part is on environmental integration and the planning process. The first part consists of the following seven steps to be taken:

1. analysis of functions, potential use and qualities of the area.

This first step concerns the desired developments in the area and the consequences for the different functions. The MILO guide recommends to apply the so called 'layer approach' commonly used in planning processes in the Netherlands. The idea to use this layer approach for environmental integration originates from the LOGO method (DCMR, 2004). The layer approach consists of three layers, namely

- *the underground; type of underground, water systems and structures of the landscape*
- *the networks; underground networks and traffic-, and mobility networks*
- *occupational layer; living, working, natural and recreational functions*

2. determine the type of area.

On the basis of the characteristics and functions that were found in step one, the type of area is determined. In case the developments imply new functions, these must also be incorporated. In the MILO guide eight different types of areas are distinguished. If necessary the municipality can develop other types of areas. Within one area several types can be distinguished, for example 'city centre', 'urban outside centre' or 'urban-green'.

3. determine the environmental indicators.

Environmental quality or quality of life depends on many different aspects. Each area type has different aspects, so in this step the relevant aspects of the area concerned, as well as the connected indicators are determined

4. determine the reference values

Then the reference values for the environmental indicators found during step 3 are determined.

5. analysis of existing qualities in the area

With the help of the relevant environmental indicators, so the indicators from step 3, the existing environmental quality of the area is determined.

6. determine the environmental ambitions.

On the basis of the reference values, the existing environmental quality, the gaps between existing quality and reference values, and the possibilities to improve the environmental quality, the environmental ambitions are determined. These can be laid down in an environmental area vision (EAV).

7. determine the necessary measures to realize the ambitions and monitoring.

In this final steps it is decided which measures are necessary to realize the ambitions. According to the MILO guide a monitoring system has to be set up in order to be held accountable. It does not say so in the guide, but it seems obvious that monitoring is necessary to know whether implementation of the measures had the intended results or whether stricter or more lenient measures should or can be applied.

So the main outcome of the first stage of MILO application are the environmental ambitions². These ambitions can be laid down in an environmental area vision, or any other spatial plan.

The second phase of the MILO method concerns the process. During this stage the environmental ambitions from the first phase are integrated into the spatial plans. The MILO guide (chapter 3) provides suggestions how, together with planners, citizens and enterprises, the overall quality ambitions for the area can be formulated.

The environmental ambitions are part of these quality ambitions and the suggestions are aimed at environmental officers; in which way they can contribute and try to integrate the environmental aims into the planning process. The guide distinguishes six different phases in the planning process, namely:

1. cause
2. initiative

² It is also possible to determine the quality ambitions in this first stage of MILO application if the policy makers are very ambitious. In the MILO guide it is worked out for environmental quality only.

3. definition
4. design
5. decision making
6. realisation and monitoring

MILO project bureau

At the time when MILO was launched in the autumn of 2004, the MILO project bureau of the VNG (Association of Dutch Municipalities) also came into being. This bureau is staffed with two planners with plenty of experience on the municipal level (Amsterdam and Zwijndrecht) The task of this project bureau is to promote MILO and to actively and passively support municipalities to apply MILO. Amongst other things, the project bureau organises MILO workshops and training days. (VNG, 2005) The MILO project bureau is subsidized until September 2007, after which it will cease to exist (Puylaert, 2006, VNG 2006, VROM, 2006).

1.3.3. The LOGO method

The name LOGO comes from Lokale Gebiedstypologie and Omgevingskwaliteit, which means local typology of areas and quality of life³. LOGO was made by DCMR, the regional environmental services in the Rijnmond region, in close cooperation with the province South Holland.

The aim of LOGO is similar to that of MILO: to strengthen the contribution of environmental policy to the quality of the living conditions by means of an integrated area specific approach at the local level. And like MILO, LOGO is divided into two phases too. The first phase consists of a series of seven steps and a richly illustrated user guide with pictures, maps etc. The steps are:

1. ***an analysis to make a description of the underground, networks and occupation layers of the area concerned, so the layer approach is used.***
2. ***discerning the type of area and assessing the spatial opportunities. In total there are 27 different types of areas, see table 1.1. underneath.***

³ The literally translation of 'omgevingskwaliteit' is environmental quality, but in this context it is more apt to translate it with quality of life.

Centre	Areas for working	Residential areas	Recreational, waters or 'greens'
City	Sea harbour	Edge of centre	Large waters
City centre	Industrial	City quarter	Dunes
Town centre	Agricultural	Garden quarter	Nature
Suburban centre	City harbour	Suburban	Recreational area
	Offices	Ribbon development	Urban 'green'/'blue'
	Companies	Flat or apartment blocks	Country estate
	Horticulture (glass)	Villas	Water retention area
	Mixed industrial area		
	Military terrain		

Table 1.1 The 27 types of LOGO areas, grouped into 4 main groups.

To estimate the spatial opportunities of a specific area it is determined up to what extent the existing water(s) and green (parks etc.), the traffic connections, and the existing spatial structure, fit in with the intended functions. In this phase it is important to keep an eye on the balance between the three layers whilst determining what the effects of the developments will be in the area. Another significant question is which sub areas are most suitable for dense building and a mixture of functions (including traffic nodes) and which should better be kept relatively quiet (e.g. valuable water or nature reserves etc.).

3. **determining the relevant sustainability factors.** *The question to be answered in this step is 'which factors are relevant for the quality in the area?' For a balanced view on the area it is necessary to include positive aspects as well as threats or 'bads'. Because the perception of civil servants or experts can differ from other stakeholders, LOGO points out that it is important to involve the relevant stakeholders.*
4. **selection of the quality parameters and the relevant reference values.** *A choice is made for the relevant indicators (on the basis of the chosen factors in step 3) and the related reference values. LOGO provides these parameters or indicators and the reference values for the different types of areas. The reference values are 'set' and were determined on the basis of available studies and experiences elsewhere. The overview of all the indicators (or parameters in LOGO) and the reference values is very profound and complete. For example, the overview for a town centre looks like this:
Besides living, working and facilities the following factors are included: recreation, transport and traffic, landscape, water, green, soil, resources and waste, energy, noise, air and external safety, providing in total 50 parameters and 50 related reference values.*
5. **determining the existing qualities of the area.** *In the LOGO method the qualities are represented in histograms. The colour red is used if the actual value is lower than the legally required level. Orange is used if the value is higher than the required level, but not as high as the reference level and finally green is used if the existing value is higher than the reference value.*

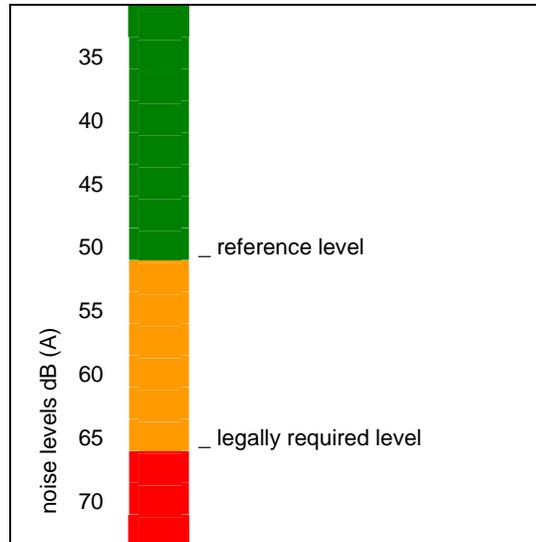


Fig. 1.1 Example of a typical LOGO histogram for noise levels in a suburban area

Together the histograms of all the relevant factors form an integral picture of the existing qualities in the area. These qualities are all objective qualities. It can also be vital to include perceptions of qualities by inhabitants. LOGO recommends to place these subjective values of perceived qualities in similar histograms, using red and blue. If, of each parameter (or indicator) both the objective and the subjective histograms are provided to decision makers, these people are able to make conscious choices.

6. **determining the desired qualities of the area: quality ambitions.** *During this step quality ambitions are determined that appear feasible. For these ambitions the 'LOGO histograms' can be used too, so that it is clear with a single glance what the ambitions are. In this phase a relevant question that should be included is whether the different parameters (or indicators) are interrelated. Priorities should be determined, especially with respect to the opportunities to optimize environmental or quality of life 'goods'.*
7. **determining the measures necessary to realize the ambitions.** *In order to realize the ambitions, measures to be taken are determined in this final step. A product of this step can also be an environmental or sustainability area vision or another environmental or spatial plan, in which not only the quality of life ambitions are laid down, but also a coherent set of measures, that includes spatial, environmental, economic and social measures.*

The second phase of the method concerns the planning process. For this phase LOGO ceases to be a method as such, but consists of recommendations and a list of success factors for the planning process. LOGO starts with a concise description of the seven steps. This is followed by the annexes where all steps are fully explained with examples and illustrations. So the appendixes are pretty much what LOGO is. It would have been clearer if the makers had not used the word appendix, but chapter instead (LOGO, 2004, De Roo, 2004).

1.2.4 Comparison between MILO and LOGO

A comparison between MILO and LOGO on the content (type of indicators, broadness of indicator set, reference values, area typology and the layer approach), the process (process tool, participation and integration) and support is summarised in table 1.2 underneath.

Content	MILO	LOGO
Type of indicators	Objective indicators are included. There is an example of subjective indicators in an annex.	Both objective and subjective indicators
Broadness of indicators	Environmental quality, a set includes soil, water, noise, odour, external safety, air- and water quality.	Set of indicators is quality of life set; both objective and subjective indicators (thermometers).
Reference values	Examples are provided for all area types of MILO.	For all indicators (parameters) of 27 area types the reference values are given, which were determined on the basis of research.
Area typology	Area typology of 8 different types	Area typology of 27 different types
Layer approach	The layer approach is recommended	The layer approach is recommended
Process		
Process tool	Recommendations on the process are profound .	Rather limited recommendations on the process.
Participation	Participation is recommended.	Actual participation is recommended, focus on more openness of the process
Integration	MILO stops were the actual integration starts.	LOGO stops were the actual integration starts.
Support	MILO project bureau of VNG, staffed with two officers, offers support throughout the Netherlands. In principle this support is not free of charge.	DCMR, the maker of LOGO, offers support throughout the Rijnmond region. This support is not for free. In principle this support is not free of charge.

Table 1.2. Comparison between MILO and LOGO on content and process factors as well as on support.

The main differences between the two methods are that LOGO's area typology is more complete and its indicator set is a broader quality-of-life set. This is acknowledged by two experts in the field of environmental integration. According to Sleijpen (2006) LOGO is broader, a more complete method to generate ambitions for the area than MILO, not only because of the area typology but also because the perceptions of inhabitants are included. Puylaert (2006) also pointed to the quality profiles as a strong point of LOGO. Another difference between MILO and LOGO is the level of support. LOGO's principal strengths lie in the area typologies and the support from DCMR.

1.2.5 Methods with a different scope

There are methods that are dedicated to integrated and area specific policy-making, which are essentially different from MILO and LOGO. These are the Investment budget Urban Renewal and the City and Environment approach.

Investment budget Urban Renewal

The Law Urban Renewal (Wet Stedelijke Vernieuwing: WSV) is an example of the promotion of integrated and area specific urban policy at the local level by the national government. The law is accompanied by the Investment budget Urban Renewal (Investeringsbudget Stedelijke Vernieuwing: ISV) to bundle the subsidies from three Ministries, namely Economic Affairs, Public Housing, Spatial Planning and Agriculture, Nature and Fishing (EZ, VROM and LNV). The idea behind this is that integrated plans require integrated budgets (adapted from Kamphorst, 2006).

This law and investment budget also advocates integrated and area specific plans, but the differences are:

- WSV is a law, MILO and LOGO are tools;
- WSV has a much broader goal than MILO and LOGO;
- ISV is a subsidy, whereas MILO and LOGO are not accompanied by money.

City and Environment

MILO and LOGO have a lot in common with the City and Environment approach (Stad en Milieu). Twenty five experimental projects took place between 1997 and 2003, backed by a special Experimental City and Environment Act. On the basis of this experiment a new law was made: the City and Environment Act. With this law the Dutch government hopes to achieve an economic and efficient use of space and the best possible quality of living environment. The City and Environment (C&E) approach, which like MILO or LOGO can also be used in rural areas, aims especially at areas where environmental regulations stand in the way, so, at environmentally problematic areas. Under this law it is under strict conditions possible to deviate from national environmental laws, but only if compensation is provided.

C&E basically consists of three steps. Like MILO/LOGO C&E strives for environmental quality which goes beyond the legally required levels. This environmental quality is determined in the steps one and two. Step one is the integration of environmental ambitions in the plan at the earliest possible stage. Step two is to try as much as possible to make avail of the space. And during the third step it is determined which environmental indicator is allowed to deviate from the legal requirements and which compensating measures must be taken. (VROM, 2005)

The main differences between MILO/LOGO and C&E is that C&E is a law, and this law makes it possible to deviate from national norms, whereas MILO/LOGO are not laws but tools and their main aim is to create a higher environmental quality than legally required. This last difference is depicted in the graph underneath.

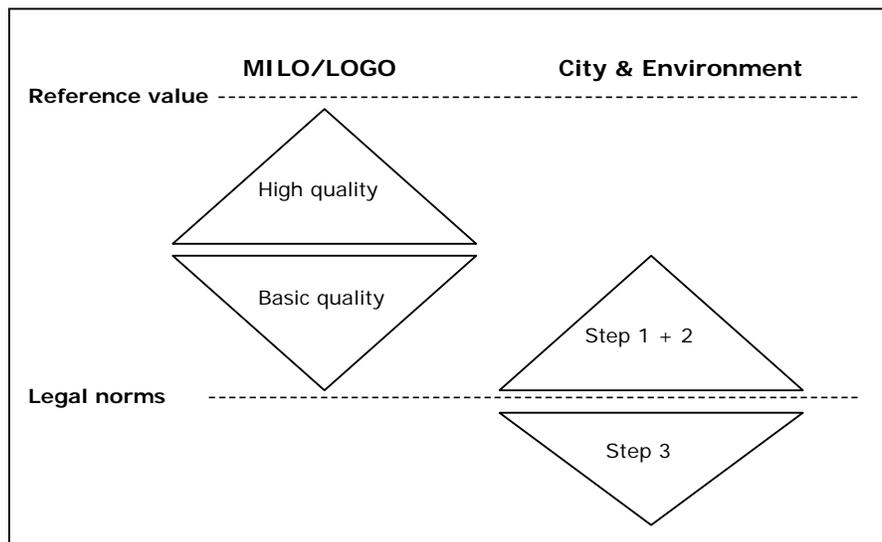


Fig. 1.2. Graphic representation of the difference in ambition between MILO/LOGO and City + Environment (source: City and Environment guide, 2005)

Other tools

As explained MILO and the similar methods' final goal is environmental quality by means of *integration environment into planning*. An important subgoal is the determination of the *environmental ambitions*. Over the last decennia organisations like Stichting Bouw Research (Foundation for Research into Building) developed a whole range of tools on sustainable development, with the actual sustainability of the *buildings* or *constructions* as the focal point. These tools are referred to as national kits (Nationale pakketten) for sustainable building. There are amongst others national kits for new houses, existing houses, and city building (see appendix x for a list of national kits). These kits provide a comprehensive overview of all measures

necessary to optimize the environmental quality of buildings or construction. Users of the kits can select measures according to their own ambition levels. Besides the buildings, the kits also pay attention to the building location and the planning processes involved in the development thereof (SenterNovem, 2007). In general it can be stated that MILO and LOGO are at a higher, more abstract level than the national kits, and that these can very well be used as a supplement, to find concrete environmental measures for the environmental ambitions found during the application of MILO or LOGO.

The last tool mentioned has a focus on 'health' rather than on environment. This is the Gezondheidseffect Screening (GES; health effect screening) developed under the authority of the Ministry of Public Health, Welfare and Sports (VWS) and applied by the municipal health services (GGD'en). According to De Roo and Visser (2004) the aim of the GES is to provide insight into the effects on public health of intended spatial, traffic, environmental or other policies. The GES is very suitable to use in combination with the City and Environment approach, so on locations with high environmental pressure. The difference between GES and MILO/LOGO is that GES depicts the health consequences of the environmental situation, whereas MILO and LOGO are geared towards seeking opportunities to optimize the environmental situation and in doing so also determine the most suitable function(s) in the area.

1.4. Research design

1.4.1 Research objective and perspectives

The research objective is to get insight into the effectiveness of MILO and LOGO, so into the way in which MILO and LOGO are used in, and contribute to the integration of environment and spatial planning, both with regard to content and process.

Apart from the focus within the policy fields of the environment and spatial planning, attention will be also paid to interdisciplinary processes between the policy fields.

In order to find the success or failure factors, an analysis will be made of barriers and enhancing factors of the application of MILO and LOGO

1.4.2. Research questions

Central research question

Why and in which way are MILO and LOGO used, to what extent do they contribute to the integration of environment and spatial planning, and which factors account for that contribution (or lack of contribution)?

Subquestions

- Why are MILO or LOGO applied and which factors are decisive for the choice to apply MILO or LOGO?
- In which way are MILO or LOGO applied in practice, both with regard to content and process?
- What are the effects of MILO or LOGO on the policy-making and decision-making process with regard to environmental integration?
- Which factors are either enhancing or blocking environmental integration?

1.4.3. Research methodology

Desk research

Initially the research strategy consisted of desk research. This was for two reasons, firstly to get an in-depth understanding of land use planning and environmental integration, its context, and everything else relevant for this research, like the concept of environmental quality. And secondly, with the help of theory it was possible to find and structure the questions for the pilot interviews, as well as construct an evaluative framework for the empirical part of the research. This framework, a comprehensive and coherent set of requirements for environmental integration with the help of MILO or LOGO application, was necessary to assess the effects of the applications and so, to answer the research questions. Therefore the first activity was research into theories on all subjects relevant to this research:

- land use planning
- operationalisation of environmental quality and environmental indicators
- environmental policy
- environment and land use
- policy analysis
- policy integration

As MILO and LOGO applications are quite practical matters, the desk research was not limited to theory, but also included documents with a more practical content, for instance the MILO and LOGO guides themselves. Also, several websites were scanned on relevant information. For example of the Ministry of Spatial Planning and Environment (VROM) and Senter Novem Senter Novem, an agency from the Ministry of Economic Affairs specialised in sustainability and innovation, whose expertise comprises sustainable land use too.

Pilot interviews

The second step was a series of pilot interviews with officials and experts in the field of environment and/or land use planning. These interviews were conducted for the following reasons:

- to specify theory and to further deepen the researcher's insight into land use planning and environmental integration, particularly to get an understanding of the planning practice and the practice of environmental integration;
- to obtain a clearer research focus and to enable the formulation of adequate hypotheses;
- to try and generate unbiased information not at all connected to the cases, so as to improve construct validity;
- to create a basis for generalisation purposes.

Interviewees were either selected on the basis of their expertise, and/or on the basis of the size of the municipality they work for (see appendix 1). To prevent an 'environmental bias' not only environmental civil servants were selected, but also land use officials.

The chosen municipalities were deliberately not the ones intended for the cases. This was to broaden the research scope as much as possible, but most importantly it was to prevent that 'window dressing' from the part of the officers at the beginning stage of the research, would blur judgements throughout the entire research.

Verschuuren and Doorewaard (1999) discuss the concept of *triangulation of sources* in order to achieve depth within case studies. The selection of interviewees for the pilot interviews can also be considered a specific type of triangulation of sources.

Drawing up an evaluative framework

The third step was to combine the results of the desk research and the pilot interviews. Both lines of research resulted in requirements for, and factors of influence on MILO and LOGO application. Ideally these requirements and factors were motivated both from theoretical and from the practical lines of research. Especially the requirements of a more pragmatic nature, were not

found with the help of theory, but derived from the pilot interviews. The requirements serve a double function. Firstly they are used to structure the framework and form a basis for the empirical part of the research. Secondly the requirements function as assessment criteria, to assess the outcomes of the case studies.

Case studies

This research aims to study the application of MILO and LOGO in the reality of land use policy making at the local level. This induced to choose for a case study strategy. A case study research design is specifically applicable in those situations where the context and the phenomenon studied are not clearly demarcated or distinguishable and the contextual circumstances are of great importance to the object of study and cannot be controlled by the investigator. If the real life situation is too complex to explain with the help of surveys or experimental strategies, the case study can be applied. (Yin, 2003) In the next chapter the complexity of the context of MILO and LOGO application is discussed, during which it becomes obvious why a case study design is the most apt design for this research. Possible contributions of MILO to environmental integration are not known a priori, but have to be investigated in the real life situation of environmental and spatial policy-making, which cannot be clearly demarcated.

The comparative case study is a research framework to thoroughly examine multiple cases and subsequently compare these. Case selection is an important element of the case study methodology (Verschuren and Doorewaard, 1999). In this research three cases were selected. Less than three provides little basis for comparison and generalisation of the outcomes, and with more cases an in-depth analysis was not possible, due to limited time. The hierarchic method was used, meaning that the different cases were selected simultaneously and examined independently from each other. Nevertheless this research was a bit like the sequential method, in the sense that first one case was more thoroughly examined, and after lessons learned from this, the others were examined (ibid.).

The final goal of this research is to formulate recommendations and possibly find best practices for policy makers and makers of integration tools in the Netherlands, so as to try and contribute to environmental integration. To be able to do so, external validity plays an important role, because it should be possible to generalize the outcomes. Primarily therefore, the goal is not so much the in-depth information itself from the three individual cases, but the information that is the result of a comparison between the cases. Especially conclusions and other findings that are supported by two or even by all three cases, are expected to be valuable to make generalizations. So, to enable comparison, the cases should as similar as possible in itself (ibid.). With this in mind, cases were selected. Thereby the first criterion was a similar type of plan, namely the restructuring of an existing urban area. An advantage of this criterion is that there was a big chance that the characteristics of the chosen areas are also rather similar. The second criterion was the size of the municipality.

It was a conscious decision to include Nijmegen West-Weurt as a case, despite the fact that the area is much larger than the other two selected areas. But because of the large size, it was expected that all factors relevant in the context of the integration of environment and planning would be covered by this case.

Despite the fact that the case selection was done consciously and carefully, cases were found to have different characteristics. Therefore, in those instances where it was impossible to generalize the results of one case to similar cases, results were formulated as hypotheses to assess dissimilar cases.

Both the MILO and LOGO methods were launched in 2004. In view of the relatively long time necessary to make land use plans and policies, none of the running MILO or LOGO projects are finished at present. In the Nijmegen case, for instance, the environmental ambitions were ready by July 2006, but the plans in which these ambitions will have to be integrated are not yet ready. This implies that it was only possible to evaluate a 'cross-section' of the policy-making process.

Expert meeting

In September 2006 an expert meeting was held by the National Institute for Public Health and Environment (Rijks Instituut voor Volksgezondheid en Milieu: RIVM). The aim of this meeting was to exchange views on the prerequisites for integrated health, environmental and spatial policy-making, and to obtain feedback on the RIVM ideas to construct a weighing instrument for the quality of living conditions. As the research for this thesis was conducted at the RIVM as part of their quality of life research programme, the results of the most comprehensive case Nijmegen West-Weurt were presented at this meeting. This was done with the following objectives:

- compare these findings with the views of the experts;
- check the representativeness of the results;
- and to check the recommendations made in this research.

1.4.4 Validity and reliability

The quality of a research design depends on its construct validity, internal and external validity, and reliability (adapted from Hoeijmakers, 2005). *Construct validity* refers to correct operational measures during the research. First of all, the pilot interviews were a means to obtain relatively objective information on the subject matter. For example the two professors interviewed during the pilot interviews, had no reason to misrepresent matters, because they have no stake in the application of MILO. Also, to minimize subjectivity, interviewees were selected from municipalities that were not on the list of MILO-cases of the VNG MILO-projectbureau, so that the interviewees had no stake in the cases of this research. And as mentioned before, for the pilot interviews not only environmental officers were selected, but spatial planners too, in order to prevent an environmental bias. Furthermore the frame of analysis is not only based on these pilot interviews, but on relevant theories of planning, environment and policy integration too.

Another way of improving the construct validity was to have key interviewees reading and commenting on the draft case study report. And finally, feedback from the RIVM expert meeting also improved construct validity.

Internal validity refers to the lines of reasoning, the soundness of arguments and whether conclusions are justified (Maso and Smaling in: Hoeijmakers 2005). Because each case is unique this is a delicate issue. Nevertheless, the lines of reasoning and the argumentation are underpinned as well as possible, and in all three cases at least one key interviewee was given the opportunity to react on the concept of the case concerned. The internal validity of the case Nijmegen West-Weurt was also improved by comparing the results to other recent research into this case (Soer, 2006) and including the reactions on the NWW case at the RIVM expert meeting.

Yin (2003) considers *external validity* a major barrier in case studies, because it refers to the domain to which generalizations can be made. Unlike statistical generalisation used in surveys, case studies use the replication logic to make analytical replication. This can be either literal replication in which cases produce similar results, or theoretical replication, in which cases produce contrasting results but for predictable reasons. This implies, as was already pointed out in the former paragraph, that case selection and the number of cases are very important. In the hope that comparison would lead to similar outcomes suitable for generalization, cases were selected in middle sized municipalities that are as similar as possible. Nevertheless, this research does not score that high on this point, because there was only time to conduct three cases, and quite a few conclusions could only be based on one or two of the cases. The presentation at the RIVM expert meeting to check the representativeness of the largest case study conducted, Nijmegen West-Weurt, did somewhat improve possibilities to generalize the outcomes.

Reliability refers to whether repetition of the same research provides identical results for case studies 'virtual repeatability' or 'trackability' is often used; whether others can trace and examine the course of the research. (Hoeijmakers, 2005) In order to increase reliability, this report was therefore drawn up with utmost care, by documenting facts as well as possible, and explaining why certain issues were discarded.

1.5. Outline of the thesis

In the first chapter the research issue has been introduced, presenting background information on changes in environmental and spatial policy-making, the reasons behind this research and the research questions, design and methodology. To further set the stage for this study the second chapter outlines the theoretical aspects of environmental and spatial policy-making and provides a theoretical framework for analysis.

Part II comprises the three empirical chapters, namely the three case studies. Each case provides a case description, the findings of this research, a confrontation of these findings with the frame of analysis and the conclusions.

In part III, the conclusive section, conclusions are drawn on the basis of the combined findings of the case studies, recommendations are made and suggestions for future research are provided.

Chapter 2. Theoretical perspectives on the assessment of policy integration, and environmental and land use policy-making

2.1 Introduction

This research focuses on environmental policy integration (EPI) in urban land use planning, and the role of MILO and LOGO in this respect. In order to assess the effects of MILO and LOGO application it is necessary to understand both the *theories* as well as the *practices* of environmental and land use policy-making, and of policy integration. In this research key concepts are *environmental quality*, *policy integration*, *environmental and land use policy-making* and the fundamental questions at the basis of the research questions are:

1. what is being integrated and for what reason?
2. what is the context of environmental integration?
3. which other factors play a role during integration processes?

Environmental quality is a key concept in this research, because the goal of environmental integration is environmental quality. The first question cannot be answered, or more generally environmental integration cannot be assessed, unless the concept of environmental quality is elucidated. Therefore this concept is dealt with in § 2.2. The second question is handled in § 2.3, 2.4 and 2.5 where respectively attention is paid to the theory of environmental policy integration (EPI), to the horizontal and vertical dimensions of policy integration (HEPI and VEPI) and to the theory of land use planning. Land use planning is essential in this research, because environmental integration means that environmental issues are actually integrated into planning. So, therefore the theory of planning forms the basis of the theoretical framework.

As explained before there is a connection between planning and environment. According to the theory of Chapin and Kaiser (1979) *environmental systems* and *environmental quality* are part of land use planning. Despite the fact that theoretically (and ideally) environment is an integrated part of land use planning and this theory from Chapin and Kaiser is already over twenty-five years old, environment is still not an integrated part of planning in The Netherlands. Why is that? To answer this question it is necessary to further assess the land use practices. So, what are the characteristics of the planning practice? Planning is manifold, involving different governmental sectors and tiers of government, and having a multitude of dimensions and stakeholders. But besides that, there are more factors in the planning practice that are of influence on policy-making, and these have to be identified too, before it is possible to evaluate MILO. And so finally the third question is raised in § 2.6.

Despite a growing number of publications on policy analysis, no frame of analysis was found which fitted or could have easily been adapted to fit the purpose of this research. The theory of the policy analyst Van de Riet (2003) only deals with one of the four multitudes of planning: multi-actor complexity. Therefore a new framework for analysis was designed (see § 2.7), inspired by Van de Riet's way of reasoning. Some elements from Van de Riet were taken over, but for the rest the framework was made on the basis of the information from the pilot interviews and the desk research.

2.2 Environmental quality, quality of life and measuring quality

As we have seen in the first chapter MILO and LOGO's aims are to improve environmental quality or quality of life by means of environmental integration into land use plans. Besides being helpful in the process of integration, the application of MILO or LOGO should produce useful knowledge for these integration purposes (Van de Riet, 2003, see also § 2.7). In general the goal of environmental policy is environmental quality and for an evaluation on the effectiveness of MILO/LOGO application it is therefore first necessary to dwell on the concepts of environmental quality as well as on liveability and quality of life.

The concept of environmental quality is part of the broader concept of quality of life. Both concepts are approached in different ways both by scientists and in the field of planning. Closely

connected to quality of life is 'liveability'. Leidelmeijer and Van Kamp (2003) define liveability as the extent up to which the surroundings accommodate human life (or according to Veenhoven in *ibid.* any other type of life). In this definition the surroundings are the object, and the perspective is that of human beings. And 'quality of life' is defined (*ibid.*) as 'the other side of the same coin' in the sense that human beings are the object and the perspective with which human beings are regarded is that of their surroundings. The basic factors that determine quality of life are social, economic and environmental factors. Shafer's [adapted and simplified] conceptual model looks as follows (in *ibid.*):

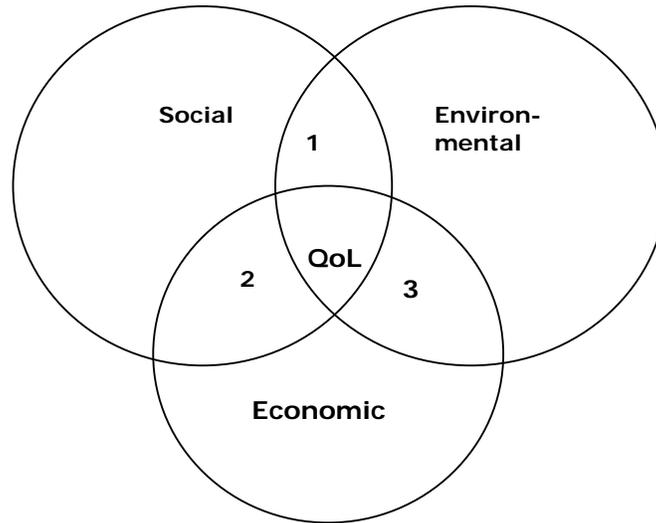


Fig. 2.1 Shafer's conceptual model of factors that contribute to quality of life.

In Shafer's model 'liveability' is the interaction between the social and environmental realms (nr. 1), nr. 2 is 'equitable', taking place where the social and economic realms overlap, and nr. 3 'environmentally sustainable' is the interaction between the environmental and economic realms. Where all three domains interact, there is 'quality of life.'

That the concept of environmental quality is approached differently is demonstrated for instance by Van Kamp et al (2003). An example of a definition of environmental quality is the one by RMB (cited in *ibid.*): 'environmental quality is the resultant of the quality of composing parts of a given region, but yet more than the sum of those parts, it is the perception of a location as a whole. The composing parts (nature, open space, infrastructure, built environment, physical environment amenities and natural resources) each have their own characteristics and partial quality.'

RIVM defines it quite differently (*ibid.*) as: '... an essential part of the broader concept of quality of life, the basic qualities such as health and safety in combination with aspects such as cosiness and attractiveness.'

Primarily the MILO method defines environmental quality in a rather limited way, namely consisting of the attributes: soil, water, noise, odour, air and safety. But, in an appendix it is pointed out that in case of an integral way of working, the much broader quality of life scope is taken. According to MILO this includes, next to the aspects of environmental quality, the various attributes of the following indicators: water quantity, liveability and traffic, energy and waste, use of space, nature and landscape (VNG et al, 2004). This is very similar to the broad quality of life indicator set of the LOGO method.

As depicted in the first chapter, there has been a change from traditional environmental policy making concerning environmental quality indicators only, to modern quality of life policy making including a much broader scope of indicators. A fundamental difference between traditional and integral policy making is the difference between objective and subjective indicators (c.f. Van Poll,

1997). So, this change in policy making also marks a change from merely measuring objective indicators to including subjective indicators too. Objective indicators concern the physical environmental attributes, whereas subjective indicators concern the perception of the surroundings. The idea behind this is that quality of life is not only determined by things which can be measured objectively, but also by the people's perceptions and their judgements on these perceptions. How people judge their surroundings depend on the personal backgrounds of people: type of household, living conditions, personality, knowledge of the situation in the area concerned, etc. (Leidelmeijer and Van Kamp, 2003).

Hooimeijer (2000) also pointed out that, with respect to quality (environmental quality or quality of life) there is the underlying difficulty of measuring 'quality'. Quality is both tangible and commensurable, but also for a great part intangible and incommensurable, concerning the perception of people or stakeholders. In relation to area specific policy-making, this type of complexity raises the following difficulties:

- How is it possible to measure intangible and incommensurable data?
- How is it possible to draw up a complete picture of environmental quality in an area by using both 'calculated' qualities and 'perceived' qualities?

Or, in terms of this research:

1. in which way, beside quantitative objective indicators, can subjective indicators be obtained and measured?
2. when is a set of indicators complete?
3. how can these indicators be weighed?

These last three questions, concerning the policy-making *content*, are at the core of the integration of environmental issues into planning, and therefore they play a central role in this research. In order to contribute to environmental integration MILO should help to answer these questions, so as to provide relevant information for decision-, and policy-making purposes.

2.3 Policy integration

After dealing with environmental quality, the next issue discussed is (environmental) policy integration, as it is a key issue in this research. So, what is policy integration and in which way does it take place? To integrate means 'to join to something else so as to form a whole' (Longman dictionary). The integration of environment into planning can thus be defined as joining, or even more appropriately, as incorporating environment into land use planning, so that it becomes one consistent policy. A more profound definition given by Lafferty and Hovden (2003) and adapted for this research is: 'the incorporation of environmental objectives into all stages of spatial policy-making, with a specific recognition of this goal as a guiding principle for the planning and execution of policy.'

Several reasons can be identified why policy integration occurs. Firstly, both environmental and land use issues can increasingly be classified as complex societal problems. One of the main features of complex societal problems is that, from a scientific point of view they are multidisciplinary, and from a policy-making point of view they have a multisectoral nature (adapted from: De Tombe, 2003). This makes it hard to solve the problems with traditional sectoral policy-making.

Besides that, the fields of environment and land use are closely interrelated. As we will see further on (2.3.1 land use planning), in theory the environment is an intrinsic part of land use policy-making, as 'environmental quality' is one of its goals and the 'environmental systems' are one of the key land use systems (Chapin and Kaiser, 1979). A practical example of this is the following. Railinfrastructure, a specific type of land use, requires environmental resources for its construction, maintenance and functioning, and it takes up a certain amount of space. The railinfrastructure provides transport, but besides the energy and resource issues, the environmental issues connected to railinfrastructure are noise hindrance and external safety.

Besides this interrelatedness, environmental goals cannot be solved by environmental policy alone. One of the key features of sustainable development is the emphasis on the integration of

environmental objectives into non-environmental policy sectors. Each sector must take environmental policy objectives on board (adapted from: Lafferty and Hovden, 2003). Also, the policy objectives have changed over time. Over the last few decades more attention is paid to sustainable development. In this respect the Nota Ruimte (2004) provides a good example, where we can see that the goals are no longer merely planning goals, but sustainability related issues are incorporated too in the plan. Which is exactly, by the way, the environmental policy integration (EPI) meant by Lafferty and Hovden (ibid.).

And finally, the opportunities have changed. This is due to a change from central policy making to decentral area specific ways of working. Hidding et al. (2002) points in this context to the aspirations for more coherence in land use policies, various types of area specific policies like the so called ROM-policy (land use and environment), policy precious cultural landscapes, strategic ‘green’ projects, rural livability attention areas, land use and reconstruction projects. These changed opportunities are also due to changed or new laws and regulations. Examples of these are the Experimentenwet Stad en Milieu (City and Environment approach) (Glasbergen, 2006), the Watertoets (water test) and the new integrated spatial and environmental permit (omgevingsvergunning) (Kramer, 2005).

2.4 The policy-making context

The former paragraph discusses policy integration itself. In this paragraph the focus is on the policy-making context. As discussed earlier, contemporary policy making involves many different actors. If specific groups of actors have a similar vision on the meaning of a specific policy, this can be regarded as the ‘storyline’ of policy in discourse theory (Kamphorst, 2006). Seen in those terms the central question of this research is whether the application of MILO influences the ‘storyline’ of policy in such a way that environmental issues are integrated into spatial plans. This leads to questions in which way, between which tiers of administration, and with the involvement of which other stakeholders, this integration takes place.

Since the decentralisation in the nineties the national government is responsible for the essence of (environmental and spatial) policy making. Integration of environment in a national spatial plan can be seen as horizontal environmental policy integration, HEPI Vertical environmental policy integration (VEPI) stands for integration between the administrative levels of government, see fig. 4 (Janssens and Van Tatenhove in: Van Tatenhove et al, 2000, Lafferty and Hovden, 2003).

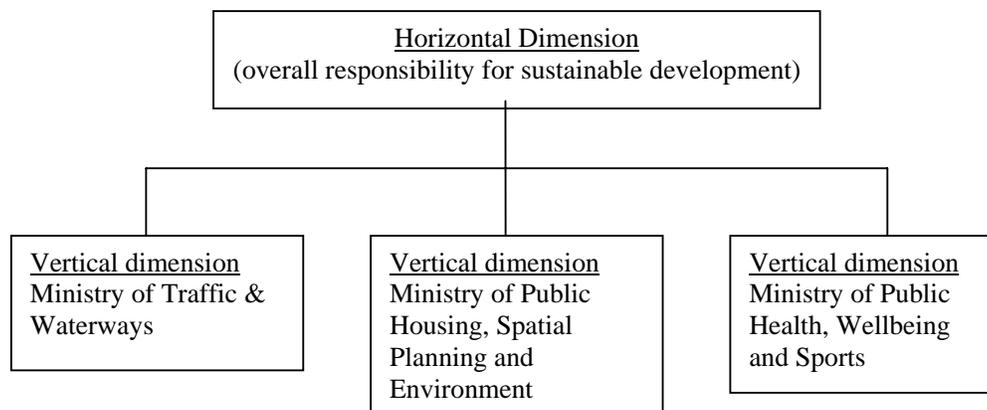


Fig. 2.2 Environmental policy integration: horizontal and vertical dimensions.

It is the responsibility of the provinces to work out the national policy in detail, in the form of regional plans, policies and area visions, this type of integration can be called vertical policy integration (ibid).

At the local level it is the responsibility of the municipalities to integrate environmental policy into their strategic plans (vertical integration, ibid). The integration of environment into

operational plans can be called horizontal integration at the local level. Due to the area specific nature of present day policy making, this horizontal integration into operational plans at the local level is what the MILO method is designed for, albeit that it is of similar use at the operational provincial level, see also fig. 4 (VNG et al, 2004).

Vertical environmental integration at the local level can either take place directly from the national level, so the provincial level can be skipped, or it can take place indirectly via the province, so that the municipality turns to the province for guidance and/or a frame for the integration. Of course the provinces can also actively support the municipalities with the environmental integration.

Administrative tier	Type of plan or policy	Application
NATIONAL GOVERNMENT	National policy (strategic) Operational programmes	
PROVINCES	Regional plans (strategic) area visions and other more operational plan and programmes	Application of MILO or LOGO
LOCAL LEVEL: MUNICIPALITIES	Strategic plans and policies Operational plans & policies	Application of MILO or LOGO

Table 2.1 Levels of MILO or LOGO application (adapted from Hidding, 2002)

2.5 Land use planning

The next section deals with the theory of urban land use planning. This research deals with the integration of environment into planning, so it is necessary to get a profound understanding of land use planning.

In their model, further explained underneath, Chapin and Kaiser (1979) identify *efficiency and energy conservation* and *environmental quality* as two of the goals of land use planning. Also, *environmental systems* are depicted as an intrinsic part of planning in their theory. This implies two things, namely that according to theory, land use planning and environmental policy show overlap were it concerns the goals efficiency and energy conservation, and environmental quality. The other implication is that theoretically (and ideally) environment is an integrated part of land use planning. It is therefore necessary to explain the theory of land use planning, which is even further stressed by the fact that environmental and spatial policy integration is in actual matter the integration of environmental issues into land use planning. So, the theory of land use planning forms the backbone of the theoretical framework in this research. First this theory is elucidated, then the more practical issues of land use planning are discussed.

According to Chapin and Kaiser (1979) the use of 'land' can be characterised in different ways. One can look at areas in terms of production potential of its soil or its subsurface mineral content. One can also look at the use potential of the land's surface for the location of various activities, such as processing, distribution, services, housing, recreation, transportation and other activities of an urbanized society. This last description is relevant for urban land use planning and is used in this research.

Urban spatial structure is a conjunctive outcome of the functioning of the market and political processes, the one providing the means by which individuals, firms and institutions pursue their *self interests*, and the other, the means by which government articulates and pursues the *common or public interests* (ibid.).

In their land use model, see fig 2.2, Chapin and Kaiser (1979) identify the following factors of public interest: health, safety, convenience, efficiency, energy conservation, environmental

quality, social equity, social choice, and amenity. The land use planning and guidance systems at level I intervene in the key urban land use systems at level II to achieve these nine factors of public interest at level III.

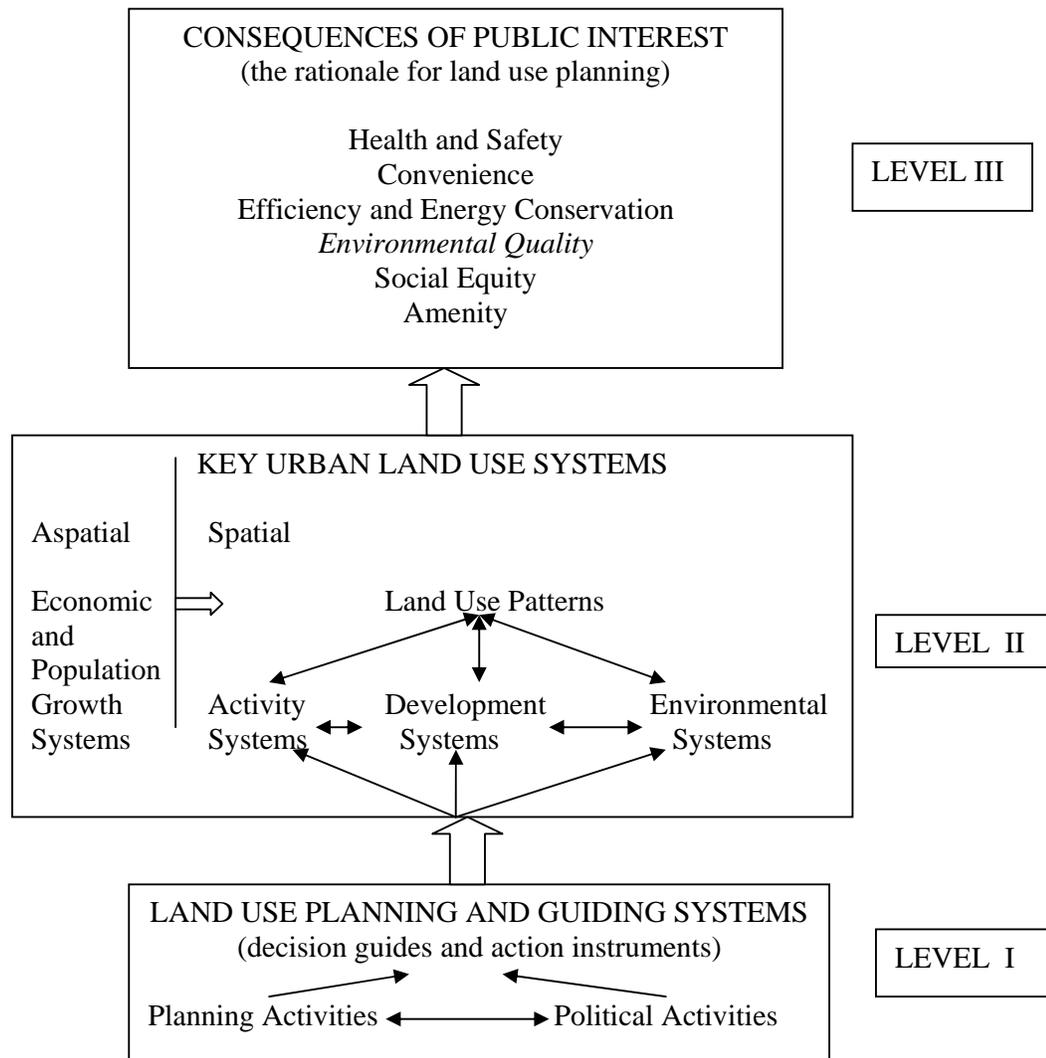


Fig. 2.3. Model of land use planning by Chapin and Kaiser. The land use planning and guidance system intervenes in the key urban land use system to achieve the public interest.

This model clearly depicts the essence of land use planning theoretically, but to make use of it in this research, planning must be further investigated in its real life context. Starting with the bottom level of the model, level 1, the land use planning and guiding systems are embedded in the governing structure. Concerning this we can speak of *multilevel-governance*, namely at state, provincial, regional and local (municipal) level. A distinction can be made between strategic⁴ plans at the one hand and operational land use plans at the other (for instance ‘bestemmingsplannen’ at municipal level).

Also, land use planning involves a relatively large amount of different policy fields or domains and can therefore be characterised as *multisector*, referring to the different sectors in governing

⁴ In this research the distinction between strategic decisions concerning for instance big infrastructural projects and concrete operational plan concerning the use of an area, is a relevant distinction, but of course in the complex world of planning other distinctions can be made as well.

and other relevant institutions. These different sectors all have their own notions of quality with regards to the physical surroundings (Hidding, 2002). On top of that, these domains have different ways of working, they each have their own style of planning, procedures, types of regulation and planning concepts (Van Tatenhove et al, 2000).

Level II of the model concerns the key land use systems, which are determined by *spatial* and *non-spatial* factors. Spatial factors are:

- the activity systems, consisting of all the existing companies, public and private households etc;
- the development systems, consisting of all new developments;
- the environmental systems, referring to the surroundings with all the environmental resources.

Non spatial factors are the demographic and the economic systems. Obviously these also influence land use. Even though the economic systems are a factor in the model, the model does not further make explicit that in market economies profitability and/or costs are crucial factors (see for instance Janssens and Van Tatenhove in: Van Tatenhove et al , 2000, : “[green] planning [and sustainability]... refers also to planning that is economically viable ...”) In view of this, *economic interests* should also be included as a factor in land use planning.

To formulate it more broadly, generally speaking there are always economic, social, public health, cultural and historic, as well as environmental interests at stake. This implies that land use issues are also of a *multidimensional* nature. We only need to think of all the dimensions of environmental issues, to realize the dimensional variety of all the aspects of land use. To give just one example, interests of a sustainable nature imply that future interests should also be taken into account, but these can be highly uncertain because it is difficult to forecast with certainty what the future will bring (De Vries, 2004).

The above mentioned variety of interests implies also that there are *multiple stakeholders*, who may even have conflicting interests. Due to this multitude of characteristics, land use planning is highly complex.

The above description of the characteristics of land use planning is still insufficient to serve the purpose of this research, because planning must be seen in the context of environmental integration and application the two methods too. The next section deals with all the relevant aspects playing a role in the context of MILO or LOGO application.

2.6 The context of environmental integration

In order to further depict the context in which environmental integration and MILO or LOGO application takes place, it is necessary to zoom in on the bottom level (Level I) of the model of Kaiser and Chapin in par. 2.1. It is at this practical level of the land use planning and guiding systems, that environmental integration and the application of the methods actually takes place. MILO or LOGO’s goal is to attain environmental quality, which is at the top level III. In figure 6 underneath this is represented. The multi-characteristics of land use planning, namely multi-sector, multi-level, multi-dimensional and multi-stakeholder, as discussed in par. 2.1., are included in this figure too.

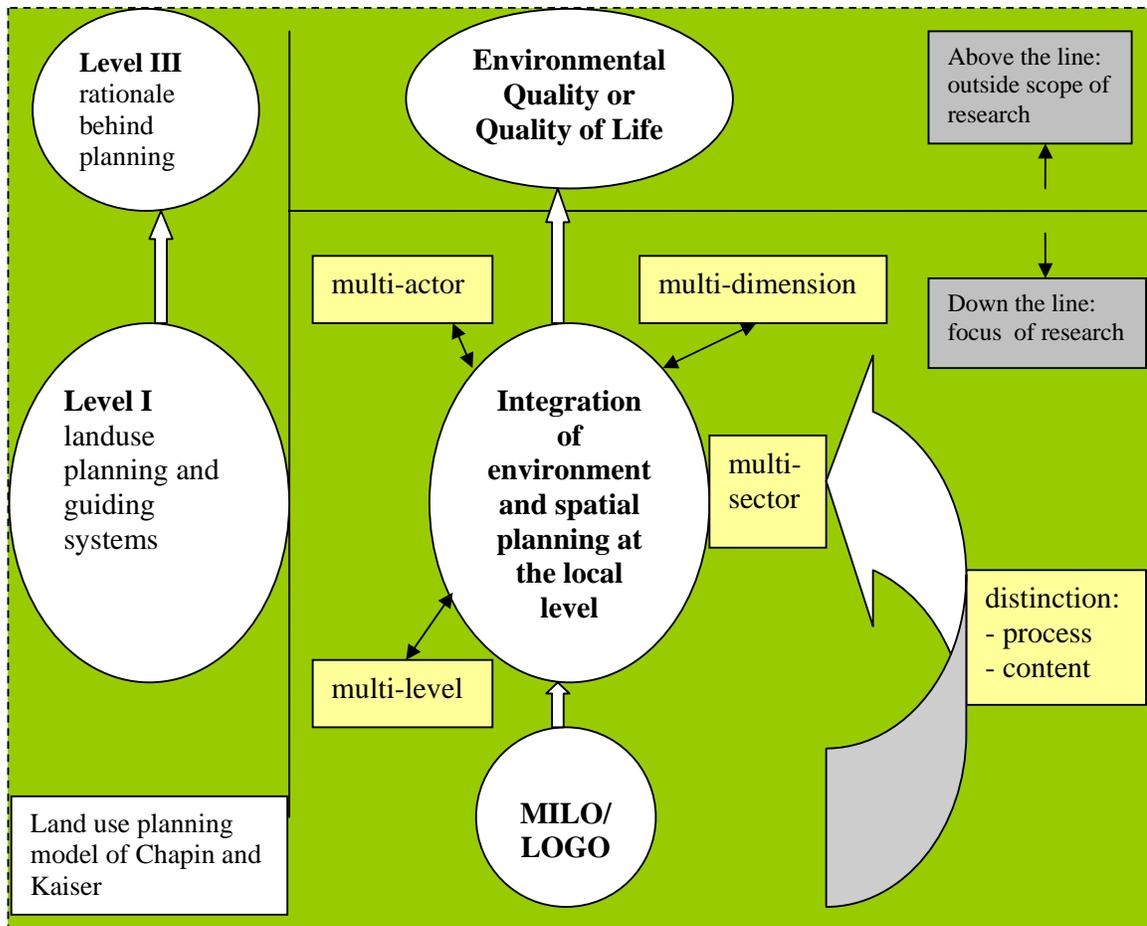


Fig. 2.4 Graphic representation of the context of the application of MILO and LOGO. At the left hand side are the corresponding levels of the Chapin & Kaiser's model.

The MILO and LOGO methods are used for policy-making. Policy can be defined as ‘the aspiration to realise certain goals with certain means within a certain period of time’ and according to policy theory a distinction can be made between ‘content’ and ‘process’ (adapted from Hoogerwerf and Herweijer, 2003). As this distinction is relevant for policy-making, instruments such as MILO should also relate to both aspects. With respect to MILO and LOGO *content* concerns for example how environmental quality is operationalized, i.e. choice of indicators and the weighing of these indicators, so it concerns the form of the environmental input. *Process* concerns issues like interactiveness (see also underneath under societal context) and the timing of environmental input.

With regard to policy different stages can be distinguished (adapted from Neelen et al, 2003). The two stages most relevant for this research are *policy-making* and *decision-making*. It is in the policymaking stage that MILO is applied, so that well-informed decisions can be taken.

Assessing the above fig. 5 on the context of MILO and LOGO application it becomes clear that this is still a rather general picture. Bovens (2001) lists far more contextual factors than represented here. But not all factors mentioned by Bovens are relevant for operational policy making at the local level. Factors that were found to be relevant during the desk research and the pilot interviews, are:

- institutional factors. Multi-sector governance was already mentioned. This is relevant because the research perspective is first and for all the multi-sector perspective, due to the fact that at the municipal level the traditional sectors are still in place.

- political factors. For green policies, both the College van Burgemeester en Wethouders (Mayor and Aldermen) as well as the Gemeenteraad (city council) should be supportive. The first to support the civil servants concerned while they develop the plans and policy and the second because they have the power to block the plans and policies, or to strip them from environmental goals.
- power factors. According to Bovens (2001) a central question is: ‘Who decides on policy?’ Bovens distinguishes realisation power (realisatiemacht), the power to realise policy, and obstruction power (hindermacht), the power to obstruct policy. Not only realisation power is important, there are many examples of building projects that were delayed (i.e. Korenwolf, Milieu Federatie Limburg, 1999 and High Tech Campus Philips, Milieu Federatie Brabant, 2000) with obstruction power. A consequence can be an aversive attitude concerning environmental issues amongst people who have a say in policy making (De Jong, 2006).
- societal factors. Policy making is no longer merely a matter of the state, also the market and civil society are involved in policy making. At the one hand this takes various forms of agreements, at the other hand it takes public participation.
- financial factors. In paragraph 2.1 it was argued that economic interests should also be included, because spatial plans and policies and environmental measures always require funding
- legal factors. In those cases where (environmental) rules and regulations cannot be met, methods like MILO or LOGO are not that suitable, because rather than focussing on the legal environmental requirements, the focus of these of instruments is directed to environmental quality that surpasses the legal requirements.
- international (legal) factors. European (environmental) law comes first and the generic nature can conflict with the area based approach.

2.7 An evaluative framework to assess MILO and LOGO application

A final step that needs to be made, before the effectiveness of MILO and LOGO application can be assessed is finding a frame for analysis. With the theory and model of Chapin and Kaiser described in § 2.5 as the starting point, we have in §2.6 identified all factors that play a role in the context of policy integration. But knowing all factors that may be of influence, is not sufficient for assessment purposes. In order to be able to evaluate MILO and LOGO application and its contextual factors, theory as well as a specific tool to do so, are prerequisites. Despite the fact that in recent years a lot of publications on policy analysis appeared, there is no ready instrument available to evaluate a methods like MILO or LOGO and their applications. One researcher who recently developed a theory on policy analysis is Van de Riet (2003). Her theory - policy analysis in multi-actor settings – amalgamated the complexities of policy-making in single-actor and multi-actor settings into one model, a tool for assessment. According to Van de Riet (ibid.) the complexity of single-actor settings arises from fuzzy objectives, system complexity and uncertainty about the effects of solutions (Koppenjan, Van Heffen in: Van de Riet, ibid). Multi-actor settings only add to the complexity, due to the facts that different actors have different perceptions of reality and may have conflicting interests (Bennet et al, Rosenhead, in: Van de Riet, ibid).

Van de Riet’s model however, does not fit the needs of this research. As depicted before, MILO/LOGO application does not only take place in multi-actor settings, but in multi-level, multi-dimensional and multi-sector settings too. Besides that, it is necessary to distinguish ‘content’ and ‘process’, as well as include all other mentioned factors in § 2.6 (institutional, political, power, societal, financial, legal and international) in the assessment. And yet another distinction needs to be made, and that is the rather basic distinction between the method itself and all contextual factors playing a role during MILO/LOGO application. Therefore it was necessary to develop a framework for analysis especially for this research. But the framework was inspired by Van de Riet’s lines of reasoning and the model presented in her research. And, beside the multi-

actor part - which is of course apt in the planning context - some elements of Van de Riet's theory were taken over. These are *goal-orientation* and *effectiveness*, and the fact that policy analysis should first and for all produce *useful knowledge* for policy makers. Translated to this research, goal-orientation can be regarded as the extent to which the method is orientated towards achieving its objectives, and effectiveness for the extent in which the method's objectives are actually achieved. And in this context useful knowledge refers to MILO or LOGO application providing useful information for decision-making purposes at the local level. Following up Mastop and Faludi (in: Kamphorst, 2006) it is necessary to add that MILO application is also considered to have effects, if *it affects policy-making discussions*.

The above paragraph and the fact that MILO and LOGO were designed to help in the policy-making practice, raises two *key* questions:

1. Is MILO suitable for application, in itself and with regard to content and process?
2. To what extent is MILO goal orientated and effective, actually achieving its goals?

The second question is from a different order than the first, it is a more general and overall question that will be raised in the individual cases and further discussed in the conclusive chapter. With the help of the information obtained in the pilot interviews, theories found in desk research, and of course by scrutinizing the MILO method itself, question number one was worked out in detail, leading to eight requirements or criteria for assessment; two concerning the suitability of the method itself, three for the content, and three for the process. The framework is completed with four requirements covering the remaining contextual factors: institutional, political, power, societal, financial, legal and international.

The method itself

The first and very basic requirement concerns integration. MILO and LOGO's key objective is to improve environmental quality by contributing to integrated plans and policies. But what is integration and when is a plan or policy integral? As we have seen in paragraph 1.2.3 the first step towards improving the quality of the living conditions, or even quality of life, is the integration of environmental issues into planning. But an integral area specific way of working envisages a coherent plan or vision for the area, in which not only the environmental aspects are integrated, but the social and economic aspects (MILO guide, 2004) and other aspects like cultural aspects (Hidding et al, 2002) are integrated too. Kreukels (2006) also holds the opinion that a truly integrated approach for spatial planning cannot consist of environmental aspects only, but requires the integration of social and economic aspects too. This provides **requirement 1: the method is sufficiently integral, so that its application can lead to more integral policy making.**

According to the makers of MILO, the method is applicable both in urban and rural areas, and on different geographic scales. The four big cities in the Netherlands already had their own methods, but besides those MILO is clearly intended for use throughout the country (MILO guide, 2004) and LOGO is meant for use by any municipality throughout the Rijnmond region (DCMR, 2004). But, according to Van Veen (2006) every municipality has its own planning practice and every project is different, so it is an illusion that methods like MILO can be applied everywhere. This leads to **requirement 2: the method is versatile; it can be applied in any municipality and for any project.**

Content

The content requirements basically concern the question whether MILO or LOGO can structure the search for area based environmental ambitions by providing sufficient guidance on:

- demarcation of the area and establishing all its relations;
- finding a comprehensive indicator set, which includes both objective and subjective indicators;
- weighing the different indicators.

First and for all it is necessary to demarcate the area concerned. However, marking off areas is not easy, as areas are not 'closed off'. A good example of this is the so called 'Stolp benadering'⁵ ('Cheese-cover approach') which does not do justice to reality, because reality is very diffuse. Schiphol is a good example. The secretary of state Van Geel provided opportunities for Schiphol to expand, by choosing a much larger area around the airport (Kreukels, 2006). This resulted in more people being subject to noise hindrance, while at the same time reducing the noise levels and/or the frequency for those who are exposed, by spreading the flights over a larger area. Avoiding the comparison between the economic interests of Schiphol and the health interests of people who suffer from noise hindrance, this example makes clear that demarcation is an intricate issue. If there is an environmental problem like for instance a high level of carcinogens in the air, we have not done anything for the environmental quality if we make the area twice as big, so that the average levels of the carcinogen substances appear to have been reduced by 50%.

Another example of the difficulties related to an area-specific way of working and the zoning of the area is that certain types of environmental pollution within the boundaries are not all caused within the area, but are the result of activities elsewhere, that cannot be influenced at the area and/or local level. A good example is air pollution; in a lot of municipalities in The Netherlands there are high background air pollution levels anyway, regardless of the local emissions (MNP, 2005).

The MILO guide recommends the use of the layer approach, in order to map out all the area's relationships, like for example traffic streams in the network layer. However most environmentalists have little or no experience with this approach. An illustration how difficult it is to integrate all relationships of an area into the design, which is of course a prerequisite to optimize environmental quality of quality of life, is provided underneath.

Box 2.1 Not one bench with a view

On a holiday in Switzerland I came across a newly designed park in the town of Brig. This park fits really well into the town plan, which I am capable of judging because of my work for architects and engineers. There is however one flaw in the design: it is impossible to enjoy the magnificent view that the park offers – a palace on the foreground and 4000 meters high mountains towering above it in the background - from *a sitting position*. The designer of the park did not integrate the view on these mountains - some 20 kilometers away- into the design.

Proof that others appreciate the view too, was found in the fact that all the five brochures on the area found at the local Tourist Information had conspicuously placed this picture - taken from a position in the park- in their brochures. In one brochure there were even three pictures of the view in different weather conditions. Also, no other pictures of Brig were found in the brochures, so it is considered *the* most beautiful view in Brig by the makers of the brochures as well (for an illustration see the picture on the next page).

⁵ The Stolp method was developed at the Free University for the municipality of Amsterdam. The central idea behind this method is that an imaginary cover is placed over an area, representing the maximum levels of environmental pollution in the area. The aim of the method is to at least not exceed the cumulative environmental pressure, and on the longer run even to decrease the environmental pressure (De Roo and Visser, 2004). The method was never applied (Verschuuren, 2006).



Fig. 2.5 Picture of the Stockalper Palast in Brig, Switzerland.

This leads to **requirement 3: the method is useful for the demarcation of the area, as well as for mapping out all its relationships.**

Closely connected to the demarcation issue and the area's relationships is the problem that if the focus is on one area, there is the danger of simply exporting environmental pressure to another area. For example in Münster (Federal Republic of Germany) the environmental quality of the city greatly improved, but the environmental quality of the surrounding municipalities decreased due to all the polluting industries resettling there (Kreukels, 2006).

So, to do a complete assessment it is necessary to apply another sub-requirement, namely the question whether environmental quality is improved by improvements in the area and not by exporting environmental problems to other areas.

Referring back to 2.2 'environmental quality and measuring quality', we have seen there are objective and subjective indicators and both should be included in policy making. This is so because the perceptions of citizens can differ greatly from objective measurements of the environmental situation. (Knoppert, 2006) So this raises the question if MILO or LOGO are helpful tools to obtain and measure subjective indicators, as well as to determine if an indicator set is complete (see questions 1. and 2 in § 2.2) And finally there is the question whether MILO and LOGO are helpful to select the reference values connected to the indicators? These questions lead to **requirement 4: MILO application leads to a comprehensive indicator set.**

Another question raised in 2.2. is the one whether or not MILO and LOGO are helpful as a weighing tool. In this context of weighing different interests in policy-making Van de Riet's (ibid) speaks of maximizing the benefits and minimizing the losses. Putting this in the context of

MILO/LOGO and their goal of the optimization of environmental quality in the area, this means maximizing the environmental gains and minimizing environmental losses, whilst in the process of doing so, identifying irreconcilable differences among actors too. And then there is also the issue of finding measures to realise the desired environmental quality. So, **requirement 5** concerns MILO or LOGO's **appropriateness as a tool to weigh the different indicators and to determine necessary measures.**

Process

Brown (2003), in dealing with the quality of environmental information and communication, argues that in order to communicate effectively it is necessary to get an understanding of the local policy making procedures, and that these procedures, rather than to be replaced by new procedures, should be supplemented as much as possible. Translating this to the assessment of MILO, it means that criteria to assess a method for environmental integration are whether it is apt for use in the local policy making context, as well as whether it is a supplement to the local way of policy making. So, ideally a method like MILO or LOGO makes avail of the existing procedures, rather than requiring new procedures to make land use policies and plans. And in case it does not quite fit, is it easy to adapt MILO/LOGO to the local planning circumstances?

Therefore **requirement 6** is: **MILO and LOGO can be made to fit the local planning practice.**

As far as the regular planning practices are concerned, management skills are not included in the research. This 'business as usual' is regarded to fall outside the research scope. It is simply assumed that the management skills for planning are present. But with regard to MILO/LOGO application they are included. The enthusiasm of the environmental officer for environmental issues and his capability to communicate well with planners and other involved actors. Several interviewees acknowledge that it is essential for the environmental officer to be stimulating and enthusiastic on environmental issues to be influential in the municipal area. And it is of course essential that the environmental officer chooses to use MILO/LOGO and is capable of carrying that through. Another point made is that environmental officers are usually specialists, but for the application of the methods it is better to have someone with a more general view (De Jong, 2006). Also, to integrate environment and planning, both environmentalists and planners should speak each other's 'languages' (adapted from Van Veen, 2006). But in the method there are no special demands with regards to personal skills or behaviour of the environmental officers, nor of the main involved officers, the planners. The seventh requirement is therefore on the applicability by officers: **requirement 7 MILO and LOGO are applicable by every type of environmental officer in every type of administration.**

Many publications deal with public participation and mention the increased occurrence of participation in present day (environmental) policy making. Examples of these are "The Consensus Building Handbook" by Susskind et al (1999) and environmental scientists like Smith and McDonough (2001). But planners publish on participation too. According to Kreukels (2006) a good example of this is Healy (1997).

Van de Riet (2003) argues that multi actor settings (like environmental integration in land use planning) require the following special demands on policy analysis, namely:

- all stakeholders are given a voice (participation)
- all stakeholders have access to information (transparency)

because stakeholder support is vital for the success of policy, or in this research, for the success of the MILO application (adapted from *ibid.*). So in the light of this research, it means the method should require the inclusion of all relevant stakeholders, as well as providing these with the necessary information. Van de Riet (*ibid.*) also points out that the outcome of policy- and decision-making should be acceptable to stakeholders. This is a complicated issue because stakeholders may have conflicting interests. But because the focus of this research is on methods, it is presumed that the outcomes are acceptable to stakeholders if a method induces the involvement of

stakeholders and their interests are carefully weighed in the process (this last issue is covered by requirement 5). **Requirement 8** therefore is: **the methods induce the involvement of all stakeholders in negotiating the environmental ambitions.**

Contextual factors

Finally the pilot interviews have resulted in the identification of the most significant contextual factors which influence land use and environmental policy-making:

- funding of environmental measures;
- political support for environmental issues within the municipality;
- support from the province;
- support from other stakeholders, besides those involved in the policy-making.

The funding is relevant because MILO/LOGO application in itself requires time and therefore money, as do environmental measures, however the central government does not provide any subsidy to do so (VROM, MILO-project bureau VNG, De Boer 2006).

Requirement 9. Municipalities (or provinces) are able to use MILO or LOGO without any extra funding (at least funding does not come with the method)

Concerning support for environmental issues within the municipality it is expected that the chances that MILO/LOGO is applied, the effects of its application will be greater in those municipalities that are relatively 'environmentally aware', and/or if they do not look upon environment as obstruction power (De Jong, 2006, Van Veen, 2006, Verschuuren, 2006, Vlot, 2006). This expectation is based on Kamphorst's research (2006) who distinguishes frontrunners, middle group and laggards as it comes to environmental integration.

Requirement 10. MILO and LOGO are only used and expected to have effects, if the municipality concerned is relatively 'green' and supportive.

Another relevant factor is the role of the province. In the planning practice in The Netherlands the province is responsible for working out the national policies into regional plans per area (the so called 'streekplannen'). Furthermore specific area plans are made that include implementation programmes, and provinces are provided with the necessary means for the implementation of these plans (Hidding, 2006). Because the province has an overall responsibility for areas within their territory and they are involved in the policy making too, it is also likely that MILO/LOGO has more effects if the province is relatively 'environmentally aware.'

Requirement 11. The application of MILO or LOGO will have more effects if the province concerned is relatively 'green' and supportive.

Likewise MILO/LOGO was expected to have more effects if other stakeholders are supportive or at least not working against environmental integration.

Requirement 12. The application of MILO or LOGO will have more effects if other stakeholders are supportive of environmental measures and or environmental measures are in their interest. These stakeholders can be: real estate developers (who may own the ground), housing associations, local civil society and local market parties.

It should be noted that the requirements are ordered in a way which seemed logical, and despite the fact that inevitably some requirements have more weight than others, the numbers of the requirements do not serve any other purpose than to make distinguish the different requirements. Underneath all requirements are placed in one figure.

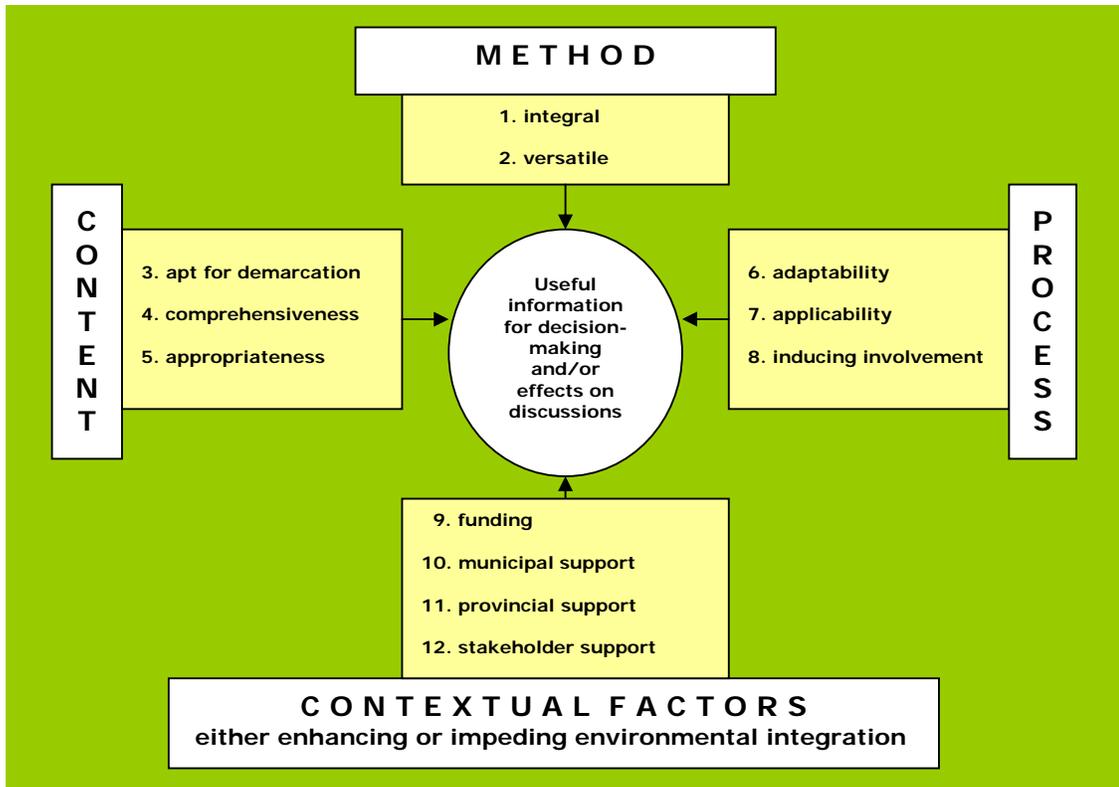


Fig. 2.6. Framework for analysis consisting of 12 requirements for assessment.

To complete the framework of analysis the above requirements were used to formulate a *list of 31 questions* for the case studies (see appendix 2). In the case studies this list of empirical questions was adapted for each interviewee, as not all questions were always relevant. Besides these questions, all interviewees were asked:

- their general opinion on the method in question, and if they could think of:
- any other circumstances which had had an influence on the application of the method
- improvements or recommendations for the methods, their application, or for an area specific way of working in general.

PART II EMPIRICAL SECTION: CASE STUDIES

Chapter 3 Nijmegen West-Weurt

3.1 Introduction

One of the cases selected for this research is the area Nijmegen West-Weurt (NWW). Nijmegen was one of the first municipalities that started using the MILO method after its release in 2004. The combination of several developments in NWW and the existing environmental problems in the area, made that Nijmegen was looking for an instrument to help them with the integration of environment into the new plans. With the MILO method they thought that they had found the right tool (Luijten, 2006).

First the area NWW, the plans for the future and the environmental problems are described in § 3.2, where some comments on the Environmental Area Vision are given too. Paragraph 3.3 discusses the use of MILO and its contribution to environmental integration in NWW, while the chapter ends with the conclusions of the NWW case in § 3.4.

3.2 Case description of Nijmegen West Weurt

3.2.1 Present situation

The municipality of Nijmegen has 152.000 inhabitants and is one of the larger cities in the province of Gelderland. It is situated on the southern bank of the river Waal, some 20 kilometers west of the German border. Originally only consisting of the two small villages Hees and Weurt, Nijmegen West-Weurt grew into a residential area with well over 47.500 residents and one of the biggest industrial estates of Holland with at present 400 companies that provide 22.000 jobs. Unlike most other sites in the Netherlands there is little distance between industry and the residential quarters.

The area of Nijmegen West-Weurt (see paragraph 3.3.2 for a map of NWW) is the area around the Noord- en Oostkanaalhavens, the industrial estates Westkanaaldijk and De Sluis. More westward in the direction of Beuningen are the waste treatment plant (ARN), the sewage treatment plant and the fur animal industry. At the north side the area is bounded by the river Waal, at the eastside by the railway to Den Bosch, at the south side by the Graafseweg and Wijchenseweg en at the west side by the A73 and the Reekstraat. The Maas-Waal channel runs right through the area.

The Noord- en Oostkanaalhavens (NOK) estate is of more than regional importance due to its location on the Waal and the variety in storage and transshipping facilities.

Since 2003 90% of the companies have joined the so called ONOK, the association of entrepreneurs. ONOK is involved in the plans for the development, as well as the environmental problems of Nijmegen West and Weurt. At Westkanaaldijk and De Sluis about 70% of the entrepreneurs have joined their association of entrepreneurs, WKS, which erected the 'Facility Point' and established joined management of the estate (parkmanagement). With the exception of Neerbosch –Oost the different neighbourhoods have their own community associations to represent their interests, see table 3.1 underneath.

Name quarter	Name community association
Biezen/Waterkwartier	Ons Waterkwartier
Wolfskuil	Wijkraad Wolfskuil
Hees/Heseveld	Vereniging Dorpsbelang Hees
Lindholt	Frisse lucht Lindholt
Weurt	Bewonersvereniging Weurt +

Table 3.1. Quarters and community associations in Nijmegen West-Weurt.

3.2.2 Plans for the (near) future (2007-2020)⁶

The plan 'Koers West' comprises three major developments for Nijmegen West and Weurt, namely:

- the construction of a second 'city' bridge across the Waal;
- revitalisation of the relatively old industrial estates;
- and new residential developments on the quay of the Waal.

Also plans of the neighbouring municipality Beuningen (of which Weurt is a part) will have an impact on the environmental quality. These plans are:

- a new overnight harbour ;
- elevation of the lock;
- ring road around Weurt;
- new location for the extraction of sand.

The consequences of these developments for the environmental quality can be both positive and negative. For instance the new bridge will increase traffic in Nijmegen West, whereas the ring road around Weurt will improve the conditions in the village and rejoin the northern and southern part, so that it will effectively become one village again.

Phasing of the plan Koers West

To date most plans are in the designing stage. At the one hand the designers are striving for coherence between the different subplans (the new bridge, revitalisation of industrial sites, new residential developments and optimal living- and working conditions in the area), at the other hand the plans are made in cooperation with all stakeholders, both in the area and in the bordering areas. The overall plan Koers West will be ready in 2020.

Box 3.1. Plan Koers West

Industrial sites

Last year a start was made with the improvement of the Ambachtsweg and Nijverheidsweg, mainly because of too much contaminated sludge in the sewage system (this is already disposed off). Work on the Ambachtsweg and Nijverheidsweg will be finished in 2006. Also a start was made with the renewal of the sheetpile walls (damwanden) at the Noord-Oostkanaal estate. All plans for the revitalisation of the industrial estates will be ready in **2008**.

Bridge

Last year B&W decided on the exact location of the bridge, and thereafter participative meetings were held with both the entrepreneurs and the public to give their comments. In May 2006 the preliminary zoning plan (bestemmingsplan) will be ready. June 2009 is the earliest possible time to start building the bridge and according to plan it will be finished by **2011**.

Waal harbour and riverside (Waalfront)

In 2005 the architect and urban planner Jo Coenen made a plan for the Waal harbour. There was a MER conducted for the Waalfront. 1 October 2005 was the kick off date for the Masterplan Waalfront. In the meantime the first apartment building Waalhaeve was build at the waterfront. It was ready d.d. March 2006. Coming June the Masterplan Waalfront will be ready. It will take some fifteen years to fulfil this plan, so it will be ready in **2020**.

3.3 Assessing the contribution of MILO in Nijmegen

This section deals with the answers of the Nijmegen case to the two *key* questions raised in chapter two with regard to MILO's suitability for application in the municipal context and its goal-orientation and effectiveness. Goal-orientation is regarded as the extent to which the MILO method is orientated towards achieving its objective: to improve or even optimize environmental

⁶ this paragraph as well as paragraph 3.2.3 on the EAV, is almost entirely based on the Environmental Area Vision NWW of the municipality of Nijmegen, March 2006.

quality through environmental integration in spatial plans. As explained before, the environmental quality itself falls outside the scope of this research, because to date it cannot be assessed due to the long periods of time necessary to complete land use projects.

In this research 'effectiveness' is the extent to which MILO application produces useful information for decision-making purposes, as well as the extent in which it affects policy-making discussions (Mastop and Faludi in: Kamphorst, 2006). So, the section deals with the use of the MILO method by the municipality of Nijmegen for Nijmegen West-Weurt and discusses MILO's contribution to environmental integration.

3.3.1 Reasons for using MILO

According to Luijten (2006), who initiated the use of the MILO method for Nijmegen West-Weurt, there were several reasons to do so. Firstly it was hard to comply with the generic national norms for noise everywhere in the city of Nijmegen (see insert for more detailed information). Therefore the department of noise initiated a pilot project to differentiate noise norms depending on the type of area. This put them on the track of the MILO method as a method for non generic, area-specific policy-making. This initial reason can of course not be considered environmental policy integration (EPI), but rather a search for more flexibility in dealing with legal norms for noise.

Box 3.2. Legislation and regulation of noise in The Netherlands

Compared to the legislation for air quality, noise regulation is relatively 'soft'. Air regulations are 'hard', and simple in the sense that it is compulsory to comply with the national norms for air quality in the 'Besluit Luchtkwaliteit' (Decision Airquality 2005, in force at present in Holland).

For noise there are regulations and a noise limit of 70 Db(A) is set, but up to now these only played a role for new developments. The existing situation is not monitored and there are no consequences if the limit is met or surpassed, for example due to increased traffic. Because there is no enforcement of the noise regulations in existing situations, and due to the general changes in policy-making that took place in The Netherlands over the last two decades (see also the first chapter), noise policies have developed more and more into area-specific policies, in which the ambitions for noise levels depend on the functions. (Sources: W. Swart, acoustics specialist at the RIVM, and R. Kuiper, MNP)

Secondly, the central idea of Koers West was to intensify and concentrate activities in an area which is already highly dynamic, in order to spare the surrounding landscape. This idea originates from the spatial concept; the Compact City⁷. The people concerned were very aware that this aim of concentration in an area like Nijmegen West-Weurt meant that there were no easy solutions, that its transformation would be an intricate process. MILO was thought to help to reduce the complexity of this process, by providing guidance on and examples of the environmental content of policy-making.

Thirdly mention was made of the new Law on Spatial Planning that will be effective in 2007 and the fact that in the new situation the province will no longer check the municipal zoning plans. Instead municipalities are expected to draw up their zoning plans on the basis of motivated (environmental) area visions. The general idea behind these legal changes is that plans are not checked afterwards, but that municipalities incorporate environmental and health aspects at the earliest possible stages of planning. So, in Nijmegen they decided to already make such an area vision for Nijmegen West-Weurt, in order to get experience with this new way of working.

So, apart from anticipating on these new legal developments, MILO was embraced because it was expected that the method would be helpful to structure and to help solve the complex environmental problems in the area Nijmegen West-Weurt. The main aim was at least to comply with environmental laws and regulations, and possibly to even obtain a higher environmental quality than legally required in the area (Environmental department of Nijmegen, 2006).

⁷ The concept of the Compact City is a spatial concept for urban development, striving for the concentration of urban functions (see for example Bartelds and De Roo, 1995).

3.3.2 Environmental Area Vision for Nijmegen West and Weurt

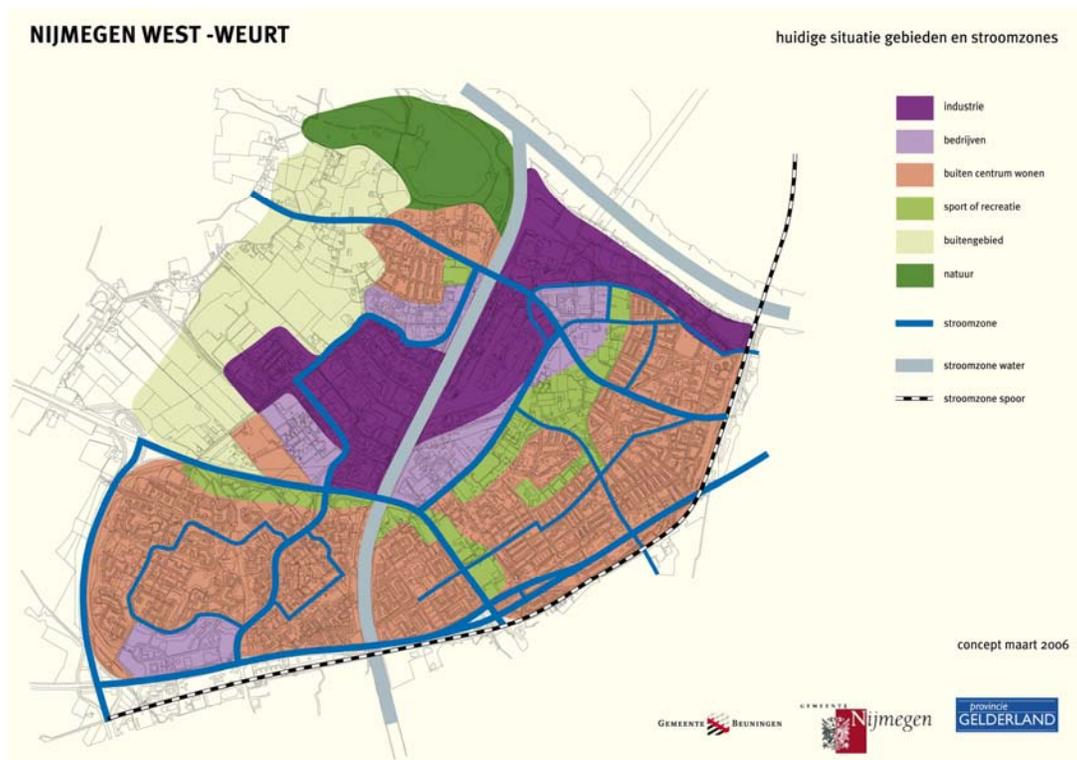
Part of the plan Koers West was also to make an Environmental Area Vision (EAV: milieugebiedsvisie). However, the EAV was made at a stage when the first activities of Koers West had already been decided upon. So despite the fact that making an EAV is in accordance with the MILO method, in the case of NWW they failed to meet the demand that environment should be included at the earliest possible planning stage.

It was the first time that an EAV was produced in Nijmegen. In this EAV the environmental ambitions for NWW are laid down. These ambitions depend on the features of the area, and specifically on the main functions. For Nijmegen West and Weurt the area was divided into subareas on the basis of four criteria:

- main function(s);
- mix of functions;
- intensity of use;
- density.

On the basis of these criteria the following six types of subareas are distinguished:

Industry, office locations, residential, sport and recreation, nature, countryside. At the edges of these subareas busy roads can have a lot of influence. The zones alongside these busy roads are called ‘flow zones’, which have specific environmental norms.



Industry	This is where more heavy, polluting industry is. Intensity of use is high. Flows of people and/or goods continue day and night. The area has a lot of tarmac (roads).
Non industrial companies	In this type of area there are companies with relatively little environmental impact. There can be some dwellings. Use of this area is mostly made during the day and evening. Density varies. Besides buildings and parking lots there is sometimes space for greenery.

Living	Main function is living. There can also be shops and other amenities, especially on busy roads. The intensity of use is relatively low. There is room for public parks and gardens, unless the intensity of use is relatively high.
Sport and recreation	Within this type of area intensity of use differs a lot. An area with sports parks and recreation is usually quite green and has low dynamics. Maintenance is quite labour intensive. Specific spots can have a more natural appearance and will be maintained as such.
Nature	These type of areas have low dynamics and are relatively old and can therefore be irreplaceable. It can also concern an area that is unique because of its soil conditions or natural value. There are few buildings. Accessibility is restricted.
Countryside	This is countryside with an agricultural main function. These areas have low dynamics. This type of area often supports natural areas. There is space for connecting zones between areas with high ecological values (verbindingszone voor de ecologische hoofdstructuur).
Flow zones	Flow zones are (artial) roads for the accessibility of cities, town centres, suburbs and industrial estates. The areas alongside these roads are strongly influenced by the relatively high intensity of use. A flow zone offers opportunities for traffic inducing functions.

Fig. 3.1 Map of Nijmegen West-Weurt and the different subareas typologies (source: environmental vision for the area, concept March 2006, municipality of Nijmegen).

In general the goal for Nijmegen West-Weurt is to find: ‘a balance between living, working, transport and living conditions in the area.’ This means:

- attractive living quarters with sufficient amenities and sport facilities
- industrial estates where companies can settle in harmony with the surroundings
- accessible by bike, public transport and car
- accessibility of industry and companies
- good environmental quality, at least at the legally required levels

There is a tension between these ambitions and the environmental problems in the area. The worst environmental problems are depicted underneath.

Air quality

At present the concentrations of both fine dust and NO₂ (nitrogen) are higher than the legally required levels. The yearly average concentration of NO₂ is exceeded at a number of artial roads in the area, namely Energieweg, Neerboscheweg, Marialaan, Graafseweg, Industrieweg, Van Heemstraweg, Hogelandseweg and the A73.

Besides that the daily average norm for fine dust is exceeded throughout the area of Nijmegen West-Weurt. At above mentioned roads this norm is exceeded 100 days per year, while 35 is allowed.

For fine dust the yearly average norms are not exceeded (this is so since the ‘Besluit Luchtkwaliteit in 2005 which allows subtraction of the natural seasalt fraction of 4 ug/m³).

50% of the nitrogen and 25% of the fine dust is caused by traffic, half of which is by private cars and the other half is cargo transportation by road. Other sources are industry, ships, but also households with multi burners, fireplaces, barbecues and private cars with diesel engines. A major part of the air pollution however, is not from local sources but originates from the Rijnmond area, Antwerp and Brabant. According to Bus (2006) and the RIVM (2005) the background concentrations, i.e. the yearly average concentrations of nitrogen and fine dust are relatively high in the Nijmegen region. This can of course not be tackled locally.

Noise by traffic and industry

Most of the noise is caused by road traffic, but industry is responsible for it too. As elsewhere in the country, there are more and more cars on the roads in Nijmegen West and Weurt. A number of measures will be taken to reduce the noise by traffic when the new bridge is built, like noiseless tarmac and noise barriers. Afterwards the noise situation will be assessed and if necessary more measures will be taken.

In most of the area the amount of noise does not exceed the legal norm of 65 dB(A). But, both in the village of Weurt and in the quarter Waterkwartier the noise levels from industry are higher than that.

The noise disturbance due to ships on the river is relatively small. People are less easily disturbed by the noise of ships and only a small part of the population lives close to the river.

Odour by companies

There are six sources responsible for problems with smell in the four quarters Weurt, Lindenholt, Hees and Waterkwartier. By optimizing the permits (enforcement) it will be possible to improve the situation within three years (< 3% severe annoyance, 12% annoyance). This is also due to present developments at companies as a result from the Law Environmental Protection (Wet Milieubeheer).

Despite that, the smell of Heinz may remain a problem for the neighbourhood the Biezen, so it might be relocated provided that the ‘Waalfront’ will be realized. In Lindenholt the fur animal industry is largely responsible for the smell, albeit that this is only during two months of the year. The municipality will investigate the possibility of relocation of this industry.

Norms for the desired environmental quality

For air quality the norms do not differ per subarea. Limits for air quality are laid down in the so called ‘Besluit Luchtkwaliteit’ (2005). At the end of 2007 the new law on air quality will be enforced. The norms for air quality will not change, however at the moment it is still unclear which impact this law may have on the plans for Nijmegen West-Weurt.

In the table underneath the norms and ambitions for noise and odour are given.

Type of area	Ambitions Noise Quality (traffic noise) Source: Noise policy, municipality of Nijmegen		Ambitions Odour (in % severe odour nuisance) Source: Government policy, NMP4	
	Ambition	Legal limit	Ambition	Limit
Industrial	50dB(A)	65 dB(A)		
Offices	50 dB(A)	60 dB(A)		
Residential	45 dB(A)	55 dB(A)	< 3%	3%
Countryside	50 dB(A)	60 dB(A)		
Sports+recreation	45 dB(A)	55 dB(A)		
Nature	45 dB(A)	55 dB(A)		
Streamzone (traffic)	40 dB(A)	45 dB(A)		

Table 3.2. Noise and odour ambitions per type of area (source: environmental vision for the area, concept March 2006, municipality of Nijmegen).

The insert underneath provides a synopsis of the environmental measures in the Environmental Area Vision.

Box 3.3. Environmental measures from the Environmental Area Vision

Traffic

Measures at the source to improve air quality

To tackle the problems of air quality in NWW, measures at the source are necessary. These measures mostly aim at reduced and cleaner freight transport. To achieve this Nijmegen cooperates in a regional programme with the national government, the City region Arnhem-Nijmegen, and other governmental bodies in the region.

For West-Weurt the municipality initiated a goods transport management project, as the name implies particularly focussed on reducing freight transport. Besides the local entrepreneurs – effectively a selection of companies which have the most movements in NWW- and the municipality itself, participants are also the municipality of Beuningen, Gelderland, VROM, Senter Novem, Infomil and Buck Consultants International. The overall goal of this project is to reduce the air pollution by road traffic by means of:

- application of technical measures to make vehicles cleaner;
- introduction of Euro 4 and 5 engines (cleanest types of truck engines);
- transport reduction and logistic efficiency.

Complementary measures to improve air quality

Besides goods management the following measures can be taken:

- spraying and wet sweeping of arterial roads (on hot and dry days);
- planting shrubs alongside the roads;
- no through traffic over new City bridge;
- stimulate traffic circulation;
- high quality public transport, improvement of cycle lanes;
- possibilities for ships to plug into the electric circuit at the shore.

If the above measures appear insufficient the following further measures are contemplated:

- adaptation of road profiles so as to increase the distance the the road axis;
- relocation of industries responsible for a lot of traffic;
- imposing environmental zoning.
-

Measures to reduce noise by traffic

To reduce the noise hindrance caused by traffic the following measures are proposed:

- noise screens and 'silent' tarmac at City bridge';
- 'piggy back' with measures for air quality;
- 'silent' tires and 'silent' road surfaces instead of brick pavements.

Industry

Measures to reduce odour, fine dust, nitrogen and noise by industry

Odour can very well be handled by regular granting of permits and enforcement. For fine dust, nitrogen and noise opportunities are limited, especially with regards to environmental effectiveness. Possibilities are:

- technical, bio-filters and the like according to Best Technical Means (BTM);
- higher chimney and dust-filters at the Nijmeegse IJzergieterij (NIJG)⁸;
- enlarge distance between source and receiver, relocate companies.

(Source: Environmental Area Vision NWW, 2006, municipality of Nijmegen)

3.3.3 Comments on the Environmental Area Vision

It was the first time that Nijmegen made an EAV and because it is an EAV is one of the possible outcomes envisaged in the MILO method, it is interesting to assess the EAV.

In the EAV mention is made that land use planning offers solutions for environmental problems and vice versa, environmental policy can help to realize spatial developments. The connection between space and environment is made by listing all major projects in NWW, and giving each project scores for expected environmental gains at three scales, namely: quarter, the NWW-area and regional

⁸ The province of Gelderland, and the municipalities of Beuningen and Nijmegen together brought up the sum of money necessary to take these measures at the NIJG factory. However at the time this research was conducted it was still unclear whether the European Committee would allow this, or would regard these governmental subsidy as giving the NIJG an unfair competitive advantage over similar European companies, despite the fact that is not an economic subsidy but an environmental one (PM reference opzoeken, 2006)

/national. The scores are briefly explained in a qualitative way, in text that accompanies the table with the scores. This table is copied underneath.

	Quarter	Nijmegen Weurt	West	Regional/National
City bridge	+	+		++
Bypass Weurt	++	0		0
Overnight harbour	--	0		0
Waalfront	++	+		0
Industrial estate A73	--	--		++
Sand extraction	--	0		0
Village for children Neerbosch	++	++		0

Table 3.3. Expected environmental gains of projects in NWW at three scales (source: EAV NWW, 2006).

This table is speculative, the scores and the comparability of the different environmental gains are unaccounted for. For example the regional/national score of the City bridge is two plusses. It is unclear why the regional/national environmental gains are supposed to be twice as high than the quarter and NWW scores. One could argue that if a substantial amount of traffic uses the new bridge, there is far less traffic across the old Waalbridge, greatly improving the environmental situation at the arterial roads leading to and from this bridge. This is however not the same as stating that there are regional or even national *environmental gains*. If traffic passes along a different route the environmental pressure simply shifts elsewhere. The only undisputable environmental gain in this table is the bypass for the village of Weurt.

Furthermore, the EAV does not include all environmental impacts in NWW. An example of this is the NWW's railway zone, for which a Masterplan is developed at present. This plan includes amongst others a large parking garage and a 120 meters high tower at the Hezel gate (Sporboekje Nijmegen, 2003.) As these developments will have environmental impacts in Nijmegen West-Weurt, these should ideally have been included in the EAV as well.

The measures in the EAV are almost entirely *mitigating measures*, and can therefore be characterised as *traditional environmental policy-making*. The Goods Transport Management Project is an exception to this, as the proposed measures tackle the source of the problem. The relocation of industry from the Waalfront in favour of houses at the riverside, is an example of a measure that goes beyond environmental quality. It can be typified as a 'quality of life' measure.

Granting that this EAV is not impeccable, its prime weakness being the above table x, it is noteworthy that a first attempt was made for such an intricate area as NWW. The EAV has no legal status, but after ratification of the city council, it is an official document representing the municipal opinions and environmental ambitions to the public. As such it might very well help to contribute to environmental integration both with regard to civil society and also internally in further developing the plans for NWW.

3.3.4 Summing MILO's contribution up

The application of MILO in Nijmegen West-Weurt only had limited effects, which is in part due to its rather limited use. But concerning EPI a small step forward was been made in Nijmegen, as all interviewees from the municipalities of Beuningen and Nijmegen reported increased inspiration due the fact that in the MILO method environment is presented as an *opportunity* rather than a limiting factor. Despite the fact that an increase in inspiration is hard to measure or quantify, it was thought wise to mention this result of the MILO method, as respondents spontaneously as well as unanimously mentioned that this new viewpoint on environment was an 'eyeopener'.

Due to the fact that the environmental ambitions hardly go beyond compliance with legal requirements, it does not seem likely that MILO has led to other choices than if it had not been used.

Furthermore, mention was made that MILO was used for *guidance* ; i.e. for the environmental indicators, the reference values and the environmental ambitions in the Environmental Area Vision. Also, the MILO area typology was used for NWW. Therewith MILO helped to structure and to reduce complexity. So, the second effect is that the EAV for NWW was drawn up with the help of MILO.

MILO application had a negative effect too. The Environmental Area Vision, and therewith the environmental ambitions, were made in an interactive way. There are two bodies, called Platform West and the Kronenburger Forum, which were set up by the municipality with the sole purpose to participate in the policy-making for NWW, and as such to contribute to the environmental ambitions for the area (several interviewees including Luijten, 2006). This interactive way of working cannot be contributed to MILO, but was a result of various occurrences that happened in the past, for example, the occurrence of cancer in Weurt and the public upheaval as a consequence, as well as various court cases against the municipality initiated by the public (several interviewees, including Knoppert, 2006). However, the fact that there was an interactive process, affected the application of MILO, and unfortunately not in a positive sense.

Box 3.4. Summary of recent participation in NWW

A few years ago the municipality erected a platform for participation in NWW called *Platform West*. This platform was asked to give advice on the location of the new City Bridge. In order of priority the advice was:

1. extend the A73 in a northerly direction
2. broaden the A50
3. build the City Bridge

In the same week that Platform West handed this advice to a municipal officer, who was subsequently supposed to hand it over to the Mayor and the Aldermen (College van B&W), newspapers wrote about the decision to build the City Bridge first and published the chosen location: off the NWW Waal quay, as an extension in northerly direction of the Energieweg. The members of Platform West thus became really frustrated, as their advice had clearly been too late to influence the decision making, and as a consequence Platform West ceased to be active. (Chairman Platform West, 2006) Because Platform West was 'sleeping', the municipality of Nijmegen established a new platform to advise them on NWW matters, called the *Kronenburger Forum*.

At present the members of the Kronenburger Forum feel double crossed too. The main reason for this is, that they feel the 'history has repeated itself'. The Forum was given a double role, the municipality involved them in the MILO application by giving them a voice in the making of the environmental ambitions for the EAV. But while the municipality involved the Forum in the formulation of the environmental ambitions, that very same municipality did not include the Forums advice into decision making processes. Concrete examples which caused upheaval in the Kronenburger Forum are the permit for an installation to make rubble out of waste building material in NWW and plans to build new units combining work and living, alongside the most polluted arterial road in NWW. The Kronenburger Forum finds it unacceptable to set up commercial activities at a road where the legal requirements for air quality are not met. The same is true for the rubble installation. The Kronenburger Forum does not understand why a permit was granted for a location right in the middle of NWW, as the installation itself will locally increase the amount of fine dust in the air, as well as increase traffic, as waste building material must be transported into NWW, and once it is made into rubble it must be transported out again.

On the whole the Kronenburger Forum feels that the negative environmental impacts of Koers West – the location of the City Bridge remaining the largest bone of contention -, the overnight harbour and enlargement of the lock at Weurt are irreconcilable with the environmental ambitions laid down in the EAV, and they are upset because the municipality continues the developments regardless of this irreconcilability. (Sources: interviewed members of the Kronenburger Forum, 2006)

When MILO was first introduced to the participants and they were asked to contribute to the environmental ambitions, their expectations were raised. Looking back they feel that establishing the Kronenburger Forum was merely palliative (in Dutch 'een doekje voor het bloeden') and was never meant to seriously involve them in the policy-making for NWW. They find the principal

environmental officer involved in NWW an able and hardworking officer, but in their eyes he is only a 'water carrier', i.e. he does the hard labour but with regard to decision-making processes this officer's influence is limited. Like before the application of MILO, the interviewed participants regard the municipality of Nijmegen as an 'enemy' that does not take the interests of NWW at heart. After MILO application they feel even more that the municipality let them down.

These results give rise to many questions, which will be dealt with in the next section. But two questions are discussed here. The first one: *'now that there are environmental ambitions, what will come of these, will they be realised?'* is part of the answer to the overall question on goal-orientation and effectiveness of the MILO method. This question is raised because once the environmental ambitions are stated in the Environmental Area Vision, the real integration of these ambitions in spatial plans and policies still needs to take place, but the MILO method 'stops' here. So even if there are environmental ambitions, like in this Nijmegen case, it is still uncertain whether they will be realised. Even if in the NWW case environment and planning had been integrated, it is doubtful whether the environmental ambitions will have been integrated in the operational spatial plans.

Another relevant question is: *'what would have happened in NWW without the application of MILO?'*

In theory this question is hard to answer, as other scenarios are highly speculative. But because in this case we have typified the environmental ambitions as traditional environmental policy making, that is, complying with the legal requirements, it is unlikely that the results would have been very different without MILO. That the results without MILO would not have been very different, is also true for the frustration of those involved in the participation in the NWW case. The fact that these people are frustrated about local (environmental) interests being ignored in decision-making processes at the municipal level or higher, is not unique for Nijmegen West-Weurt, but happens regularly in other places, cf. for example the noise problems caused by Schiphol airport.

3.3.5 Explaining the way in which MILO was applied in NWW

Content

According to Luijten (2006) four phases can be distinguished during the making of the Environmental Area Vision for NWW:

- a. assessment of the existing situation in the area. Important questions in this phase are: are legally allowed pollution levels exceeded and if so, up to what extent?
- b. assessment of future developments and the expected effects on the area.
- c. development of environmental strategy for the area, including the environmental ambitions.
- d. translation of this strategy and ambitions into concrete measures.

Box 3.5. Programme of environmental measures (d) in NWW

- Monitoring and upkeep of monitoring system;
- Project with the two industrial associations to reduce the movements of trucks with 10% per year, by coordinating the transportation of goods and for instance by sharing the available space in trucks (combined transport);
- Sweeping and spraying of busiest roads on hot days;
- Project to stimulate the use of natural gas as fuel (municipal vehicles and NWW companies);
- Planting shrubs and trees, especially alongside the busiest roads;
- Programme to reduce odour;
- Noise screens and noise reducing tarmac on road surface new bridge;
- If necessary spatial measures: green strips alongside roads, screens or relocation of sensitive functions alongside busy roads.

In the table underneath the ‘Nijmegen’ steps are compared with the seven MILO steps. The reasons for not using the MILO steps are given in the last column.

MILO steps	NWW steps taken	Reasons for not using MILO
1. analysis of the area	Not used	Comprehensive picture of NWW already existed
2. determine type of area	Conclusion interviews: not used. But MILO’s area typology is used in EAV.	-
3. determine the environmental indicators	Not used	Pragmatic way of working: worst environmental problems identified by policy-makers
4. determine the reference values for the area	Conclusion interviews: not used. Ambition levels for noise caused by traffic are almost the same as the MILO reference values.	Reference values mostly unused, because legally required levels are not even met at present.
5. analysis of existing qualities in the area	Not used	Way of working is: solve environmental problems. Already before MILO it was decided to replace industry at the Waalfront by apartments.
6. determine the environmental ambitions	Step c. is very similar to step 6 of MILO. This is the actual step for which MILO was used in NWW.	-
7. determine the necessary measures to realize the ambitions and monitoring	Step d. is also very similar to step 7 of MILO. However MILO was not used for step d.	MILO was not considered useful in this respect. Decisions to monitor the NWW environmental situation were taken before MILO application.

Table 3.4. Comparison between the ‘Nijmegen steps’ and the MILO steps.

The first MILO step was not taken. There was no need to analyse the area, because all its environmental problems were already identified at the time MILO come into the picture. The same is true for the third step. The fourth step was also skipped because it is first necessary to comply with legally required pollution levels, before higher aspirations can be realised, and therefore the reference values were not necessary yet.

Despite the fact that **step a. 'assessment of the area'** is similar to MILO step 5, there is the difference that MILO step 5 means looking for the qualities in the area, whereas the Nijmegen step a was meant to determine the environmental problems. (Partly) skipping the first four MILO steps implies that the layer approach is not used. There is indeed no evidence that it was used.

Step b. 'assessment of the effects of developments on the area' further emphasizes the fact that the first MILO steps were mostly skipped. In NWW they have taken the 'shortest cut' by focusing on the environmental problems, rather than looking at the area and all the qualities and the opportunities it offers. This does not mean that the qualities of the NWW area were never taken into account, nor that they did not critically look at the functions in the area. Proof that this did happen, is for example the fact that the present day industrial function of the strip along the riverside will be changed into a residential function, because of the view over the river Waal. But, this decision was taken years ago, as the first apartment blocks at the Waalfront were ready in March 2006. So, the decision was taken before MILO was even ready, let alone applied. This is also true for the seventh step of MILO. It did not play a role in the decision to monitor the environmental situation in NWW.

So, the conclusion on the way of application is that MILO was only applied in a rather limited way.

Now an assessment is made of the environmental ambitions from the EAV, see table 3.5 for the ambitions.

The environmental ambitions for Nijmegen West-Weurt
1. To comply with the legally required levels for fine dust throughout Nijmegen West-Weurt by the year 2010 (e.g. now the average daily levels are too high 60 days a year, whereas the maximum is 35 days day a year).
2. From 2010 onwards the legally required limit of max. 40 ug/m3 will not be exceeded on the Energieweg.
3. No increase, with the year 2005 as standard, of the amount of people who suffer serious noise hindrance.
4. By 2009 less than 3% people severely hindered by malodour in Weurt, Lindenholt, and Hees. For the Waterkwartier this percentage will be reached a few years later, because of the developments at the Waalfront.
5. No excess of (allowed) industrial noise levels in Weurt and 'the head' of the Waterfront by 2015.

Table. 3.5. the environmental ambitions for NWW as depicted in the EAV.

The first two and the last ambitions, so three out of five, are not 'MILO' ambitions, in the sense that they are not ambitions that go any further than compliance with legally required levels. Number three, 'no increase' does not mean an increase in environmental quality either, but rather a stabilization of the 2005 noise levels. It can, however be argued that with autonomous growth of traffic and the increase of traffic that the new city bridge will cause, it is a net improvement.

The fourth ambition is the only real MILO ambition, because there are no legally required Dutch or EU odour levels. This is in line with the MILO guide (2004) where it is stated that it is up to local governments to make odour policies. But the MILO way of working pretends to be more than mitigating (odour) hindrance. Therefore, despite the fact that there are two slight improvements, these environmental ambitions can be typified as *traditional environmental policy-making*, which come about with some help from the MILO guide.

So, the Nijmegen way of working is pragmatic traditional way of policy-making, both because MILO is only used for the EAV and because, with the exception of odour, the environmental ambitions aim to reach basic environmental quality, i.e. the legal requirements. There is no way of knowing for sure that without MILO there would not have been any odour ambitions. Also, the EAV failed to integrate all the new developments in NWW and the environmental consequences thereof.

3.3.6 Confrontation of the results with the requirements

In order to assess if, and up to what extent the factors found are either enhancing or impeding the application of MILO for NWW, the above presented results are confronted with the requirements from the framework of analysis.

Method

The two requirements concerning the method itself are discussed in this section.

Requirement 1. The method is sufficiently integral.

The environmental indicators of MILO were in itself sufficient in the NWW case due to the traditional environmental policy making. But according to desk research social and economic issues should be integrated too. This is also the opinion of the interviewed officer of economic affairs in Nijmegen. Economic issues come first because it is economy which in the first place provides the means for environmental measures. And, without jobs plus incomes people can not live in an area, making it pointless to improve its environmental quality and the living conditions.⁹ This point is further emphasised by the fact that to make the Quarter Vision of the Biezen/Waterkamp (Nijmegen 2005) the effort to include all three types of issues was made. So, the Quarter Vision can be characterised as being ‘integral’, whereas the EAV, made with the help of MILO, is only ‘environmental’. By the way, again this points to the fact that the largeness, complexity and environmental pressure in NWW makes the area unsuitable for MILO application. Referring back to the EAV, the municipality of Nijmegen never had to intention to make a truly integral EAV, so MILO cannot be blamed for that. But it is very noteworthy that an integral QV was made, without using any type of methodology or instrument. This has two implications, the first one suggests that methods like MILO are superfluous, and the other one is that for MILO to be fully useful it should include social and economic issues too. This results in a negative score on requirement 1, the MILO method itself is not sufficiently integral.

Requirement 2. The method is versatile: it can be applied by any municipality and for any type of project.

The second requirement concerning MILO’s versatility, is not met too. The size of the area in which the Koers West project takes place, leads to a high level of complexity. Firstly, the residential and industrial functions in NWW – both of huge importance as the area is the home of nearly 50.000 people and provides 22.000 jobs – are *conflicting functions*, resulting in conflicting interests, which, and this is noteworthy, *MILO application cannot solve*. The insert underneath illustrates how interests can clash with the environmental interests in NWW.

Box 3.6. Example of clashing interests in NWW

The realisation of the elevation of the lock at the Maas-Waal channel is the result of a European

⁹ In his lecture on planning in the Federal Republic of Germany dr. R. Kawka from the Bundesamt Bauwesen and Raumordnung pointed to recent quality-of-life research in Germany by McKenzie consultants, who found a high correlation between unemployment and lack of appreciation of quality of life. This lecture d.d. 18 October 2005 was part of the post academic course “Competitiveness and Quality of Life” organized by Stichting Leergang Intensief Meervoudig Ruimtegebruik in Amsterdam.

subsidy. The rationale behind this elevation is an economic one. More and bigger ships can pass the lock. However this has negative environmental consequences, as this will increase air pollution and the viaduct leading to the lock will become an even greater barrier between the north and south side of the village of Weurt. This is a clear example how an economic injection into the area can have adverse environmental effects, clashing with the overall aim of MILO application to optimize the environmental quality in NWW.

Secondly there is the high environmental pressure in the area and the fact that at present the legally required norms for air quality and noise are not met, gives rise to the question how these will be met in the future with the developments of Koers West only adding to the problems.

A third factor adding to the *complexity* of the situation is the fact that policy-making takes place at the following different levels:

- European laws as well as European subsidies
- National laws and regulation
- Province of Gelderland:
 - permits and enforcement
 - support environmental policy of NWW
- Municipality of Beuningen
- Municipality of Nijmegen at
 - regional level (also together with Arnhem)
 - municipal level
 - Nijmegen West Weurt level
 - quarter level (sub NWW)

The organisational structure of the municipality of Nijmegen is a fourth factor contributing to complexity. The organisational chart provides the following picture:

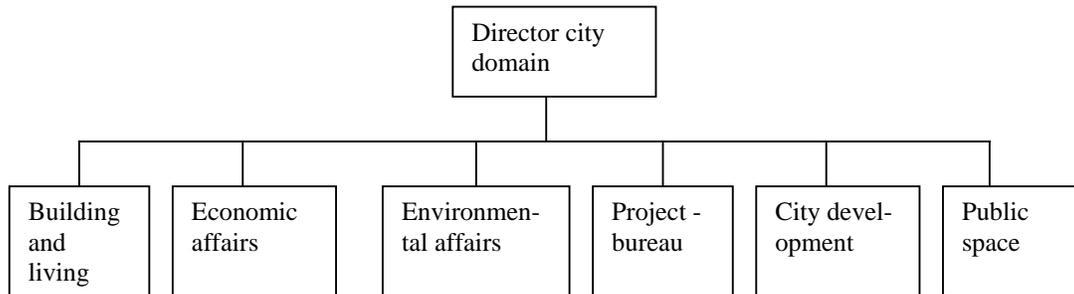


Fig. 3.2. Simplified organogram of the Nijmegen municipality.

The project-bureau has a project organization and is responsible for the different projects, like for instance the Waalfront. So, the projects that take place within Nijmegen West are worked out in a separate project unit, albeit that in each project an environmental officer is involved. This is a form of horizontal environmental integration (HEPI) which is likely to enhance integration. At the same hierarchic level as the 'director city domain', there is the 'director quarter and city' who is, amongst others, responsible for the quarter managers (stadsdeelmanagers). These quarter managers are the liaison officer of quarters like Waterkwartier or Wolfskuil, which are subquarters of Nijmegen West. The work of these quarter managers may for example include the making of a Quarter Vision (QV or in Dutch wijkwaliteitsbeeld) like the one made for Biezen/Waterkwartier, see insert for detailed information (Nijmegen, 2005).

Box 3.7. The Quarter Vision for Biezen/Waterkwartier, a part of NWW

The municipality of Nijmegen made a Quarter Vision (called 'wijkvisie' in Dutch) for Biezen/Waterkamp, which is a subquarter of Nijmegen West. The QV, like the EAV, has no legal status, but it does represent municipal opinions and is supposed to function as a basis for future plans. This QV depicts the future developments in Biezen/Waterkamp up to 2015. Not only are the developments in the area dealt with, but also the developments around it, with the inclusion

of the consequences of these changes for Biezen/Waterkamp. In the QV first an analysis is made of the existing social, economic, spatial and environmental situation of the quarter. Then the social, economic, spatial and environmental consequences of the new developments are described, as well as all the measures that need to be taken to solve, or at least mitigate problems. Examples of environmental measures are: at the edges the establishment of green zones and/or buildings which form a noise buffer for the interior of the quarter, no sensitive functions like living or schools in the vicinity of industry within the quarter. Notwithstanding the fact that some measures are only traditional mitigating and/or stimulating measures, this QV provides a coherent set of social, economic and environmental measures, which together improve quality of life in the Biezen/Waterkwartier. It is striking that this QV achieved to integrate not only social and economic, but also environmental issues with the spatial aspects. Concerning the environmental measures the QV refers to the measures for NWW in the EAV, albeit only for air quality and environmental pressure due to road traffic.

In the QV environmental aspects are actually integrated too, which is another proof of horizontal environmental integration (HEPI) in the municipality of Nijmegen. It is noteworthy that the organizational structure of the municipality of Nijmegen facilitates horizontal environmental integration along those two lines, but it is clear that MILO played no role whatsoever in this respect. MILO was used by the environmental department of the municipality of Nijmegen, and not used by the quarter managers of NWW or in the projects, and nor did it have effects by trickling down into these other two units.

The fact that it was possible to integrate social, economic and environmental issues for the relatively small area Biezen/Waterkamp in the QV (see insert above) indicates that integration in a smaller area than NWW can be done, and therefore further emphasizes the fact that NWW is too large and complex.

However, Runhaar argues (in: Soer, 2006) that at higher scale levels there are more opportunities for integration. This is of course true, not only are there *more*, but due to higher scales the opportunities are also likely to be *better*, meaning that EPI at higher levels is likely to have more impact. We only need to think for example of the opportunities of Mega Urban Transport Projects (MUTPs) at national or higher levels of scale. Yet, problems with these MUTPs do not concern the scales itself, but rather the connected levels of complexity and uncertainty (Beck, 2000, Kurtz and Snowdon, 2003, Low and Gleeson, 2004). Ignoring the issue of uncertainty, the complexity is exactly the point I am trying to make about the NWW case.

So, complexity regarding the project-level, the organisational structure of the municipality, busyness at the different levels of policy-making, the high environmental pressure, the lengthy nature of planning processes being hard to combine with MILO application (this last point is discussed at the 'process' requirement 6), all coming together in the NWW case, simply result in a situation where there is not enough room to play with, making use of MILO in the way the makers meant superfluous, if not impossible.

Content

In this section the three 'content' requirements are dealt with. Strictly speaking, these questions cannot be answered for NWW because MILO was used in such a restricted way. Nevertheless the questions are investigated to try and find factors influencing environmental integration and the area specific way of working.

Requirement 3. Is the method useful for the demarcation of the area, as well as for mapping out all its relationships?

As we have seen the area was not demarcated consciously, but due to the shared environmental problems, West and Weurt were already regarded as one area years before MILO application. Earlier, examples were provided that demarcation of an area is difficult, and the MILO method hardly throws any light upon how to do this.

The same can be said about mapping out all the relationships of the area. Reference values and environmental ambitions lose credibility if the area's relationships are not or not fully depicted. Also in this respect MILO does not score very well, by just mentioning the fact that all relationships should be mapped out, but providing very little guidance on how to do that. The fact that the NWW's EAV does not include the environmental consequences of the developments of the railway zone, which is actually inside the NWW area, is an indication of the intricateness of this issue.

Another issue that has bearing on this matter of the area's relationships, is the difference in scale of these relationships. The City bridge is a good example of a development which, as a second connection over the Waal, is important for the whole city of Nijmegen, it is of huge importance to the new suburb north of the Waal, and there are regional interests connected to the new bridge as well, because of the regional importance of the industrial estates in NWW¹⁰. The fact that NWW has many different relations at various scales makes it hard to depict them all, as well as depict all environmental consequences for the area. Again, size and complexity of NWW play an important role in this respect, and MILO does not substantially reduce this complexity and offers too little guidance on these matters. Once more it is pointed out the Quarter Vision for Biezen/Waterkwartier does depict the area's relationships, and it was made without a method (Van Kerkoerle, 2006). This is most likely because the Biezen/Waterkwartier is a lot smaller than the whole of NWW.

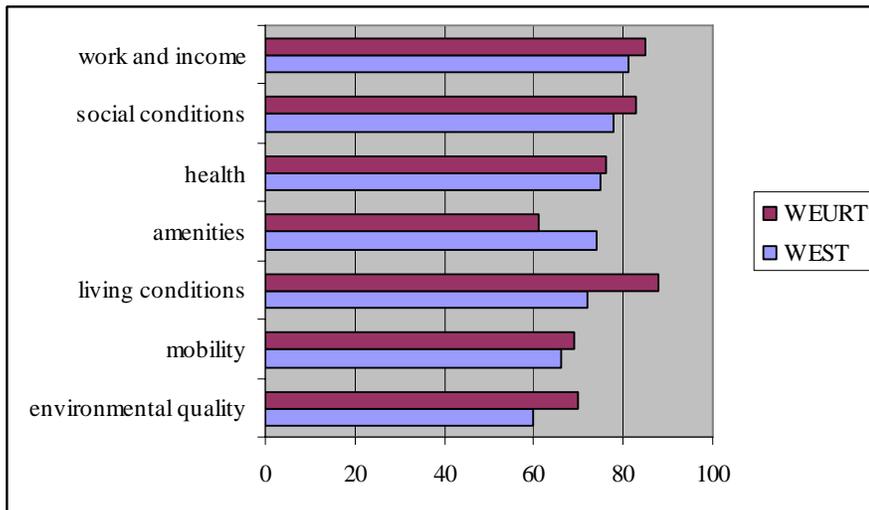
Requirement 4. Application of the methods leads to a comprehensive indicator set.

Due to the limited use of MILO the traditional way of policy-making in the NWW case this requirement cannot be put to the test, but it does lead to some relevant information. For the EAV the indicators used are objective ones. As already discussed environmental quality is not only made up of *objective indicators*, but of *subjective* ones too. Indeed, subjective indicators is what the MILO method recommends to include too. The province of Gelderland has been active in this respect, trying to accommodate integral area specific policy-making. Example of this is the research by the province of Gelderland on Arnhem's quarter Presikhaaf (2005) and the Quality of Life visions for NWW (2005). These reports show the difficulties involved in combining objective and subjective indicators. Especially the assessment of the Quality of Life visions (see insert below) shows that these visions are speculative and unpragmatic.

¹⁰ It must be noted however that the industry in NWW disagrees with the chosen location for the bridge as they are afraid it will greatly limit their opportunities to keep producing in NWW, due to the fact that the environmental situation is already problematic without the bridge.

Box 3.8. Quality of Life Visions for Nijmegen West-Weurt

The report by Infoplan d.d. December 2004 on the conditions in Nijmegen West and Weurt, shows the following.



Living conditions in West and Weurt (source: Infoplan, leefkwaliteitsbeeld Nijmegen West Weurt, 2004).

In this figure the number 100 represents the ideal situation, so the lower the score the worse the conditions are. (The graphs of the report were not copied, because the scale used is from 50-100 and therewith the differences between the indicators are enlarged. Instead the data from the report were used to make a new graph with a scale from 0-100).

This graph shows that for West the aspects that should be given priority in policy-making are environmental quality, mobility and the living conditions. In Weurt the first aspects that should be improved are: amenities, mobility and environmental quality.

The research did not limit itself to environmental quality (in MILO: water, noise, odour, air, external safety), but six other indicators of the quality of living conditions were included too. At first glance the graph provides an impression of the situation. However, a difficulty with this graph is that by using scores, so numbers, it suggests to provide an objective view, whereas in reality there is no way of knowing how to compare or weigh the different indicators. Why should policy makers give priority to the lack of amenities in Weurt for instance? Maybe the inhabitants would like to have more shops, but do not really feel it is a problem? They live only a few kilometers from the city centre as well as within easy reach of the big shopping centre at the suburb Dukenburg. Other difficulties with the graph are:

- that you cannot see the underlying attributes of every indicator. This has two consequences. One really bad aspect can be compensated by attributes scoring well, and therewith cover up the seriousness of this bad attribute. It can of course also work vice versa, that the situation appears really bad, because cumulative relatively bad scores on the majority or the whole set of the attributes can blow up the seriousness of the situation.
- analysis of the aspects per indicator show more objective than subjective aspects, and objective and subjective scores are cumulated without any further explanation.

Using graphs like this to choose priorities for policy-making is tricky. As a starting point for discussions they can be used, but only if the weaknesses are clearly indicated.

Moreover, these Quality of Life Visions were never used in the NWW case by the municipality, because the range of issues addressed is so broad that it exceeds by far the limits of environmental and spatial municipal departments. As these last arguments border on the issues raised concerning requirement 5, the discussion continues there.

Requirement 5. The method is appropriate as a tool to weigh the different indicators and to determine necessary measures.

Another dimension of MILO application is that of weighing tool. At the basis of weighing the different interests and thereafter determining which measures must be taken, there is another prerequisite, namely, that of basic environmental knowledge and information. For example in the NWW case a choice was made to try and replace road transport by transport over water (see appendix 4 for more details). So, in no way does the application of MILO relieve the officers involved of obtaining this type of fundamental environmental knowledge and insights.

The actual weighing furthermore stands and falls with the inclusion of all relevant interests. Supposing that all interests are included, the weighing of these different indicators seems one of the hardest bits of work. With the help of MILO the preliminary work may become easier, but finding ways to weigh and subsequently choosing adequate measures is still needs to be done by the local officers.

Process

This section deals with the three process requirements.

Requirement 6. The method can be made to fit the local planning practice.

In the Nijmegen case MILO could not be made to fit the planning processes. The planning routine in the municipality of Nijmegen was of course already firmly established at the time MILO was tried out. It was found impossible to adapt MILO to these procedures, nor was it found feasible to adapt the existing procedures to the seven MILO steps (Luijten, 2006).

Because the area is so large, has such differentiated functions, and is highly dynamic, a multitude of developments are taking place in NWW at different scales and time spans. An example to illustrate this is the decision to turn the (industrial) Waalfront into a residential area. This decision was taken before the application of MILO and also before the formulation of the environmental ambitions for NWW in the EAV. Another example is the area Biezen/Waterkwartier, which is only a small part of NWW. In this quarter there are at present over 20 building projects to build 400 houses in total (Van Kerkoerle, 2006). This raises the question of the timing of MILO application. Clearly for some subprojects MILO came too late, whereas for others the application might have been too early. It is obvious that we cannot speak of *one* planning process. This can of course not be blamed on the MILO method itself, but compared to the relatively lengthy planning processes, the relatively short period of MILO application makes synchronisation and adequate timing of methods like MILO very difficult indeed.

On top of that the MILO steps are particularly designed for the content. The planning processes are described in a general fashion in chapter three (MILO guide, 2004), and even though recommendations are made for planning processes, this does not make MILO a good process instrument. It is first an for all a content instrument leading up to an Environmental Area Vision and/or an environmental policy, which outcome must subsequently be integrated into the spatial planning processes (De Roo and Visser, 2004). Therefore, with regards to the possibilities to make MILO fit into the local practices, the answer is a negative for the NWW case.

Requirement 7. The method is applicable by any type of environmental officer in any type of administration.

The intention of the makers of the MILO method was to make a method that could in principal be used by any municipality in The Netherlands. But for a method like MILO to be used, it is in the first place necessary that the environmental officer has a positive opinion and expectations of it, or at least he/she must have an open mind to it. And then once the method is picked up, there is the question if the civil servants involved are willing and able to work with it. If civil servants are

more traditional in their approach of environmental issues, a method like MILO, advocating a more integral area specific way of working, might be ‘pearls before swine.’

Besides the environmental officer himself, all other interviewees of the Nijmegen municipality agree that in case of environmental integration the responsible environmental officer is an important factor. This person should first and for all be enthusiastic and motivated, and not simply hammer on environmental targets. Ideally he/she is a person able to take a broader view, put him/herself into the shoes of fellow officers and therewith capable of understanding issues at stake in the other sectors. But of course this also works the other way around: for environmental integration it is also necessary that the other officers from the spatial, and also the social and economic sectors, are capable of placing themselves into the position of the environmental officer. In NWW both is the case. All officers involved in NWW that were interviewed for this research, agree that the environmental officer in function has these qualities. The interviewees themselves were found to be good discussion partners on the environmental issues raised in the interviews and they all appear to have more environmental knowledge than strictly necessary for functioning in their own domain. Despite the fact that these conditions were met in the Nijmegen case, this did not lead to a more extensive application of MILO. Nevertheless, these are prerequisites for MILO application to be successful. Therewith the Nijmegen case falsifies requirement 7, because according to the respondents MILO application and an integral area-specific way of working requires an integral way of thinking.

Requirement 8. The methods induce to include all stakeholders in negotiating the environmental ambitions.

The municipality did strive for interactive policy-making in NWW, but as already discussed, this cannot be contributed to MILO. It was due to the fact that the municipality of Nijmegen is convinced that citizens should be given a voice nowadays. If not, municipal policies would be too top-down [in Dutch: te ‘regentesk’] (Luijten, 2006).

Even though the importance of participation of citizens and other relevant actors is stressed in the MILO guide, no reference is made to it in the seven MILO steps in which the environmental ambitions are determined. After this these are the starting point for the spatial planning process. The actual weighing with other interests than environmental ones, takes place during this process. In it different actors become involved, but almost entirely actors from within the municipal organization. (De Roo and Visser, 2004)

The implications of this are twofold. The fact that the importance of participation is stressed, but that it is not included in the seven steps, is a serious flaw in the MILO method.

The other implication is that the weighing and actual integration of environmental issues into planning does not start, at least theoretically, until the seven steps are taken. Therewith the seven MILO steps are a preparation for integration, and the actual integration into spatial plans is not a the core of the method. This is strongly connected to the conclusion on requirement one, which is that the MILO method is not sufficiently integral. Municipalities would like to have a tool for the integration of all interests during the planning process (minutes meeting MILO-project bureau, 2005). This point was already made in connection with requirement one, the conclusion for requirement eight is the following. It is a serious flaw in the MILO method that participation is not included in the seven steps, nor in the actual integration processes during planning.

Contextual factors

Finally the findings from the NWW cases are confronted with the four factors found to be critical points in the context of MILO application.

Requirement 9. Municipalities (or provinces) are able to use the method without any extra funding (at least funding does not come with the method)

Beside the municipality of Nijmegen, the municipality of Beuningen and the province of Gelderland are involved to improve the environmental situation in NWW. To do so Nijmegen, Beuningen and the province of Gelderland all three signed a declaration of intent to improve the living conditions and to retain development opportunities for industry in West-Weurt.

From the side of the province, this declaration was the result of the fact that West-Weurt was pinpointed as a stimulation project in the provincial environmental plan called Gelders Milieu Plan 3 (GMP3) in 2004. Activities mentioned in GMP3 include a policy track to improve the steering and decision-making structure, a scenario for the area, an up-to-date database and a frame for environmental policy-making. Also included is the track 'perception and society' to provide adequate levels of information to the public and the website 'West en Weurt' (ready since 7 April 06).

After the declaration of intent, a network to monitor the environmental situation and the effects of policy-making in NWW was set up, consisting of five poles to measure air quality (Bus, 2006).

In May 2004 the foreseen costs on account of NWW the province amounted to € 1.332.000,- (Province of Gelderland, 2004). Besides these costs, the province of Gelderland, actively supported the municipalities with expertise on environmental integration.

The monitoring network in NWW, financed by the province, is exactly what is indicated in step 7 of MILO, where it says that beside environmental measures, monitoring is necessary. As we know it was not the MILO method that led to this monitoring network in NWW. However, this is a clear illustration that MILO application requires extra means. So, either higher governmental bodies like the province, national government or European Union should provide these means, or money for MILO application has to be found within the budget of the municipality itself. Therefore the conclusion is justified that application of the MILO method is seriously hampered if not entirely impossible, if no extra means are made available.

Requirement 10. The method is only used and expected to have effects, if the municipality concerned is relatively 'green' and supportive.

As argued in the above section, if no extra means are available for MILO application from other sources, the willingness to invest municipal money in environmental integration is conditional to its success. A municipal administration which is not 'green minded' is unlikely to be willing to do so.

Another important issue is political decision-making. If the council of the municipality does not have a relatively large proportion of political parties who take environmental interests at heart, changes are large that environmental ambitions do not come out of it unscathed, or do not even survive political decision-making.

During research of the Nijmegen case the Environmental Area Vision had not been subjected to political decision-making yet, but despite that, an ex ante assessment was made. Interviewees, and particularly the environmental officer of Nijmegen, are of the opinion that the municipality of Nijmegen is relatively green and supportive of environmental measures. Without the conviction that environmental measures would have a fair chance of surviving political decision-making at the Nijmegen city council (gemeenteraad), the MILO method would not have been introduced for NWW in the first place (Luijten, 2006). Therewith the importance of this factor for the success of MILO application is emphasized.

Requirement 11. The application of the method will have more effects if the province concerned is relatively 'green' and supportive.

On the whole the province of Gelderland can be typified as relatively green and supportive of environmental integration in general and MILO application specifically. This can for instance be deduced from the most recent provincial environmental plan GMP 3 (2004), the provincial subscription on the declaration of intent to improve the environmental situation in NWW, the amount of provincial money that has been earmarked for environmental measures in NWW and the research on quality of life visions (leefkwaliteitsbeelden) in NWW that was conducted (Provincial administration and Infoplan, 2004). A factor which presumably also played a role is the fact that Knoppert, one of the environmental officers from the province involved in NWW, has a seat in the IPO (inter provincial association) and in that role partook in the team that made the MILO method. Knoppert has been actively involved in the NWW case, so that his expertise in field of MILO and environmental integration could be put to use.

It is not possible to actually proof that the role of the province matters, nor of the extent in which it does, as there was no similar case study conducted where the province was not so, or not at all supportive. However, it does seem likely that the support in NWW, in the form of expertise and financial means from the province, did have effects on the case, like the monitoring network in NWW. This was made possible by the province, and it is unlikely that the municipality of Nijmegen could have afforded it on its own.

Requirement 12. The application of the method will have more effects if other stakeholders are supportive of environmental measures and/or environmental measures are in their interests. These stakeholders can be:

- real estate developers (who may own the ground)
- housing associations
- local civil society
- local market parties

In this research only the local civil society and the associations of entrepreneurs were included, as these play an overall role in the developments of NWW. This does not mean that other stakeholders are unimportant, but the research did not encompass all projects and all stakeholders in NWW.

Box 3.9. Nijmegen Tribunal

In 2002 Milieudefensie (national environmental pressure group) and the Gelderse Milieu Federatie (provincial environmental pressure group), together with Weurt+ and four other local environmental or neighbourhood associations, organized a 'tribunal' (that is how it was called, but of course it was not an official tribunal in a court of justice) in which both the municipality of Nijmegen and the province of Gelderland were summoned to appear before three independent 'judges' (the environmental professors Marius Aalders, Piet Gilhuis and Pieter Leroy) on account of their regimes of granting environmental permits and enforcement. The province never appeared, but the municipality did, in the hope to bridge the gap between themselves and their opponents. The judgement was that at the time Nijmegen performed average compared to other Dutch municipalities. The professors were convinced that Nijmegen was doing its best, however they urged the municipality to take extra efforts. Since that time the environmental permits and enforcement regime of the municipality greatly improved. (various sources on both sides: i.e. Leefmilieu, 2006, Weurt+, 2006 and the municipality of Nijmegen, 2006).

As illustrated in the above insert, civil society is active in Nijmegen, critically following developments and taking cases to court if need be. This works in two ways. The municipality is forced to spend time and means to 'defend' their policies against civil society. But it also works

the other way around, environmental groups or neighbourhood associations provide support for municipal environmental measures.

An example of the influence of the local entrepreneurs is the Goods Transport Management Project, in which these entrepreneurs willingly participate to try and reduce their amount of movements in order to improve the air quality. Without their cooperation such projects are chanceless. In case of MILO application it can be concluded that stakeholders play an important role with regard to environmental integration.

3.3.7 Issues not addressed by the frame of analysis

In view of the lengthy nature of planning processes – in this case for instance the overall Koers West plan takes approximately fifteen years to complete – there is the question how to time MILO application in such a way that it synchronizes with the early stages of the most important subplans of Koers West, so that the application can be as effective as possible. This issue is dealt with under requirement six in order to fully depict the complexity of the NWW situation, however strictly speaking ‘timing and synchronisation’ is not explicitly addressed by the frame of analysis.

The research also provided information on the following issue that the frame of analysis does not address. The elevation of the lock near Weurt and the 2nd City Bridge are two examples in the NWW case which show that decision-making above area-level may affect the environmental situation in the area. If there is no EPI at these higher levels of policy- and decision-making, there is the danger that the adverse environmental effects of these decisions more than outweigh the environmental gains that can be realised at area-level, reducing the application of MILO or other forms of EPI at area-level, to a rather marginal effort. This is very well illustrated by the disappointment of the participants on account of the decision-making on the 2nd City Bridge, as they believe this bridge will imply serious deterioration of the environmental situation in NWW. Although not a fault of the MILO method and/or its application, the aforesaid indicates that lack of EPI at higher decision-making levels may fundamentally undermine efforts of EPI at the local level.

3.4 Conclusions on NWW

3.4.1 Detailed conclusions

The limited way in which MILO was applied in NWW, makes it difficult to draw conclusions on the effectiveness and goal-orientation of the method in this case. Nonetheless the NWW case is a complex case providing information on all the factors playing a role during application of the method (including why it was used in such a limited fashion) and/or more generally on all factors influencing environmental integration in NWW. These factors are dealt with in separate categories.

Overall

- In the NWW case it was found that lack of EPI at higher levels of policy-making may seriously marginalize EPI at area-level.

Method

- The method was found not sufficiently integral nor sufficiently versatile.

Content

- The size, complexity and high environmental pressure of NWW complicated matters too much to be able to put MILO to full use. This has two implications, the area was unfit for MILO application and MILO could not sufficiently reduce complexity.
- Despite the recommendations in the MILO method to include subjective indicators besides the objective ones, this appeared hard to do (see box 3.8 in § 3.3.6 on the Quality of Life Visions by the province of Gelderland).
- The role that the MILO method can play with regard to the weighing of the different interests, is limited to the preparation of weighing processes by providing the necessary information. The actual weighing itself is still an issue.
- The MILO method does not make specific and timely environmental knowledge superfluous, on the contrary, it is a prerequisite for effective MILO application.

Process

- Concerning process, the MILO method was not fully applied because it was impossible to make the method fit the local planning practise. This problem was further enhanced by the relatively complicated organisational structure of the municipality of Nijmegen, ideally requiring environmental integration at different departments and administrative levels, rather than just the environmental department.
- The MILO method does not included an interactive way of working, like in the NWW case, but only recommends a participative way of policy-making.
- The abilities of the environmental officer, as well as of the other officers involved in integration processes, to see and reason beyond the limitations of their own domains, are factors influencing EPI;
- Once the EAV or environmental ambitions are determined, it is uncertain whether these will be further integrated (with social, economic and all other interests playing a role) in the actual operational spatial plan (for example a Master Plan).
- An issue which is closely connected with this last point made is, as well as with the earlier mentioned complexity in NWW is the length of planning processes. Because there are so many different spatial plans, which all have different time spans, there is the crucial issue of the timing of the MILO application and synchronising it with the planning processes. In NWW some Koers West projects had started before MILO application, so technically speaking the application was too late and for other subprojects was too early.

Please note that all above mentioned factors under ‘content’ and ‘process’ are in fact factors *impeding* the application of MILO and/or the integration of environment into planning. Further factors of influence are:

Contextual factors

- Cooperation and support, in the form of expert knowledge, by the province of Gelderland;
- Provision of extra financial means for EPI purposes by the province of Gelderland (implying that additional financial means are necessary for MILO application);
- Cooperation with regards to environmental issues with the municipality of Beuningen;
- The municipality of Nijmegen is relatively ‘green’ so mostly supportive of environmental measures;
- Civil society (both from community associations and environmental pressure groups), were, directly or indirectly via the Kronenburger Forum, supportive of environmental measures in NWW.
- The local entrepreneurs proved influential in the NWW case.

3.4.2 Overall conclusions NWW

The initial reasons why the MILO method was applied in Nijmegen West-Weurt was that the method was expected to be helpful for non generic area-based policy-making, as well as to reduce the complexity of EPI, and in anticipation of the new Law on Spatial Planning, requiring municipalities to make motivated (Environmental) Area Visions.

The main conclusions of Nijmegen West-Weurt case read as follows. The application of MILO had some positive effects as the method has been of help with the content and so it provided some *guidance*.

On a practical level, the NWW area with its conflicting functions and high environmental pressure, proved too large and too complex to be suitable for MILO application, leaving *insufficient 'environmental room' to play with* in the area. The conclusion is not rejected by Soer (2006), whose research also included the NWW case.

Another major issue playing a role in the NWW case was that decision-making on account of municipal, regional and national interests took place at higher administrative levels. These decisions failed to address the environmental effects on the area of NWW, so they were made without EPI as far as NWW is concerned. Therefore, beside the fact that there was a lack of opportunities for EPI in the area of NWW, *the EPI efforts at the area-level were marginalized by higher level decision-making*, to such an extent that EPI at area-level appears a rather unyielding effort in the case of NWW.

In the table underneath on the next page all findings on the NWW case are summarised.

	Nijmegen West-Weurt (MILO)
Why MILO?	<ul style="list-style-type: none"> •MILO was expected to help with non generic area-based policy-making and reduce the complexity of EPI, as well as be useful to make an Environmental Area Vision as required by the new Law on Spatial Planning.
Overall use	<ul style="list-style-type: none"> •Actual use limited; MILO provided a little guidance.
Overall method	<ul style="list-style-type: none"> •Not sufficiently integral nor sufficiently versatile.
Overall issues and/or results	<ul style="list-style-type: none"> •Without EPI at the higher levels of policy- and decision-making, EPI at the area-level (such as MILO application) is marginalized.
Content	<p><i>Impeding</i></p> <ul style="list-style-type: none"> •NWW area is unsuitable for MILO; complexity and environmental pressure too high, leaving insufficient room to play with. •Clash between environmental interests at area level and those at higher levels which MILO cannot solve. •MILO does not solve the issue to combine objective and subjective indicators and if successfully combined the range of issues becomes too broad for the environmental and planning department to deal with. •The contribution of MILO as a weighing tool is limited to the preparation of the weighing process. •Application of MILO in no way reduced the necessity for fundamental up to date environmental knowledge during EPI.
Process	<p><i>Impeding</i></p> <ul style="list-style-type: none"> •MILO did not fit into planning routine. •Interactiveness not included in method. •Municipal organisation too complex for MILO. •EPI into operational plans takes place after MILO application. •Lengthy planning processes makes timing of and synchronisation with MILO application hard.
Contextual Factors	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> •Support from province (in the form of expertise and subsidy). •Support from within municipality. •Good working relationship with bordering municipality Beuningen, which also signed declaration of intent. •Enthusiastic environmental officer, surrounded by ‘green’ fellow officers in other departments •Local civil society supportive of environmental measures <p><i>Impeding</i></p> <ul style="list-style-type: none"> •Apart from frustrating local participants whose support for EPI could be useful, lack of EPI at higher levels of decision-making seriously hampered EPI at the local level (location new bridge).

Table 3.6 Summary of the conclusions on Nijmegen West-Weurt.

3.4.3 Performance of the frame for analysis

The frame for analysis was not always useful in the NWW case, which is mainly due to the limited way in which MILO was applied. Requirement 4 on the comprehensiveness of the indicator set proved particularly inapt, because of the pragmatic choice to only deal with three indicators in this case. The requirement did however lead to some other relevant information and on the whole the frame provided a lot of significant information. But, as described in § 3.3.7, a major issue came up during the research, that the frame does not address. And that is the issue of policy- and decision-making at higher levels, so above the area-level, influencing the environmental situation at the area-level.

Another issue omitted in the frame is the issue of the timing and synchronisation of the application of MILO or a similar method and the relatively lengthy planning processes.

Chapter 4. Harderwijk Central Zone South

4.1 Introduction

The case Harderwijk central zone south was selected on the basis of comparability with the other cases. Like the Vlaardingen case, discussed in the next chapter, the area is relatively small and close to a railway station. Despite the fact that the Harderwijk case was listed by the MILO-project bureau of VNG as a MILO project, and this bureau was also consulted on the selection of the cases in this research, it appeared soon after starting the research that the MILO method had not actually been used. Nevertheless the case remained included in the research, because a failure to apply MILO can also throw light upon the factors playing a role at the integration of environment and planning. Paragraph 4.2 describes the case, with § 4.2.1 depicting the present situation, § 4.2.2 the plans for the future and § 4.2.3 the environmental situation. § 4.3 deals with the initial reasons why the municipality of Harderwijk started using MILO and why this was soon abandoned. In the last section of this paragraph the results were confronted with the requirements of the frame of analysis to find all relevant factors which played a role. Finally the conclusions of this case are given in § 4.4.

4.2. Case description of Harderwijk central zone south

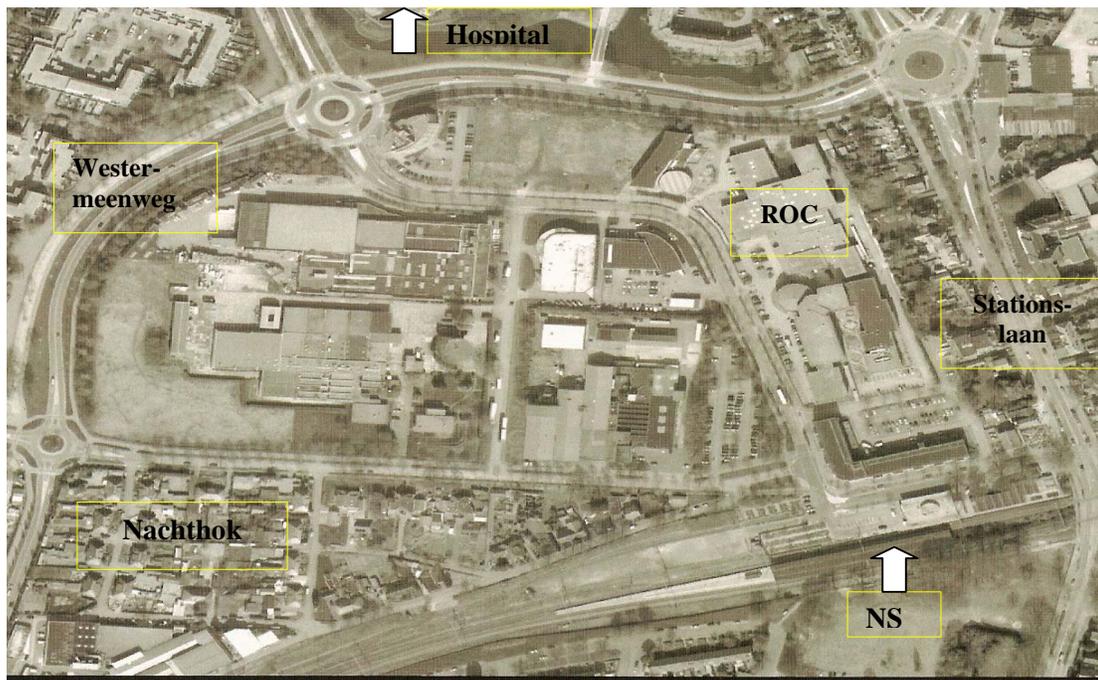


Fig. 4.1 map of the central zone south in Harderwijk. The borders of the area are: at west and northside the Westermeeenweg with its roundabouts, at the eastside is the Stationslaan, and the railway line is the southern border.

4.2.1 Present situation

The historical centre of the former Zuiderzee fishing town Harderwijk is situated right at the quay of what is known today as the Veluwe Randmeer. Its number of inhabitants is approximately 40.000. About two kilometres south of the old town centre lies the railway station. The local planners refer to the area between the centre and the railway station as the 'central zone'. The southern part, so the part right north of the railway station and the railway line, called the central zone south, is the topic of the case at hand.

For the greater part the area was industrial and nowadays all but one or two of the original companies have disappeared, leaving the space empty for developments. There is a small quarter

called Nachthok (night pen) with monuments in the form of quaint thatched-cottage style houses (see fig 4.1). Other existing houses in the area are along the Stationslaan.

Right north of the central zone south is the regional hospital St. Jansdal (fig 4.1, at the top of the picture) and also on the edge of the area are a secondary school and a cultural centre. Within the borders of the central zone south is the regional education centre R.O.C. Landstede.

At the eastside the boundary of the area is the Stationslaan, a very busy road with a level crossing across the railway line. To date the average closing time of this level crossing is 30 minutes per hour. In the sixties and seventies of last century the Stationslaan was already so busy, that the municipality made the bypass Westermeeenweg, which runs at the west- and northside of the central zone south.

People from all over the country visit the Dolfinarium which is situated between the historical centre and the Randmeer. Part of the traffic to or from this popular attraction runs along the central zone south.

The railway station at Harderwijk is a regional public traffic node with bus connections to the surrounding villages, the polder Flevoland and the Veluwe. The general situation with regards to public transport has worsened in recent years (Van Vlekkert, 2006). At Amersfoort new railway stations were realised, prolonging train journeys between Harderwijk and the Randstad. Besides that, the number of bus connections as well as the frequency of bus services have been reduced.

4.2.2 Plans for the future

The restructuring plans for the central zone south aim to improve the infrastructure for traffic and upgrade the route between the station and the city centre. A major improvement will be a tunnel under the railway line at the Stationslaan or under the railway station. If the tunnel is built under the station, there will be more traffic right through the area concerned.

There will be a mix of living and working in the area. New office space will amount to 37.000 m², 2.000 m² will become available for retail functions and 330 houses or apartments will be built in the central zone south. Some of this office space has already been realized recently.

At present the railway station of Harderwijk does not have an 'intercity status', meaning that only regional trains stop there. The municipality strives for an intercity status to shorten the travelling time to the Randstad by rail. Closely connected to these plans is the intention to improve the cycling infrastructure from the railway station (and Harderwijk) to the Veluwe for recreational purposes.

4.2.3 Environmental pressure

Air quality

The central zone south area's air quality is not very good. Concentrations of fine dust and NO₂ are especially high in the vicinity of the railway crossing for a great part due to congestion of the traffic if the crossing is closed. During 2004 the legally allowed yearly average concentrations were not exceeded, the allowed daily concentrations are exceeded 40 days a year, which is 5 days more than the maximum allowed number of days. Despite the fact that the tunnel under the railway line will alleviate the amount of air pollution now due to the congestion of traffic at the level crossing, prognoses for 2015 and 2020 show that extra measures are necessary to prevent excess concentrations of fine dust and/or NO₂ close to the Stationslaan and Westermeeenweg in the future on account of the tunnel improving circulation and therewith the intensity of traffic (Harderwijk, 2006).

Noise

The railway line at the south side of the area central zone south bends at a relatively sharp angle, and therefore passing trains produce quite some noise. The maximum legally allowed noise level for rail traffic is 57 dB(A). A large part of the central zone south lies within this contour, so that extra measures are necessary if houses are to be built within the contour. This is also true for noise alongside the arterial roads. The noise situation does not improve with the projected tunnel under

the railway line, unlike the air quality. For noise hindrance less congestion will mean a increased intensities of traffic and therefore more noise hindrance.

Traffic safety

Road safety is a problem, especially on the Stationslaan. This road track has the highest number of accidents per road kilometer in Harderwijk, for instance 40 accidents with injuries in the period 1993-2000. The level crossing causes a lot of head-tail collisions, and fatal accidents took place on this crossing, because schoolchildren crossed the railway line before the barriers had fully opened (exact recent figures not available yet, Harderwijk, 2006)

External safety

External safety in the area especially concerns transport of hazardous inflammable fluids by rail. In the so called Risk atlas of the Ministry of Transport en Waterstaat (DHV, 2001) individual and group risks are distinguished. The railway track at Harderwijk does not occur on the 'individual risks' list exceeding the norm of 10^{-6} per year beyond 10 meters of the railway line (see insert for an explanation). This would render the area unsuitable for a residential function. But in Harderwijk the 'group risk' is relatively high, implying that complementary detailed and timely risk assessments are necessary in case of new developments along the railway line.

Box 4.1. External safety

External safety is the risk that people run to become victim of an accident. This risk is assessed by calculating the statistical chance of an accident at a certain location and the amount of damage caused by this accident. A contour of 10^{-6} indicates that within that area an individual who is always present there runs the risk on an accident once in a million years (source: Ministry of Traffic and Waterways, 2007).

Soil and groundwater pollution

In the area at hand there are high concentrations of chlorinated hydrocarbons (in short in Dutch: 'tri' and 'per') in the ground and in the groundwater. Some locations are suspicious on account of former activities and asbestos may be present in the ground at the central zone south (Harderwijk, 2006).

4.3 Assessing the contribution of MILO in Harderwijk

4.3.1 Reasons for using MILO

The reasons for starting to use the MILO method were that the relevant departments of the municipality are in favour of an integral area-specific way of working and are convinced of the importance of integrating environmental issues as early as possible in the planning processes. The MILO method was expected to reduce the complexity of area-based EPI. Especially the environmental officer was enthusiastic about the MILO method and the involved officers mutually agreed to test the tool during the first project at hand: the central zone south.

In Harderwijk, not only in the case of the central zone south, but also in the case of the Waterfront project, it is felt that an area-specific way of working, like envisaged by MILO, is the most apt way of working. Generic environmental legislation leaves too little room to clean up the soil pollution in the area, because new houses must first be built to cover the cost of the soil cleaning, but environmental regulations do not allow houses to be built close to or on an industrial estate with companies that are not yet closed down or reallocated.

This Waterfront project is a City and Environment project (see chapter 1 for more information on C&E) and other indications that the municipality is geared towards sustainable development can for example be found in the municipal environmental plan 2004-2009 (Harderwijk, 2004). According to this plan Harderwijk is also inspired by the provincial environmental plan GMP3 (Gelders Milieuplan 3, 2004) and there was hope for some provincial subsidy to finance the MILO application.

First a workshop was held for municipal civil servants involved in the area, where introductions were given on 'smart methods for environmental integration', 'smart living concepts' (by Bureau BOOM, an environmental consultancy agency) and attention was paid to the location central zone south. This was the only 'MILO' activity, as after this workshop the MILO method was abandoned.

4.3.2 Reasons for abandoning MILO

One of the factors of influence on the abandonment of MILO is that the project leader of the central zone expressed the opinion that the quality of plans does not so much depend on the type of method or instrument used, but primarily depends on the expertise, experience and competence of the team (Pijning, 2006). Other reasons why the MILO method was not used any further are:

Content

With regards to the content the following factors influenced the decision to stop using MILO:

- Despite the fact that the central zone south is a relatively small area, not one of the MILO area typologies fitted the entire area. In terms of the MILO area typology the combination of living and working in the area is particularly problematic. A combination of different typologies results in difficulties with the borderlines between typologies. If it is unclear where the border is, it is unclear which reference values are relevant (Van Keimpema, 2006).
- Not only is it necessary to integrate environmental issues into planning, but various other issues such as social and economic issues etc. should be included too. In this respect MILO was found not sufficiently integral, albeit that this is of course hypothetical as no real attempt was made to apply the method.
- The above mentioned difficulties were further aggravated because the municipality of Harderwijk not only made the choice to upgrade the railway station by striving for an 'intercity status' and for doubling the number of railway tracks from two to four tracks, but also to upgrade the central zone south by building modern office facilities and timely housing close to this traffic node. Therewith priority is given to the developments and not to environmental issues. Had EPI been the prime focus then choices would have turned out differently, for example by not upgrading the railway station but leaving it as it is, or by taking drastic measures like reducing the sharpness of the bend in the railway line. Effectively this choice in favour of the developments results in very little environmental room to play with in the area. What remains is a relatively simple problem, namely the problem of mitigating the environmental effects of the developments as much as possible. For this, the application of the MILO method is not all required. Under these conditions a method like MILO can only serve rather limited purposes, like the reference values which can be consulted and the method can be used for guidance and inspiration (as it did).

Process

There were several reasons with regard to process, why the MILO method was not used:

- The MILO-project bureau of the VNG promised the municipality to write a plan especially for the process of this project, but the bureau did not keep this promise.¹¹
- Because there was no support from the side of the MILO-project bureau, the municipality decided to proceed anyway. This meant that the regular procedures were followed. In case of the central zone south these were relatively erratic and MILO could not be made to fit into these processes.
- One other thing that contributed to the negligence of MILO was the fact that the workshop took place too early in the process. At the time the plans were premature and it was still unclear which functions were wanted in the area. So, at the one hand the workshop was too specific (smart living concepts) and at the other hand it was too general (smart methods for environmental integration). This is of course not due to MILO, but it does point to the importance of the right timing when it comes to the integration of environment and planning.
- Harderwijk's Mayor and Aldermen (B&W) and the city council (gemeenteraad) are not particularly environmentally aware. An indication that environment is not very high on the municipal agenda is the fact that there is only one environmental officer responsible for the environmental permits and enforcement in the municipality. Compared to similar seized municipalities that is very little indeed. For example the environmental department of the municipality of Uden - with the same amount of inhabitants and comparable economic activity - counts nine officers, approximately half of whom are responsible for environmental permits and enforcement. In Uden there is even one officer especially dedicated to climate change & energy and the integration of environment into planning (Flipse et al, 2007).
There was however no concern that the Mayor and Aldermen (B&W) and/or the city council would put a stop to environmental measures at the central zone south. But the fact that there is only one environmental officer in Harderwijk, indicates that the municipality is not yet up to the application of methods like MILO, because an environmental officer must be given extra time in order to obtain additional knowledge, to fully emerge in the plans and for coordination purposes. What seriously limited the opportunities of environmental integration in Harderwijk's central zone south is this fact that the environmental officer in Harderwijk could not spend a sufficient and continuous period of time with the plans. In this case that is a 'double' pity because the environmental officer holds an academic degree in planning. She therefore could have relatively quickly obtained a full grasp of the plans and because her planning colleague is relatively environmentally aware, coordination time between these two officers could have been very short indeed.
- In order to acquire a complete set of indicators and for outcomes not to be random, it is necessary that all stakeholders and their interests are identified and included in policy-making process (Van de Riet, 2003), implying the necessity of transparency and interactive policy-making. In case of the central zone south policy-making processes have not been transparent so far. This is mostly due to the fact that a few companies have not left the area yet, and giving insight into preliminary plans and ideas was thought unwise in

¹¹ When asked, the MILO-project bureau said that they had been waiting for Harderwijk to contact them, and because this never happened they took no further action. Clearly something went wrong in the communication between the MILO-project bureau and the municipality of Harderwijk.

view of the negotiations with those companies. So, had MILO been applied, due to the aforementioned, the outcomes still might not have represented all major interests.

Contextual factors

- Another issue is that the ground in the central zone south area was acquired by real estate developers in recent years. The municipality lacks the financial means to purchase the ground. Given this fact, the municipality chose to cooperate with these real estate developers in the form of a public-private partnership to develop the central zone south. This has advantages, like shared risks and the developers having knowledge and experience, but it has the disadvantage that in this case (as in most other cases) the developers' main interest is profitability, whereas the municipality's prime ambitions are a high-quality development. This implies that the municipality's environmental ambitions may be (partly) given up in later stages of the developments, especially if the ambitions turn out to be expensive.

Miscellaneous

- In recent months Harderwijk's environmental officer took some time to look at the VROM website Ruimte x Milieu (Space x Environment) and she finds it more useful than the MILO method. Information can be selected quickly, the website is informative, sufficiently comprehensive and particularly the examples are handy according to this officer. See insert for more information.

Box 4.2. Website Ruimte x Milieu (Space x Environment)

The Ministry of VROM (Public Housing, Spatial Planning and Environment) has a website which is dedicated to spatial planning and environment. The idea for this website was born a few years ago, at the time when LOGO, MILO and MIRUP were developed. The initial idea was to place the MIRUP method on a website and to expand the website from there. By the time the website was made all three methods were ready, and beside the frame of reference for sustainable urban development of the province of Gelderland, the three methods were used to make the website (Puylaert, 2006). At present the site is an amalgamation of MILO, LOGO and MIRUP into one tool for environmental integration and an area specific way of working.

The opening page reads as follows:

Space x Environment is:

- a 'meeting place' for people involved in planning and environment
- practical guidance to optimize quality of life
- an overview of timely strategies, methods and examples
- an overview of innovative experiences and insights of attuning environment and planning

The website distinguishes the following five aspects:

The planning process visualises and describes the steps of the planning process. Sustainability is a repeatedly recurring theme. The planning process deals with both the 'content' and 'process' aspects.

The layer approach offers information, examples and recommendations to bridge the gap between 'understanding and intervention' as well as between 'spatial planning and environment.' As a result you can come to different 'pictures' of how the area can be structured. These 'pictures' provide the parameters and opportunities for sustainable spatial planning.

The different types of areas give direction to the sustainability ambitions. By comparing one's own planning area with the area types, one can swiftly and unambiguously optimize the quality of life for a concrete situation.

Measures show in which way the different sustainability ambitions can be realised. The measures are grouped in six themes: use of space, water, nature, traffic, energy and noise.

Quality describes the different approaches to quality of life as well as how to operationalize the concept. It is a first step to improve defining, measuring and weighing quality, and above all to make quality apparent and to facilitate discussing it. (source: VROM website ruimtexmilieu, 2006)

4.3.3 Confrontation of the results with the requirements

Despite the fact that the MILO method was not used, the findings are confronted as far as possible with the questions from the frame of analyses. Requirement number 4 had to be skipped as it was found irrelevant in the Harderwijk case.

Method

Requirement 1. Is the method sufficiently integral?

As pointed out above one of the reasons for not using MILO is that the method only deals with environmental issues and that, to the opinion of the interviewed officers, is not sufficient. Ideally a method like MILO should include economic and social issues too.

Requirement 2. Is the method versatile: can it be applied by any municipality and for any type of project?

In the Harderwijk case this requirement was not fulfilled either. Despite the fact that the area is relatively small, not one type of area from the MILO typology was found to fit the central zone south. With respect to this requirement, as well as to requirements 3 and 5. Van Keimpema (2006) suggested that it would perhaps be a lot easier to use the MILO method for a 'virgin' area, rather than for an area like Harderwijk central zone south, therewith implying that there might be insufficient room to play with in the area.

Content

Requirement 3. Is the method useful for the demarcation of the area, as well as for mapping out all its relationships?

It is clear from the above results that mapping out the different (sub)areas was one of the difficulties leading to the abandonment of MILO in Harderwijk. Demarcation of the area, or in this case the subareas within the central zone south, was found difficult because the combination of two types of subareas resulted in problems with the borders between the two subtypes. As to mapping out all its relationships the MILO method merely recommends to use the layer approach, but the use of the layer approach is not really simplified and MILO does not provide any examples how to do this.

Requirement 4. Application of the methods leads to a comprehensive indicator set.

Because MILO was not at all applied in this case, requirement 4 is not applicable.

Requirement 5. Is the method appropriate as a tool to weigh the different indicators and to determine necessary measures?

Requirement 5 is not applicable too.

Process

Requirement 6. Can the method be made to fit the local planning practice?

One of the main reasons why the method was not used, was because it did not fit the local planning processes. This could have been due to the fact that in this case processes were rather erratic, compared to other planning processes. But it is hard to find the reasons, because no real effort was made to adjust the method to the planning practice after the MILO-project bureau of VNG failed to support them with regards to the process.

Requirement 7. Is the method applicable by any type of environmental officer in any type of administration?

Because MILO was not actually used, this requirement was not put to the test. However, both the project leader of the central zone south as well as the involved planning officer did express their opinions on this matter. The project leader, an experienced senior officer, holds the opinion that primarily the qualities of the team are decisive for the quality of plans and policies, and not so much the quality of an applied tool or instrument. This implies that the application of methods like MILO stand or fall with the skill of the team and/or the individual civil servants concerned. Besides that the planning officer is of the opinion that it is important for environmental officers to be able to look beyond the local environmental issues. In planning it is important to see the whole picture, so to assess issues at the scale of the entire municipality.

Requirement 8. Does the method induce to include all stakeholders in negotiating the environmental ambitions?

Had the method been applied in the Harderwijk case, then the complete lack of participation in the processes of the central zone south might have hampered the environmental integration directly by less comprehensive environmental ambitions and/or indirectly because of less acceptance by excluded stakeholders. Because the MILO-method only recommends, but not actually includes participation, it is unlikely that a higher degree of participation would have been realised, had the MILO method been applied.

Contextual factors

Requirement 9. Municipalities (or provinces) are able to use the method without any extra funding (at least funding does not come with the method)

The use of MILO was started, despite the fact that subsidy for its application from the province was not granted yet. The subsidy was never granted, as the application of MILO failed, but it was anticipated.

Requirement 10. The method is only used and expected to have effects, if the municipality concerned is relatively 'green' and supportive.

The project team initiated the use of MILO by organising the workshop, because there was no concern that the Mayor and Aldermen and/or the city council would disagree with environmental ambitions for the central zone south that MILO application would lead to. But the fact that there is only one environmental officer employed in Harderwijk, indicates that the municipality is not that 'green' and that the municipal administration is not yet sufficiently equipped for environmental integration.

Requirement 11. The application of the method will have more effects if the province concerned is relatively 'green' and supportive.

The actual application never took place in this case, however the fact that the province of Gelderland is relatively green and supportive did play a role in the decision to try and apply MILO. As mentioned above there was also the hope that the province would provide a subsidy for that purpose.

Requirement 12. The application of the method will have more effects if other stakeholders are supportive of environmental measures and/or environmental measures are in their interests. These stakeholders can be:

- real estate developers (who may own the ground)
- housing associations
- local civil society
- local market parties

One type of stakeholder is relevant in this case, namely the real estate developers. The municipality of Harderwijk does not own the ground at the central zone south, but real estate developers do. Had MILO been applied, the realization of the environmental ambitions would have been conditional to the real estate developers' approval and cooperation.

Presently there are no environmental pressure groups actively concerned with the local Harderwijk environment, nor does the name Harderwijk occur at the website of the provincial environmental organisation Gelderse Milieu Federatie (2007). So, from that side there is no support for environmental integration.

4.3.4. Issues not addressed by the frame of analysis

Very similar to the Nijmegen case, the frame of analysis was found to fall short in addressing decision-making on account of the municipal, regional or national interests occurring in and around the central zone south. Because the central zone south is such an important transport node, there are obviously also municipal, regional or national interests (i.e. public transport) at stake, like the accessibility of the inner city, the Dolfinarium and the regional hospital St. Jansdal (ambulances), especially for traffic coming from or going to the motorway A-28. Ambitions related to these interests are very hard to combine with ambitions on the area level. Or, putting it differently, ambitions for the area itself will be hardly feasible in combination with the ambitions of the higher levels, as the last mentioned ambitions seriously limit the possibilities to optimize environmental quality in the area. It is simply impossible to discard the facts that the inner city must be accessible and that the railway station requires a good additional (public) transport infrastructure, as people must be able to either reach or leave the station. Again, like in the Nijmegen case, the interests of a higher order appear to marginalize efforts of EPI at the area-level.

Another issue not addressed by the frame is the timing of the MILO application. In the Harderwijk case that was not right, because at the one hand the workshop was too specific (smart

living concepts) and at the other hand it was too general (smart methods for environmental integration) at the specific moment when it was held. This implies that timing of methods such as MILO is a point of concern.

4.4 Conclusions Harderwijk central zone south

4.4.1 Detailed conclusions on the basis of the frame for analysis

After the complex Nijmegen case, it seems disappointing that even in this relatively simple Harderwijk case, the MILO method was not used due to problems with the *content* and the *process*.

So, regarding this case it is even more difficult to draw conclusions on the effectiveness and goal-orientation of the method than in the Nijmegen case. Still, the case did provide relevant information on the method, on the reasons behind its abandonment, as well as on factors influencing EPI and/or an area-specific way of working. These factors are dealt with in separate categories.

Overall

- The adamant choice for developments, especially the choice to strengthen the function of the railway station as a public transport node, in the central zone south, leads to the relatively simple problem of mitigating the environmental consequences of those developments, for which the MILO method, or any other similar method, is not needed.

Method

- The MILO-method was found not sufficiently integral, nor sufficient versatile.

Content

- The MILO method did not prove helpful to demarcate the area. Not one of the MILO area typologies fitted the area, and it was found difficult to demarcate sub areas for living and working within the area..

Process

- Concerning the process there was complete lack of support from the VNG MILO-project bureau.
- The MILO method did not fit into the local planning practices.
- The timing of the workshop was not right, as the content was too general (methods for environmental integration) as well as too specific (living concepts BOOM) at that time.
- Harderwijk's environmental officer cannot enhance environmental integration by means of MILO application, simultaneously with other full time responsibilities. So, at present Harderwijk's environmental department lacks the capacity to apply a method like MILO.
- The belief that the quality of plans and policies largely depends on the qualities of the individual civil servants and the way the project team cooperates as a whole, rather than on an applied tool or instrument implies that the skills of the involved officers are partial to the success of the application of methods like MILO.
- Lack of transparency and interactiveness in the process might have led to a less complete coverage of (environmental) interests in the area, had the method been applied.

Contextual factors

- Subsidy for MILO application by the province of Gelderland was anticipated.
- The municipality of Harderwijk appears to lack in environmental dedication.
- Had the MILO method been used and environmental (or quality of life) ambitions been formulated, (full) integration into the definite plans would have been uncertain due to real estate developers, whose main interest is profitability, owning the ground.
- There are no local environmental actions groups supportive of environmental integration in Harderwijk.

Miscellaneous

- The website Ruimte x Milieu (VROM) was found more inspiring than the MILO method.
- The BOOM living concepts could have been a useful supplement, had the MILO method been used.

4.4.2 Overall conclusions Harderwijk central zone south

The initial reasons to apply MILO were that the municipality was in favour of an integral area-based way of working and the method was expected to be a helpful tool *to reduce the complexity* of EPI at area-level.

Both with regard to *content* as the *process* the method failed to live up to the expectations of those who were supposed to apply it. However, the most important reasons for the failure to apply MILO are:

- the fact that a clear choice was made for an upgrade of the railway station and the area concerned, implying that
 - higher scale interests are given priority over the (environmental) interests at area-level
- resulting in a situation where there was *too little environmental room to play with, a marginalization of possible EPI efforts at the area-level decision-making on higher level municipal and regional interests, and particularly, the remaining issue being a problem of mitigation, for which a method like MILO is not required.*

In the table underneath all findings on the Harderwijk central zone south case are summarised.

	Harderwijk central zone south (MILO)
Why MILO?	<ul style="list-style-type: none"> • Expected to reduce complexity of an integral area-based way of working.
Overall use	<ul style="list-style-type: none"> • Not actually used.
Overall method	<ul style="list-style-type: none"> • Not sufficiently integral nor sufficiently versatile.
Overall issues and/or results	<ul style="list-style-type: none"> • Lack of dedication to the environment and choices made in favour of interests above area-level resulted in insufficient environmental room to play with. The remaining problem of mitigation is too simple to make MILO application worthwhile.
Content	<i>Impeding</i> <ul style="list-style-type: none"> • Problems with demarcation.
Process	<i>Impeding</i> <ul style="list-style-type: none"> • Lack of support by VNG MILO-project bureau. • MILO did not fit into the planning routine. • Insufficient capacity municipal environmental department. • Project leader believes more in capacities of his team than in methods, implying that the abilities of the involved officers are partial to the success of methods like MILO. • Timing of workshop was not right (info on tools for integration too general and BOOM living concepts too specific at that time). • Interactiveness not included in method.
Contextual factors	<i>Enhancing</i> <ul style="list-style-type: none"> • Support from province (extra financial means anticipated). <i>Impeding</i> <ul style="list-style-type: none"> • Ground owned by real estate developers without green reputation. • No active local civil society to support environmental measures.
Miscellaneous	<ul style="list-style-type: none"> • Website Ruimte x Milieu (VROM) found more inspiring than MILO. • BOOM living concepts could have been a useful supplement.

Table 4.1. Summary of the conclusions on Harderwijk central zone south.

4.4.3 Performance of the frame for analysis

Similar to the NWW case, the frame for analysis was not always useful, because of the failure to apply MILO. The requirements could therefore only partly be tested. Yet this case also revealed the omissions of higher levels interests clashing with interests at area level, as well as the issue of timing and synchronisation of MILO application and the planning processes.

CHAPTER 5 VLAARDINGEN central station area

5.1 Introduction

The Vlaardingen case was selected on the basis of comparability with the other cases. Also several interviewees from the pilot interviews pointed to the municipality of Vlaardingen as a good example of a municipality seriously striving for the integration of environment and planning. But instead of the MILO method, the LOGO method was applied. Because MILO and LOGO are rather similar, this was not seen as an impediment to include Vlaardingen in this research. In the first chapter in § 1.2.6 the LOGO method is described and a comparison between MILO and LOGO is provided.

Paragraph 5.2 introduces the Vlaardingen case and § 5.3 deals with the use of LOGO in Vlaardingen and its contribution to environmental integration. In § 5.3.6 the results are confronted with the frame of analysis, whilst in § 5.4 the conclusions are given.

5.2 Case description of Vlaardingen Central Station Area

5.2.1 present situation

The city of Vlaardingen has 75.000 inhabitants and is situated on the northern riverbank of the busy Nieuwe Maas river. Opposite Vlaardingen at the southern riverbank is the industrial area Pernis with its oil refineries. The railway Rotterdam-Vlaardingen dates back from 1891. During the following years it was extended to Hoek van Holland. South of the railway, next to the Old Harbour two new harbours were dug out, the Koningin Wilhelminahaven and the Vulcaanhaven. Industry more or less spread around these harbours and is now all situated between the railway and the Nieuwe Maas. There are approximately 19.000 jobs in Vlaardingen.

The restructuring of the central station area (Vlaardingen has two more railway stations namely Vlaardingen East and West) is part of a bigger project called the Riverzone. This is a project which started in 2000 to renew the harbour area. Envisaged are service industry, recreational facilities and dwellings along the watershore. The Riverzone is a City and Environment project. The Central Station Area project borders on the Riverzone project and is developed together with the Riverzone, and as such it is a part of the City and Environment project. To deal with the environmental issues the LOGO methodology, which is very similar to MILO, is used.



Fig. 5.1 Map of the Vlaardingen central station area. To date there is no road parallel to the railway at the south side and the (red) line representing bike infrastructure below that road, is a grass dike.

The central station is located between the old city centre and the Nieuwe Maas. The area is part of a cross of water-, rail- and road infrastructure, and is in fact surrounded by roads. The railway and a dike cut right through it. It is also close to the Koningin Wilhelmina harbour (a tiny part can be

seen right on the edge at the right handside of the map in fig. 5.1), which is a marina for sea vessels.

The project is divided (for reasons of phasing) into four different subareas:

- *north*, the strip north of the railway (Parallelweg from the Beethovensingel to the Stationsplein)
- *east*, the Sluisplein area
- *middle*, between the railway and the dike, at the west of the Sluisplein
- *south*, between the dike and the Deltaweg

5.2.2 Plans for the future

The developments for Vlaardingen central station area are:

- in total 400-500 apartments and a limited amount of terraced houses (or at least houses at the ground level)
- to give the Sluisplein area an urban character office space and room for educational activities will be built with a maximum of in total 30.000m². The definite amount of square meters will depend on the economic outlook, and alternative functions should be an option as 'the market' may not require the amount of office space.
- building at the Parallelweg will consist of 24 terraced houses, 42 apartments and facilities for care up to 1.500 m².
- optimize parking throughout the area, possibly with double use (i.e. the same parking space used during office hours by office employees and the rest of the time by others like people living in the area or for 'park and ride', for example people who want to go shopping in the inner city of Rotterdam on Saturdays can park their cars and take the train from there).

5.2.3 Environmental pressure

The environmental pressure at the central station area is relatively high. Most environmental hindrance is caused by noise from road- and railway traffic. But also industrial noise and air quality are factors.

Industrial noise

On the basis of research into industrial noise it appears that building houses is possible anywhere in the area, albeit that in a few places special outer walls (in Dutch 'dove gevel' or vliesgevel) will be necessary to reduce the noise in the houses. In these places the preferential limit for industrial noise of 50 dB(A) is exceeded. Exemptions can be granted, but only under strict conditions and provided that the legally required limit of 55 dB (A) is not exceeded.

Noise from railway and road traffic

As the railway and arterial roads cut right through the area there is quite some pressure.

National norms are 50 dB(A) for noise from roads and 57 dB(A) for railways. Limits that may not be exceeded in this case (existing infrastructure, new houses) are 65 dB(A) (roads) and 70 dB(A) (railways). On top of that the province of South Holland demands that the so called 'buitenruimte' (yard, balcony or garden) is situated at the site of the house with the least noise and a limit of 50 dB(A) at the outer walls. In most places houses can be built, but measures, such as noise-reducing tarmac, noise screens and special outer walls of the houses themselves, must be taken.

Air quality (as foreseen in 2015)

The concentrations of nitrogen and fine dust are relatively high throughout the area. For nitrogen the legal norm, an annual average limit of 40 ug/m³, will not be exceeded. As to the legal norms for fine dust, the annual average limit for fine dust, also 40 ug/m³, will not be exceeded either. However the 24-hours average norm for fine dust is exceeded about 50 days a year, whereas 35 days is allowed.

5.3 Assessing the contribution of LOGO in Vlaardingen

Similar to the Nijmegen case (see §3.3 for a more profound explanation) this section deals with the answers of the Vlaardingen case to the following key questions in this research:

- Is LOGO suitable for application in the municipal context?
- Is LOGO goal-orientated and effective?

5.3.1 Reasons for using LOGO

There were several reasons to use the LOGO method for the Vlaardingen central station area. The area is part of the City and Environment (C&E) project Riverzone Vlaardingen. But C&E in itself is not a tool for the integration of environment into planning, and there is a conflict between space and environment in the area, so a method like MILO or LOGO was needed to tackle this problem and make it manageable by reduce its complexity and helping the process of weighing the different interests.

Besides that, the municipality of Vlaardingen participates in two pilot projects. The province of South Holland designated the development of the Vlaardingen Central Station area as a pilot for the project 'Leren voor Duurzame Ontwikkeling' (Learning for Sustainable Development). The municipality of Vlaardingen also participates in the pilot project 'Milieu Bestemd', which is a project on the integration of environmental issues into zoning plans (bestemmingsplannen).

On top of that the municipality of Vlaardingen participates with the surrounding municipalities in an administrative agreement Rechtermaasoever, in which conditions for developments alongside the Maas river are laid down. By signing this agreement Vlaardingen has committed itself to careful planning processes, weighing all relevant issues for each plan. Both the Rechtermaasoever and the C&E approach require an open planning process, also informing citizens, industry and other stakeholders that are not involved in the making of plans. LOGO does not require an open planning process, but is it suitable for such an approach, as it can be used to depict in a transparent way how ambitions can be integrated into plans.

Another indication that the municipality of Vlaardingen is working on the integration of spatial planning and environment, is the fact that the departments of spatial planning and environment recently merged into one administrative department.

So these examples show that the use of LOGO is not just an incident in Vlaardingen, but fits the broader picture of a municipality dedicated to the integration of environment and planning.

In itself LOGO was expected to be helpful for contemplating different ways of building, various typologies of houses, and mapping out all the qualities connected to the building density, etc. But first and for all it was embraced to be able to work in an integral way and to find ambitions for the area.

5.3.2 LOGO application

The actual application of LOGO consisted of *two workshops*. First there was a meeting with a limited number of people to prepare these workshops. Four people from the municipality and two from DCMR, the regional environmental services, partook in this meeting. The first workshop was held with a greater number of people, in total 17. Besides civil servants from the municipality there were representatives of two environmental bureaus, three member from the occupants association Abel Tasmanlaan which is in the vicinity of the central station area, one person from NS Vastgoed (real estate company) and one from the multinational company Unilever. This company was represented because it is the biggest employer in the municipality of Vlaardingen, with most of its premises in the vicinity of the railway station Vlaardingen Oost, but there is a large Unilever research laboratory situated right south of the Vlaardingen central station area.

In this workshop the participants determined the ambitions for the area. Then the second workshop was held with 19 participants. Apart from a few changes in names and/or environmental bureaus, these were roughly the same as the 17 persons who went to the first workshop. There were two extra people from the municipality of Vlaardingen and someone from the GGD (Gemeentelijke Gezondheidskundige Dienst, Local Public Health Authority). The goal

of this second workshop was to sieve out unrealistic ambitions determined in the first workshop and to translate the remaining ambitions into measures.

One participant partaking in both workshops, Bureau BOOM bv, must be mentioned, because this bureau's has expertise both on sustainable building, as well as on the LOGO method itself. Not only is it therefore virtually impossible to separate LOGO application from the support offered by DCMR, but neither can LOGO be separated from the support from the side of Bureau BOOM.

5.3.3 Way of determining the ambitions

The ambitions for the area were determined during the first workshop and further sharpened during the second workshop, both held in 2005. In LOGO indicators are referred to as parameters and the use of the LOGO method implies that more than just environmental issues are incorporated (this is one of the main differences between LOGO and MILO). First the type of area was selected, namely 'edge of the centre' and subsequently the participants selected eleven parameters which they think are the most important ones for the area. This was done by giving the participants stickers to indicate which five they thought most important. The parameters were divided into four clusters:

1. traffic and environment (noise, traffic/public transport, odour and air quality)
2. outdoor space (public space, views, greenery)
3. energy
4. social aspects (living conditions, image, social safety, amenities, housing for senior citizens)

In the LOGO method each type of area has reference values, like in MILO, and with the help of these reference values the ambitions for each of the eleven parameters were determined. The chosen parameters and ambitions are:

- **Distance to facilities:** in accordance to reference value of 100 meters. Create facilities that are apt for the type of inhabitants (i.e. fitness, health centre) and take care of good and safe accessibility.
- **Views on the surrounding area.** Ambitions in accordance with reference value: 70% of the houses has a view on the dike. Also the harbour should be visible, and the city centre should be visible from the NS station.
- **Percentage of greenery.** Ambition is higher than the reference value, the ambition is an area of 15-20% public greenery.
- **Energy consumption of houses.** Ambition: houses should at least have an EPC (Energie Prestatie Coefficient- energy performance coefficient) of 0,6.
- **Exposure to noise in houses.** The average noise level to which one is exposed in the houses is acceptable, however with regard to peaking noise levels, the ambition is different, namely depending whether it is a noise intensive side or a lee side, with desired levels of 60 Db(A) and 40 Db(A) respectively.
- **Amenity.** Ambitions are higher than average, attractive quarter with long lasting (building) materials etc.
- **Public transport connections.** Train connections are good, ambition: better connections of other types of public transport.
- **Clean public space.** Ambitions: good waste disposal system, fitting the type of area. High frequency cleaning and good upkeep of streets and greenery.
- **Odour hindrance (industry and traffic).** Realistic ambition: not as high as reference value. No increase of present day hindrance. Ventilation of houses.
- **Social safety.** Safe and well lit routes to and from the station. Much improvement desired compared to the present day situation.
- **Percentage of luxury apartments for senior citizens.** Ambition: percentage well above average.

During the second workshop these ambitions were examined on feasibility and translated into concrete measures. The output of the second workshop was not a list like the above one, but a text of in total six pages with motivated suggestions and recommendations. These recommendations were not the definite ones. After the second workshop the project leader and the steering group of the project Learning for Sustainable Development further examined the ambitions on feasibility and formulated definite recommendations. This resulted in the report finished in October 2006, which was handed to the responsible alderman of Vlaardingen and which was or is also to be used as a starting point of:

- the negotiations with NS Vastgoed, owner of part of the area
- to make the draft zoning plan (bestemmingsplan)
- to make detailed spatial plans for the subareas.

5.3.4 Comments on the ambitions

As we have seen in the former paragraph the environmental ambitions for Vlaardingen central station area were found during two workshops, held especially for that purpose. These ambitions, in total eleven, have quite a broad scope, much broader for instance than the environmental ambitions for NWW, where only air quality, noise and odour are included.

With workshops, as any other type of interactive process, there is the danger that the overall outcome is not acceptable to all participants, for example due to one dominant participant forcing his opinion on the majority of the people present or because interests are conflicting (Smith and McDonough, 2001, Van de Riet, 2003). In the Vlaardingen case this last issue mostly concerns clashes between the interests of the industry and the (future) inhabitants/occupants. On the basis of a regional administrative agreement (Regionale Bestuursovereenkomst ROM/RMO, 2004) a certain amount of 'environmental room' (milieuruimte) was set for the industry. This environmental room is therewith a 'given' amount of pollution that the industry may produce, which determines up to a large extent the possibilities for developments in the Vlaardingen central station area.

With respects to the first issue mentioned, the experts from DCMR, the regional environmental services which developed LOGO, were present at both workshops, being able to provide guidance there and then, so that the outcomes of the workshops are likely to be acceptable.

The high number of parameters is positive in the sense that the scope of the ambitions is so broad that we can speak of 'quality of life' ambitions rather than just environmental ambitions. But at the same time one wonders how realistic it is to have all these ambitions simultaneously. Something similar can be said about the feasibility of the individual ambitions. In the minutes of the workshops it is implied that the *feasibility* of the ambitions was a requirement, but there is no written statement as to what is meant with 'feasible' and/or argumentation why the chosen ambitions are supposed to be feasible. Also no attention was paid to the costs of the measures, implying besides feasibility that *insight in the costs of the measures* are relatively weak points of this LOGO application (adapted from: Verheij, 2006).

On account of the presence of a railway line one would expect external safety to be an issue. External safety is not among the eleven parameters, nor is there any evidence that attention was paid to it during the workshops. This fits in with the fact that Vlaardingen (central station) is not listed in the Risk Atlas of the Ministry of Transport en Waterstaat (DHV, 2001), not even on a list of possible problem zones. So, apparently no dangerous substances are transported over the track between Schiedam and Hoek van Holland.

A final comment is on the last mentioned ambition: percentage of luxury apartments for senior citizens. This ambition is the odd one out. It does not really refer to environmental quality or quality of life, especially because there is no further explanation on issues like the desired social mix etc. This ambition might for example be due to a shortage of luxury apartments for older

people in the municipality, or to the fact that a higher percentage of luxury apartments, will provide more means to finance the other ambitions. But, despite this ambition being of another nature than the others, it is perhaps not less relevant.

The ambitions have no legal status. But the LOGO workshops were followed up by a report d.d. October 2006 (Rapportage LOGO/BOOM traject Vlaardingen central station area) in which the ambitions are stated, as well as put in a graph together with the findings of research on liveability in the Riverzone area in the year 2003. This was done to show that most of the ambitions are an improvement to the present conditions at, or close to the central station area. There is also a chapter on how to secure implementation of the ambitions. Concerning the ambitions on the quality of the public space, for example, it is possible to lay these ambitions down in an 'image quality plan' (BeeldKwaliteitsPlan, BKP), and subsequently make this BKP an annex of the zoning plan for the area. Other examples recommended to the municipality of Vlaardingen are to lay down the ambitions on the quality of the houses and energy in the so called Programma van Eisen (programme of demands).

Besides that, the report of October 2006 envisages a monitoring system for the area, with the help of which it is possible to safeguard the ambitions in the future.

A factor which also likely to stimulate the implementation of the ambitions is the fact that the province of South Holland subsidized the LOGO application in Vlaardingen and the municipality will have to report back the results of the application.

5.3.5 Summing LOGO's contribution up

The LOGO workshops were first prepared in a meeting of six people. The actual LOGO application took place during the two workshops, with 17 and 19 participants respectively. In the making of the final report five people have been involved, two from the municipality, two from DCMR and one from Bureau BOOM bv. Therewith this total EPI effort has been rather quick and not particularly costly.

Content

The workshop participants made avail of the LOGO's area typology by selecting one of the typologies and also making use of the connected reference values. The parameters or indicators comprise a broader set than environmental quality alone. Not only objective indicators like the noise levels and the EPC (see insert above) but subjective indicators like cleanliness of public space and social safety are included too, so that the indicator set can be characterised as a quality of life set.

A fact worth mentioning is that different *living concepts* were discussed during the application of LOGO (see also the Harderwijk case). Bureau BOOM, which has developed this typology, also partook in the workshops. These living concepts appear an excellent supplement to the use of LOGO or similar methods, because by including them in the whole package, the total room to play and weigh all relevant indicators or parameters, increases. See the insert below for some background information.

Box 5.1. Living concepts bureau BOOM

A consultancy called BOOM developed a method for different housing concepts especially meant for areas with high environmental pressure. After determination of the environmental problems, the characteristics of the living style of the chosen type of dwellers and other relevant conditions, an area-specific housing concept can be developed. Basically there is the choice between two options; either adapting the functions of the houses to the local situation, or taking measures within to reduce the impact of environmental hindrance. In the first case one can for example think of combinations of house/working space on locations with a lot of noise hindrance, whereby the working space is meant for activities that make noise too. A good example of this, seen with my own eyes, are houses built along the river IJssel close to Kampen. At an industrial site the strip alongside the river was used to built such combinations whereby the rear of the ground floor is suitable for light industrial activities and the front is office space. On top of the front part the living space is built, providing a beautiful view over the river, because the second and third floors are higher than the dyke protecting the river.

For people who run small companies this has the advantage of zero travel distance to work, whilst the working quarters can be positioned between the source of the external noise and the living quarters, blocking some of that external noise off. Examples of the second type of option are: building closed blocks or adjacent conservatories, which respectively reduce noise at the backside of the houses or within the houses (source: Sleijpen, bureau BOOM, personal communication, 2006).

Process

In the context of this research 'process' can be regarded in two ways. It can refer to the process in which the ambitions were made, so in this case the processes that took place during the workshops, including of course the issue of who partook in the workshops. This was already depicted in § 5.3.3.

But because the goal of the LOGO method is integration of environment into planning, it can also refer to the process in which the ambitions are actually integrated into the planning processes taking place to make the actual operation plans.

With regards to this last way of looking at 'process', the following comments are made. The outcomes of the workshops were primarily recommendations. These recommendations were made definite in a meeting of the project leader and the steering group of the project Learning for Sustainable Development. So, there was still an extra meeting in which decisions were taken after the workshops, and thereafter the final report was drawn up. As we have already seen, the making of concrete detailed spatial plans were not to start but after LOGO application. In that sense the workshops were held in time to be integrated. But, the application of LOGO was not embedded in the planning processes, it took place separately. And despite the remarks made in § 5.3.4 that there are several factors enhancing EPI, it does leave us with a crucial point of concern, *namely what will happen with the ambitions when the plans are filled in*, as there is no obligation to include the ambitions into the plans. As was also already stated, the ambitions will also be the a starting point for the negotiations with NS Vastgoed, who owns part of the ground. And maybe even more negotiations will be necessary, like with a real estate developer.

In short, it can be stated that LOGO (and the two experts, it is impossible to detach their role and the role of the method itself) played a vital role in establishing the ambitions and the recommendations and it took a relatively little time to establish them, but at this point in time it is still unclear whether and up to what extent the ambitions will be integrated in the operational plans, and eventually be realised.

5.3.6 confrontation of the results with the requirements

In order to find full answers to the questions of goal-orientation and effectiveness of LOGO, and the extent to which the found factors influenced LOGO application in Vlaardingen, the results are confronted with the requirements from the framework of analysis.

Method

Requirement 1. Is the method sufficiently integral?

As pointed out before the indicator (parameter) set is a broad quality-of-life set. The differences with MILO, which focuses on environmental quality, are the extra indicators for:

- transport and traffic;
- percentage of greenery;
- distance to public transport and to shops and other facilities;
- density of building (amount of houses per hectare).

The LOGO method and the outcomes of its application can therefore be judged as rather integral, especially if compared to MILO. Looking at the more general level where we speak of integral as including environmental, social and economic indicators, there is still room for some economic and especially some social aspects, for instance the desired mix of incomes in the quarter. Nevertheless the LOGO indicator set can be characterised as profound and integral. And what should be kept in mind is that, despite the fact the DCMR can support application, it should be doable to do apply the method. It is not without reason that in the Vlaardingen case they have limited themselves to eleven parameters. If these can be realised for the greater part, it can be stated that with the help of LOGO an important contribution to the integration of environment into planning has been made. Therefore it can be concluded that the LOGO method is sufficiently integral.

Requirement 2. Is the method versatile: can it be applied by any municipality and for any type of project?

In the Vlaardingen case there were no problems with the application of LOGO. Because there are so many area typologies LOGO appears to cover almost any type of area in the Rijnmond region. At any rate it was not a problem to find a fitting area type for the central station area. The most important aspect seems to be the complexity of the area. Despite the fact that it is small, it is rather complex, because of the railway line and station, the amount of heavy through transport, high environmental pressure etc. Still, the LOGO methodology was up to cope with this amount of complexity. However, it was presumably wise to split up the Riverzone project into smaller areas, because the real question is not if LOGO can, but whether the municipal organisation can handle the level of complexity. Besides that, the municipality's organisational structure, which is relatively simple, does not seem to have reduced the impact of the LOGO application (Cf to the Nijmegen case, where at different levels environmental integration should take place).

It can be stated that it was very possible to apply LOGO for this complex, but relatively small area, lying in a municipality with a relatively simple organisational structure. So LOGO passed the test in Vlaardingen, but there is the possibility that this is due to Vlaardingen fitting LOGO rather than to LOGO's versatility.

Requirement 3. Is the method useful for the demarcation of the area, as well as for mapping out all its relationships?

The demarcation of Vlaardingen central station area appears to be rather straightforward. As explained earlier the central station area is part of the Riverzone, but it was pinpointed as the first phase of this project. In practice the central station area is treated as a separate project by the municipality of Vlaardingen. The LOGO method did not play a role in this demarcation.

As to mapping out all relationships of the area, LOGO advocates the use of the layer approach. There is no written proof that this was done, but there is implicit evidence that some relationships of the area were included. However the focus has been very much on the area itself and two issues were neglected. The first one concerns the northern side of the Parallelweg, north of the railway line. The strip in between the Parallelweg and the railway is only about 25 meters, measured from the heart of the railway to the edge of the pavement at the southside of the road. At the northside of the Parallelweg are two apartment blocks dating from the sixties and closer to the railway station is a row of houses at least 75 years old. Quite a few of these houses and apartments were for sale in the summer of 2006. This is not surprising as the buildings planned on this 25 meter strip will be right opposite the existing houses and will block their view, reverberate the noise from traffic on the Parallelweg and reduce their amount of privacy. The interests of these people are clearly not included in the plans.

A second issue is that of the through traffic on the Deltaweg/Galgkade at the south of the area in question. A lot of heavy trucks use this road between the industrial area of Vlaardingen West to the motorway A4 at the eastside of Vlaardingen. To improve the situation the Deltaweg/Galgkade will probably be cut, or at least heavy transport will be discouraged to use these roads. As a consequence the traffic from the industrial estate at Nijmegen West will have to use the Marathonweg, a road giving access to the A20 running north of Vlaardingen. This road is already very busy and runs along existing quarters with mostly older houses, which are not well insulated against noise, to mention just one environmental issue playing a role. This appears like shifting the problem from the central station area to another area, improving the quality at the one place, but decreasing it elsewhere.

This can of course not be blamed on the LOGO method, but rather on this application. Yet, it is a danger of the area-specific way of working, to concentrate too much on the area, *shifting the problems to other locations* where it is very hard or impossible to take measures, whereas in at the new location ample measures will be taken, for example the insulation of the houses against noise, because if not, these houses cannot be built there in the first place.

Requirement 4. Does application of the method lead to a comprehensive indicator set?

The LOGO indicator or parameter set (for all the different types of areas) is quite a comprehensive set of indicators. During the first workshop only 11 parameters were chosen, from in total 49 parameters. But clearly not all parameters are equally vital, and the vitality will also vary depending on the area type. However there are still other aspects requiring integration into the spatial plans, like social, economic, cultural, public housing and archaeological aspects. A factor like 'wellbeing' is important, but hard to get grip on, let alone integrate it into spatial plans. In theory the LOGO methodology allows more issues to be included, in practise it is presumably wise to limit the amount of indicators or parameters for pragmatic reasons, as was done in the Vlaardingen case. This requirement of comprehensiveness appears hard to combine with the demand that a tool like LOGO or MILO should reduce complexity and make environmental integration and an area-specific way of working manageable. Concerning this requirement the conclusion seems justified that LOGO may lead to a comprehensive indicator-set, but that the

level of complexity of an area-specific way of working is in practice a limiting factor, that a tool like LOGO cannot reduce any further. In practice one should therefore select a limited number of parameters, as was done in the Vlaardingen case. This improves the goal orientation of the method's application and is in line with Miller and De Roo (1999) suggestion to have concrete goals by assessing current and desired environmental states.

Nonetheless the comprehensiveness of LOGO is a definite bonus, as it offers a complete range of indicators (within the different area-typologies) to select the most vital indicators for the case at hand.

Requirement 5. Is the method appropriate as a tool to weigh the different indicators and to determine necessary measures?

The final weighing process takes place beyond the scope of the LOGO application, when concrete, detailed plans will be made (for example the Master plan). The weighing is difficult anyhow, for instance if ambitions seem vital yet unrealistic or in conflict with another part of the plan. In Vlaardingen for instance this is the case with the ambition that 70% of the houses should have a view on the harbour, which is hard to combine if the maximum amount of office space will be realised. Judging the results of the LOGO workshop is seems as if the goal of the workshops was not really reached, because one would expect a lot of weighing to go on during the workshops, so that the output is in the form of concrete measures for policy makers to further decide upon. Instead the outcome of the final workshop is not a clear cut list of measures, but merely the ambitions are listed and the report does read a bit like a plea. Another meeting (with the steering group) was required to make decisions, and it was not until the final report was made in October 2006 that the ambitions were translated into measures. In total 81 measures are listed (traffic and environment: 24, outside space: 27, energy: 12 and social aspects: 18), and more importantly these measures are all given a score 1, 2 or 3 according to the priorities found during the last workshop, where scores were given to all ambitions on account of the attributes: effects, feasibility (on the basis of power of the municipality and costs), relevance to the total concept (area vision) and relation to other measures. These outcomes are handy for policy-makers, yet a critical remark must be made as to what these scores are worth, because during the workshop little insight was provided on feasibility and costs of the ambitions and/or measures (Verheij, 2006). Therefore it is obvious that more weighing will be necessary in future policy or plan-making rounds.

Interviewees did mention the LOGO 'thermometers' (see fig. 1.1 in § 1.3.3 for an example), in which the ambition values are supposed to be inserted too, as very helpful to gain a quick insight into the ambitions. So that is definitely a plus of the LOGO methodology.

The overall conclusion on requirement 5 is that the LOGO methodology proved helpful in the Vlaardingen case, but that on account of the above it can be concluded that even with the help of LOGO the weighing processes remain a challenge.

Process

Requirement 6. Can the method be made to fit the local planning practice?

The workshops held in Vlaardingen can be seen as the first phase of LOGO application. This first phase was rather positive in the sense that not only were environmental problems looked into, but the environmental qualities and opportunities of the area played a role too. As to the actual planning processes, it was not easy to adjust LOGO to the spatial planning routine. This was partly due to the fact that Vlaardingen central station area is part of the Riverzone project, which as mentioned in the case description § 5.2.1 started already in 2000, implying they had been working on it for 5 years at the time of the workshops. This means that it was very hard for

everyone involved to look at the area with an open mind, as they already knew it so well. And at any rate, there never was the intention to start all over again (Hoogeveen, 2006).

Like MILO, LOGO is more of a *content* instrument, because it only provides recommendations and advice for the planning processes, during which the ambitions are supposed to be integrated into the plans. Moreover, the LOGO workshops were conducted rather separately from the planning processes. So, LOGO application was and is not embedded in the planning processes of Vlaardingen. In itself this is point of concern, but it also raises questions as to the right timing of LOGO application. The fact that work on the central station area already started five years ago, suggests that the LOGO application in the last months of 2005 was a bit late. Also the 'structuurplan Riverzone' was ready before the LOGO workshop took place. This is of course not a fault of the method, and in the future the timing may improve with a growing experience with LOGO application. But it does show us that the timing of the application is important. As we have seen earlier in this report, it is preferable to include environment as early as possible into the plans. But the question is: precisely when? This is a chicken and egg problem, because if only a little is filled in, it is hard to apply LOGO, and if the plans are worked out in great detail, it is too late for LOGO. This issue of timing is closely related to the time span required for planning processes. If the entire time span of a planning process is as long as in the Vlaardingen case, so about 10 years, questions can be raised as to the danger of knowledge and expertise leaking away, because civil servants involved in the LOGO application move on to other jobs. So, at the one hand there is the issue of the extent up to which the outcomes of the LOGO application will be integrated and realised, whilst at the other hand there is the uncertainty of the people who have learned from the workshops, who gained new insights and inspiration from them, and who can further stimulate environmental integration after the LOGO application, quitting their jobs. The ideal situation would of course be that those involved in LOGO, continue to foster the environmental integration until operational spatial plans are made definite.

The conclusion on this requirement is therefore that as LOGO application was a rather *separate* process and a *relatively short* one in comparison with the time span of the spatial plans. There is the issue of synchronisation of all the processes, as well as the issue of an optimal timing of the application.

Requirement 7. Is the method applicable by any type of environmental officer in any type of administration?

As explained in the Nijmegen case, it is unlikely that methods like MILO and LOGO can be used by any type of officers in any type of administration. Due to the support that DCMR offers, this may be of slighter importance than outside the Rijnmond area, where DCMR does not work. But still the Vlaardingen case indicates too that the success of application also depends on the involved officers. Vlaardingen's environmental officer was educated to become an architect, but he became an environmental officer because of his interest in sustainable building. This background brings with it that he has a more open mind to other fields beside environment, and makes it easier for him to relate to spatial planners. Likewise Vlaardingen's spatial planner is open to environmental issues. It is very likely that this is not a coincidence, and that this is one of the factors why LOGO was applied in the first place. Also the municipal departments of planning and environment were merged into one administrative department in order to encourage EPI within the municipality. Therefore, the conclusion on this requirement is that both the officers and the type of administration make a difference too.

Requirement 8. Does the method induce to include all stakeholders in negotiating the environmental ambitions?

Regarding the involvement of stakeholders outside the municipality, the focus of Vlaardingen is very much on organized industrial interest groups. The industry has huge long vested interests in and around Vlaardingen. The industry is apprehensive of the increase in residential areas, because they feel it could adversely affect their opportunities for extension and/or their 'environmental space', i.e. the 'environmental room' they are given for their activities. Hence the municipality is geared towards an open planning processes, because of the importance of jobs for the local economy (Piersma, 2006). Also, the industry can block developments, by taking the municipality to court. It is better to either amend the plans in cooperation with the industry or drop plans at the earliest possible stage if there is too much opposition. This was a major reason to include the industry in the LOGO workshops.

In Vlaardingen environmental pressure groups hardly exist, so they cannot be involved had the municipality wanted to.

Besides representatives from the industry, three residents who live close to the development area did partake in the workshops, as well as an employee from the GGD (Gemeentelijke Geneeskundige Dienst; Local Public Health Authority). Indirectly, the results of research conducted as part of the C&E approach, were used at the LOGO workshops. This research was an investigation into the perceptions of residents in or close by the Riverzone area on the living conditions and social safety issues (Piersma, 2006).

On account of the above, it can be concluded that the LOGO application in Vlaardingen was an interactive way of policy-making. Looking at the method itself, stakeholder involvement is not an intrinsic part of the method, so in theory the seven steps (phase 1) can be taken without external stakeholders. However, both in step 3 and 4, as well as in the recommendations and success factors participation is explicitly present. And despite the fact that LOGO does not necessarily require an open participative planning process, the method is at least suitable for such a process.

Contextual factors

Requirement 9. Municipalities (or provinces) are able to use the method without any extra funding (at least funding does not come with the method)

The total cost of the two workshops, the preparatory meeting and the meeting afterwards, and the making of the final report, was not very high, so in theory the application of LOGO is affordable without any extra financial support (Piersma, 2006). However according to Verheij (2006) it was the provincial subsidy which was decisive in case of the Vlaardingen central station area. The province South Holland contributed about 50% of costs as part of the pilot programme "leren voor duurzame ontwikkeling" (learning for sustainable development).

Requirement 10. The method is only used and expected to have effects, if the municipality concerned is relatively 'green' and supportive.

The municipality of Vlaardingen can be characterised as relatively 'green', but what meets the eye most in this case is that there is so much environmental pressure in Vlaardingen. If environment or quality of life are not taken seriously, it is hard to develop anything within the municipal borders. So it does appear as if the municipality of Vlaardingen is almost forced to act 'green.' But whatever the motivation may be, there is adequate environmental support, both within the College of B&W (mayor and aldermen) and within the 'gemeenteraad' (city council). The absence of this type of support would have led to serious doubt on LOGO application. Therewith the conclusion on this requirement is that municipal support is an important factor with regard to environmental integration.

Requirement 11. The application of the method will have more effects if the province concerned is relatively 'green' and supportive.

In general the province South Holland appears rather 'green' and supportive. They have so far also been supportive of Vlaardingen, in the sense that Vlaardingen's central station area is a provincial pilot project "leren voor duurzame ontwikkeling" (learning for sustainable development). As remarked earlier, the province also partly subsidized the costs of the LOGO application. In fact, the use of LOGO (as well as the involvement of environmental bureau BOOM) was a prerequisite for the pilot and the connected subsidy. Because of this it is clear that the province played a decisive role in the application of LOGO in Vlaardingen.

Requirement 12. The application of the method will have more effects if other stakeholders are supportive of environmental measures and/or environmental measures are in their interests. These stakeholders can be:

- real estate developers (who may own the ground)
- housing associations
- local civil society
- local market parties

In the case of Vlaardingen it is clear that the municipality depends on the support of other stakeholders, like for example because the municipality only owns half of the ground, NS Vastgoed (real estate) owns the other half. A recent quick scan of RIVM on the integration of environment into planning at the municipal level indicates that in the municipalities of Nieuwegein and Zeist the ownership of the ground is one of the main instruments to ensure the inclusion of environmental measures in plans for new developments (Flipse et al, 2007). Perhaps there are other significant stakeholders in this case, but besides the real estate corporations no others have been identified in the limited amount of time this research was done. The conclusion of this requirement is that other stakeholders can seriously impede or enhance environmental integration.

5.3.7 Conclusions on issues not addressed by the frame of analysis

During the course of the research into this case an issue came up, which is not addressed by the frame of analysis. That is, that the *support* of DCMR, as well as Bureau BOOM, during the application of the LOGO method.

5.4 Conclusions Vlaardingen central station area

5.4.1 Detailed conclusions

Underneath all factors influencing the LOGO application and/or the integral area specific way of working are listed, divided into different categories.

Method

- The LOGO-method was found sufficiently integral and versatile.

Content

- With its extensive range of area typologies, ample indicators (parameters) and reference values the LOGO-method has proven a good tool for the content during its application in Vlaardingen. The area typologies appear apt, at least as one of the typologies fitted the area very well.
- A rather complete indicator set, including both objective and subjective indicators, was selected with help of the method. Limitations with regard to the comprehensiveness of the

indicator-set are not caused by the LOGO-method itself, but rather depend on whether it is doable for the officers and participants involved. Selection of a limited amount of indicators has the advantage of increased goal orientation of the application, especially if targets are set for these indicators. Nevertheless it is a good point that LOGO provides a comprehensive overview of possible indicators to choose from. LOGO did help and reduce complexity, but an integral way of working still remains complex and it is unrealistic to expect a tool like LOGO to make it easier than it did in this Vlaardingen case.

- Lack of insight in the feasibility as well as in the costs of measures necessary to realize the ambitions can both seriously impede future (environmental) integration into the zoning plan and the operational plan(s).
- Expert environmental knowledge is still required. In this case the necessary expertise was covered by the experts from DCMR and the other environmental consultancy agencies present at the workshop, especially bureau BOOM bv.

Process

- The LOGO application took place separately from the municipal planning processes. Despite the fact that this cannot so much be blamed on the LOGO-method itself, there is the problem of timing of the application and more in general the fact that the lengthy planning processes are hard to synchronise with the relatively short procedure of LOGO application.
- Qualities of the environmental officer, other officers involved, and the fact that the spatial and environmental department were made into one to enhance environmental integration, made a difference.
- After the determination of the environmental ambitions during the workshops, it is uncertain whether these will be further integrated (with social, economic and all other interests playing a role) in the actual operational spatial plan (for example a Master Plan).
- The LOGO-method is sufficiently geared towards interactive processes, or at least allows an open planning process and participation.

Contextual factors

- The municipality of Vlaardingen is supportive of environmental measures.
- The province of South Holland has stimulated environmental integration in this case.
- The provincial subsidy played a decisive role in the decision to apply LOGO.
- 50% of the ground owned by NS real estate. These, as well as possible other real estate developers that will be involved in the future may impede the implementation of (environmental) measures.
- There are no local environmental actions groups supportive of environmental integration in Vlaardingen.

Miscellaneous

- BOOM living concepts were a useful supplement during the LOGO application.
- If the focus is on an area only, there is the danger of exporting negative environmental impacts elsewhere.

5.4.2 Overall conclusions on Vlaardingen central station area

The reasons to apply the LOGO method in Vlaardingen were that the method was expected to *reduce the complexity* of area-based EPI and *be helpful as a weighing tool*.

In the Vlaardingen case the LOGO method was put to its *full use* and *applied successfully*. Therewith LOGO made an important contribution to EPI in this Vlaardingen case.

The success of the LOGO application is can partly be explained on account of the area is mostly empty. Of course there are restrictions caused by the railway line and the environmental pressure amongst others, but on the whole there is a *sufficient amount of 'room to play with'* at the location of the Vlaardingen's central station.

Other pivotal factors are the *dedication of the Vlaardingen municipality to environment* and the *provincial support* for EPI. In fact, the provincial subsidy, which was granted under the condition that LOGO was applied, played a decisive role in the decision to apply the method.

Nevertheless, the Vlaardingen case provides ample evidence that an integral area-specific way of working remains highly complex. A method like LOGO does not do wonders and therefore its application can *only reduce complexity up to a certain point*. This cannot be contributed to flaws in the LOGO method itself, but instead it is inherent to the complexity of modern day environmental and land use policy-making. Particularly the *lack of insight into the feasibility and costs of the ambitions* proved a weak point during the application.

Some other reservations must be made with regard to LOGO's apparent success in this case. Firstly these concern the effectiveness and goal-orientation of the method, as there is *lack of certainty* that the environmental and non-environmental ambitions will be integrated into concrete operational spatial plans for the area, so that eventually they will be realized.

Secondly the reservations concern the fact that the *effects of the method cannot be separated from the effects of the support by DCMR* during the application, which presumably greatly contributed to the success. In itself that is not a problem, because it is unlikely that municipalities will apply LOGO without involving DCMR, but it is nonetheless worth mentioning that this support is essential indeed. A very similar point can be made about *the support of Bureau BOOM bv*. The evidence of the importance of their role is for instance the fact that the title of the final report reads: report LOGO/BOOM- traject (route) Vlaardingen central station area.

On the next page the conclusions of the Vlaardingen case are summarised in a table.

	Vlaardingen central station area (LOGO)
Why LOGO?	<ul style="list-style-type: none"> •LOGO was expected to reduce complexity and be helpful as a weighing tool.
Overall use	<ul style="list-style-type: none"> •Fully and successfully used.
Overall method	<ul style="list-style-type: none"> •Sufficient.
Overall issues and/or results	<ul style="list-style-type: none"> •Area suitable for application, sufficient (environmental) room to play with. •LOGO application made a significant contribution to EPI, but only reduces complexity up to a certain point.
Content	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> •LOGO proved good tool, one area-typology fitted well and indicator set found sufficiently complete. •LOGO reduced complexity, but area-specific way of working is thus complex that further reduction is unrealistic. <p><i>Impeding</i></p> <ul style="list-style-type: none"> •Lack of insight in feasibility and costs of measures may seriously impede integration of (environmental) measures into operational spatial plans. <p><i>Not enhancing, nor impeding</i></p> <ul style="list-style-type: none"> •Fundamental up to date environmental expertise still necessary (but DCMR and other environmental consultancies invited for workshops covered that, especially BOOM).
Process	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> •Workshop processes went well due to expert support by DCMR and BOOM. •Application rather separate from planning routine. •Municipal organisation quite simple; one department for environment and planning. •Interactiveness facilitated by the LOGO method. <p><i>Impeding</i></p> <ul style="list-style-type: none"> •EPI into operational plans takes place after LOGO application. •Lengthy planning processes makes timing of and synchronisation with LOGO application hard.
Contextual Factors	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> •Municipalities' support for EPI. •Support from province of South Holland in terms of expertise. •Subsidy from the province of South Holland played decisive role. •Support from within municipality. •Enthusiastic environmental officer and spatial officer in favour of environment. <p><i>Impeding</i></p> <ul style="list-style-type: none"> •50% of ground owned by NS real estate. •No active local civil society to support environmental measures.
Miscellaneous	<ul style="list-style-type: none"> •BOOM living concepts were useful supplement. •By focussing on the area, there is the danger of exporting negative environmental impacts elsewhere.

Table 5.1 Summary of the conclusions on Vlaardingen.

5.4.3 Performance of the frame for analysis

Besides the issues already mentioned in relation to the NWW and Harderwijk cases, an omission was found in the Vlaardingen case with regard to the support by DCMR and Bureau BOOM during the application. Because this support appears so pivotal in the Vlaardingen case, it should have been included in the frame.

PART III CONCLUDING SECTION

Chapter 6 Conclusions, recommendations and reflections

6.1. Introduction

The aim of this research was to find the effects of MILO or LOGO application on environmental policy integration into urban planning at the local level. The research project is introduced in the first chapter. Chapter 2 provides theoretical perspectives on environmental and land use policy making and results in a frame for analysis consisting of 12 requirements. This analytical framework was created for the assessment of the outcomes of the three case studies in the empirical part of the study, the chapters 3, 4 and 5. These chapters provide descriptions of the cases, the confrontations of their outcomes with the requirements from the frame and individual conclusions of each case are presented.

In this final and concluding chapter overall conclusions are drawn on the basis of the combined results of the case studies. Besides that, some reflections and recommendations are made, and suggestions for future research are given.

6.2 Answering the research question

6.2.1 Main conclusions

On account of the combined results of the case studies, this section provides the answers to the four sub questions, together forming the central research question:

Why and in which way are MILO and LOGO used, to what extent do they contribute to the integration of environment and spatial planning, and which factors account for that contribution (or lack of contribution)?

The study shows that all three municipalities wanted to apply the method for *non generic area-based policy-making* and in the three cases the area concerned has relatively *high environmental pressure*. In Nijmegen there was also the reason that they wanted to experiment with the making of an (Environmental) Area Vision, as municipalities are expected to do on account of the new Law on Spatial Planning. Another common denominator in all cases was that the methods were expected *to reduce complexity* and *to be helpful as a weighing tool*, by helping to find indicators or parameters and the related (environmental) ambitions, thus providing helpful information for decision-making purposes. The fact that the province of South Holland provided a subsidy under the condition that the LOGO method would be applied, played a decisive role in the Vlaardingen case.

In the Nijmegen case some elements were picked from the MILO method and in the Harderwijk case MILO was altogether abandoned. From the three cases in this study the only full application was the one of the LOGO method in Vlaardingen.

The *strength* of the methods, particularly the LOGO method as the most comprehensive of the two, was found to be the *'content'* component. Because definite EPI takes place *after* MILO or LOGO application, there is *no certainty of definite integration* of the environmental measures into the operational plans. This is also true for the LOGO application in Vlaardingen, which case shows the best results in this study. Besides other factors, the definite integration will presumably also largely depend on the *feasibility and costs* of these measures.

The most decisive factor for the success of MILO and LOGO emerging from the combined findings is the *amount of (environmental) room to play with* in the area concerned. In the case of Nijmegen, with its complexity and high environmental pressure, there are too little opportunities for a method like MILO to be applied successfully. Apart from complexity, the environmental situation and of course all other physical conditions of the area itself, this amount of room is at the one hand determined by the ‘emptiness’ of the area (the emptier the better the opportunities are for EPI, cf. the Vlaardingen case) and, at the other hand, by the municipality’s dedication to EPI (or the lack of it, cf. the Harderwijk case).

Besides municipal support, the provincial and stakeholder support appear to be factors of importance to the success of the methods and/or EPI.

Another factor playing an important role in the success of the applications are the *available financial means*.

Yet another crucial factor is *the dedication to EPI at higher levels of decision-making*, because this also determines the amount of room to play with at area-level. The Nijmegen case provides a clear example of marginalization of EPI at area-level by decision-making without EPI at higher levels having negative environmental impact at area-level. Under such unfavourable conditions, with EPI not (yet) firmly embedded in all tiers of policy-making, both within and outside the municipal organisation, the effects of methods such as MILO and LOGO are minimalized.

An essential *weak* element of the LOGO *application* is the fact that there was *too little insight into the feasibility and costs* of the environmental measures.

Generally it can be concluded that methods like *MILO and LOGO can contribute to EPI*. However, on account of the intricateness and complexity of EPI and area-based ways of working, the contribution of the methods has limitations. The effects may be limited to *increased environmental awareness only*, or in cases where the effects are more extensive than that, *the methods can only provide guidance and reduce complexity up to a certain extent*. Their success or lack of it depends on quite a *variety of influential factors*

6.2.2 Explanations behind the conclusions

The main factors accounting for the methods' contribution to EPI are further explained underneath. They are grouped into the four categories of the analytical frame: method, content, process and contextual factors. These factors were found by confronting the combined outcomes of the case studies with the 12 requirements from the frame. The more these requirements are met, the more the methods and their applications contribute to environmental integration.

Method

Requirements 1 and 2 on integrality and versatility

In the two cases where MILO was applied, the method was found to be insufficiently integral, due to its limitation to environmental quality only. There is a need for tools that can integrate social and economic issues too. However, this is theoretically speaking, because in neither of the two cases the method was fully applied. Indeed, the Nijmegen case appeared too complex to be able to apply the method. Seen in this light, the MILO method might be acceptable under more favourable conditions. Despite the fact that in the Vlaardingen application there was still some room to include economic and social issues, *the LOGO method* was found to be *sufficiently integral* during the application, which is especially due to its broad quality of life indicator set.

Content

Requirements 4-6 on demarcation, comprehensiveness and appropriateness

In the Harderwijk case the MILO method was not found helpful for demarcation of - in this case the subareas within the area - but presumably this is an incident, as there were no problems with the demarcation in the Nijmegen and Vlaardingen cases. However, this study does show that demarcation can be problematic and once the focus is on an area, it is easy to overlook possible negative environmental consequences of decision-making at area-level, on a-joining or other areas.

One of the 'content' requirements from the frame entails the presumption that the more comprehensive the indicator-set, the better it is. But the study shows that on account of manageability, there are restrictions to the amount of indicators which can be included into integration processes and a selection of indicators may therefore improve the goal orientation of an application.

The efforts of the province of Gelderland to make Quality of Life visions for NWW show however that objective and subjective indicators can be hard to combine (see box 3.8 in § 3.3.6) and may result in a set which is too broad for use, as was the case in Nijmegen.

But, not only does the Vlaardingen case show that the LOGO indicator-set is sufficiently comprehensive, the pragmatic approach to select the most important indicators during the workshops increased the application's goal orientation by resulting in a manageable indicator-set.

With regard to the appropriateness of MILO and LOGO as a weighing tool it has become clear that the methods can be helpful (especially LOGO), but mostly as a *preparation* to the second phase, namely the phase during which the environmental measures are actually integrated into the operational plans. During this second phase there is still a lot of weighing and trading off to be done, but MILO or LOGO no longer play a role.

Despite LOGO's apparent success in the Vlaardingen case, there is one weak point, namely that there was *little insight into feasibility and costs* of the environmental measures resulting from the LOGO application. This point, as well as the last point made, raises doubts on the definite integration of environmental measures into the operational plans.

Process

Requirements 6-8 on adaptability, applicability and inducing involvement

The fact that the LOGO method was successfully applied in Vlaardingen does not automatically lead to the conclusion that the method can be easily adapted for use elsewhere. Maybe the Vlaardingen case was suitable for LOGO. Yet, the fact that the application took place relatively separated from the municipal planning processes, is likely to be partial to the method's success, because no real adaptations to the local way of working were necessary.

Although the difficulties with the MILO method in the other two cases are related to complexity (Nijmegen) and lack of dedication to environment (Harderwijk) and therefore cannot be blamed on the method, it is evident that the requirement of adaptability of the method to the local circumstances is an important issue, as one fixed method suitable for all Dutch municipalities is simply unattainable due to differences both with respect to municipal organisational structures and ways of working, as well as to the uniqueness of each project. On account of this study *the LOGO method scores best on adaptability*.

The success of the LOGO application in Vlaardingen was also due to the support by DCMR and BOOM, and in Harderwijk lack of support was a factor playing a role in abandoning MILO, implying that for the application of methods like MILO and LOGO *support* is an important factor.

This study also shows that for MILO and LOGO, or to put it more generally, for EPI as an integral area-based way of working, it is necessary that the involved officers are '*integral thinkers*', capable of looking beyond their own domains.

Furthermore it became clear that modern day methods to stimulate EPI should include the participation of all relevant stakeholders or at least allow for *interactive open planning processes*.

There is a general misfit between lengthy planning processes and the relatively short period during which MILO or LOGO or similar methods are applied. In view of manageability and costs of application of the methods, it is unlikely that the methods can be adjusted, so that timing and synchronisation remain an issue.

Contextual factors

Requirements 9-12 on funding, municipal -, provincial - and stakeholder support.

From the three cases it became clear that *extra means* for application are required, implying that if those are not available, this may seriously impede the effectiveness of application of the methods and therewith the contribution to EPI.

Both *municipal and provincial support* proved essential for the success of MILO or LOGO application and therefore these are essential for EPI.

Another pivotal factor enhancing or impeding the effectiveness of MILO or LOGO (and therewith their contribution to EPI) is the *support of the major stakeholders*, for example those who own the ground in question.

6.3 Functioning of the frame and generalisation of the results

6.3.1 The RIVM expert meeting

An expert meeting held by RIVM in September 2006 was used to present the results of the Nijmegen case. This case was chosen as the available time was limited and it is the most comprehensive of the three cases, so that all aspects playing a role at an integrated area-specific way of working, could be addressed.

The main conclusions presented were:

- MILO was only applied in a limited fashion and the environmental ambitions which resulted from the MILO application cannot be characterised otherwise than traditional environmental policy-making (meaning that the policy is geared to adhering to legal norms, so the environmental ambitions are not transcending these norms). It is unlikely that the results would have been very different, had MILO not been used. Presumably this is not to be blamed on the method, but is mostly due to the size of the Nijmegen West-Weurt area, the relatively high environmental pressure, the combination of the conflicting residential and industrial functions, and therewith the connected level of complexity as well as lack of environmental room to play with.
- Unfortunately the lack of success of MILO application in the Nijmegen case was further enlarged by the fact that local environmental issues were ignored at higher levels of decision-making (2nd bridge off Nijmegen West quay, lock and overnight harbour at Weurt), further upsetting stakeholders, who had been invited to partake in the MILO application, but who already distrusted the municipality due to its failure to prevent earlier cancer incidences in the area.

The overall reaction of the participants to this presentation was one of disappointment that the MILO application had not been a success in the Nijmegen case. None of the participants opposed the statements that the policy-making had been largely traditional in this case and that higher decision-making without EPI frustrates EPI at the local level. Luijten, the environmental officer involved in the Nijmegen case and who was also present at the expert meeting, confirmed that MILO had not lived up to their expectations, because the method could not cope with the level of complexity in Nijmegen West Weurt.

6.3.2 Reflections on the frame of analysis

The last remark of the former section implies that higher levels of policy- and decision-making influences EPI at the local operational level (which is the level of MILO and LOGO application), but these are not included in the frame of analysis. This is not the only omission in the frame. Also missing are: a clear explicit distinction between *method* and *application*, the *timing and synchronisation* of the application during the planning process, *external expert support with the application* (e.g. from DCMR) and the last mentioned, but certainly not least factor is the *available environmental 'room'* in the area concerned.

It also turned out that one of the requirements, namely requirement four on the comprehensiveness of the indicators set, was not very apt, because the more comprehensive the set, the less manageable it becomes. Instead a selection of vital indicators, similar to the Vlaardingen case, does make it doable and increases the goal orientation of the application. So, an improved frame would have to add requirements with regard to these missing issues, it would have to be multi-level, dealing with strategic and higher level policy- and decision-making, and at least one of the requirements would have to be rephrased.

6.3.3 Additional findings

This study also shows *increased awareness* of environmental issues on account of the introduction of MILO and LOGO at the municipal level. These findings are hitherto left unmentioned, because they do not fall within the scope of the frame for analysis. This effect is however worth mentioning, as it was found in the three case studies, as well as in municipalities included in the pilot interviews and in other recent research into a very similar subject by the researcher. All interviewees within the municipalities who took notice of the methods reported this increased awareness of environmental issues and especially mentioned the fact that it was found inspiring that in the methods environment is seen as an opportunity rather than a limiting factor. Even though it is not possible to quantify this effect and it is rather limited compared to the aims of the methods, this grown awareness is a small step towards EPI.

6.3.4 Reflections on generalisation and the basis for comparison

In order to be able to generalize the results of the case studies at hand, the cases were carefully selected on account of the similarities between the problems. The Nijmegen case was much larger than the other two, but it was nevertheless included in order to find as many factors as possible influencing EPI and an area-based way of working. But because of this, and because the cases are of course unique, there are differences too. Despite these differences between the cases itself and between the results per case, at least two of the three cases often provide similar results. But, there is no certainty that similar results lead to a similar conclusions. Nevertheless it is likely that similar conclusions can be drawn if there are similarities between the background of the cases. Also, the higher the level of abstraction, the higher the expected generalisability will be (Bouwman et al, 2005).

At any rate, the main conclusions of the NWW case were not refuted at the RIVM expert meeting, nor in research conducted by Soer (2006) on the same case, which adds to the generalisability of the outcomes of this case study.

6.4 Recommendations

Because environmental and land use pressure are not likely to diminish in the near future in The Netherlands and the need for environmental integration into land use planning is therefore likely to increase, attempts should be made to further improve area-based EPI. Suggestions how to do this are provided underneath.

General recommendations

- To integrate environment, municipalities require integral tools, and, as the Nijmegen case clearly shows, municipalities should apply EPI not only at the area level, and besides that, they should be supported in their EPI efforts by higher administrative levels. Therefore there ought to be Horizontal and Vertical Environmental Policy Integration (HEPI and VEPI), respectively within the different administrative tiers at the national, regional and local levels, as well between these tiers, implying that ideally there is EPI at all administrative levels and that HEPI and VEPI further strengthen EPI at area level.
- Due to the fact that the presence of ‘integral thinkers’ amongst policy- and decision-makers is an important success factor for the application of methods like MILO and LOGO, all relevant topics (such as geography, sociology and economics) at Dutch institutes of higher education should encompass environmental integration. Therefore, in educational curricula of such institutes where EPI is not yet included, this should be given priority.

Financial means

- Means to finance the making of tools like MILO and/or other attempts to improve EPI should preferably be allocated to the municipal level itself or to regional bodies such as DCMR (environmental services for the Rijnmond region), because municipalities understand their own needs best and DCMR has proven to be capable of making a method suitable for application at the local level.
- Extra means should be made available to make applications of methods like MILO and LOGO possible.

Methods

- As the strength of both methods is the ‘content’ part, a combination with MIRUP¹² could be beneficial, as that method’s strength supposedly concerns the integrating process.
- It would be a great contribution to the application of methods like MILO and LOGO, and generally to EPI if the insight into feasibility and costs of environment measures are improved, by for example supplementing the methods with multi criteria analysis or cost/benefit methodologies.

¹² The MIRUP method was made more or less simultaneously with MILO and LOGO by the city region Haaglanden, who were supported by the VROM Ministry. According to Sleijpen (2006), an expert in the field of EPI, this method is especially suitable for the integration *process* and on the VROM website Ruimte x Milieu that is where the MIRUP method is applied for (Sources: De Roo and Visser, 2004, and the VROM website RxM, 2006).

- Tools like MILO and LOGO should contain a warning for the danger of the exportation of environmental problems to other areas, due to the methods directing the focus on to the area itself.

Communication

- To facilitate the application of MILO, LOGO and similar methods the VROM website Ruimte x Milieu (Space x Environment) should be kept up to date and provide a range of inspiring examples and best practices of EPI at the local level.
- Even though this was unintentional, MILO and LOGO did increase environmental awareness at the municipal level, but to do so and try to inspire municipal officers, there might be cheaper and more effective ways of reaching these goals, than to release a practical tool.

Municipal level (general)

- To complement the application of methods like MILO and LOGO, or more generally EPI at the operational level, EPI should ideally also concern strategic municipal plans like zoning plans, by including environmental or quality of life targets in the plans. The effectiveness of this is however doubtful as long as the enforcement of spatial plans does not improve. According to Kramer and Lebret (in: Flipse et al. 2007) spatial plans play a role for new developments, but once these are realized no monitoring and enforcement of norms takes place, like is the case with environmental legislation. So, efforts for EPI in zoning plans may be a waste of time, as long as this enforcement problem is not solved.
- Rather than apply LOGO the way it was done in Vlaardingen (as a process separate from the municipal planning routine) it might be beneficial to make a municipal handbook for EPI like the one made by the municipality of Zwijndrecht, because in this handbook EPI is embedded in the own planning routine¹³ (but this has not been part of the research).
- In areas like Nijmegen West-Weurt which are too complicated for methods like MILO and LOGO, it is recommendable to at least apply the Gezondheidseffect Screening (Health Effect Screening) method from the GGD's at area level, because in my opinion health is *the* core value of environmental quality or quality of life. In this way possible health risks can be determined and if necessary extra measures can be taken.

Application level

- A comprehensive method like LOGO is apt for use, but a limited number of vital indicators should be selected from its comprehensive overview, to improve the application's goal orientation and for reasons of manageability.
- Because the definite integration into operational plans does not take place until the second phase, so *after* the application of MILO and LOGO, it is recommendable to already include all important stakeholders in the first phase, to increase acceptability and validity of the outcomes and therewith subsequently increase the chances of definite and complete

¹³ This handbook provides amongst others environmental quality profiles for all types of areas present within the municipal borders in which environmental opportunities are already accentuated if there are any, and there is a scheme (draaiboek) for the environmental integration into spatial plans, which addresses 'content', 'process' and 'integration tools' for all different phases of spatial projects (Source: Handbook duurzame stedenbouw Zwijndrecht, 2006).

integration of the environmental and/or quality of life measures during later stages of the planning processes.

- It is recommendable to use the living concepts by Bureau Boom during application of MILO, LOGO or similar methods, as these can increase the available environmental room to play with.

Recommendations for future research

- For pragmatic reasons the issues of *optimization* of environmental quality or quality of life and *acceptability* have almost entirely been ignored in this research. However, to assess methods like MILO and LOGO and their applications it is recommendable to have criteria to judge whether environmental quality or quality of life, as well as whether acceptability, have been optimized. Future research in the field of EPI should therefore pay explicit attention to these issues and try to establish assessment criteria.
- Applied research should focus on the feasibility and costs of environmental measures, and municipalities could also benefit from practical tools like checklists and advice on how to reduce complexity without sacrificing the validity of the outcomes.
- The present day trend of integral area-based policy-making at the local level appears to be the right level for the consolidation of environmental opportunities, because the local administrations know the local situations best. But, as argued above, EPI at the local level should be supported by EPI at higher levels of administration and this should be the subject of research in the academic domain.

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Appendix 1

A. List of interviewees for the pilot interviews selected on account of their expertise and/or position.

Position	Type of expertise (selection criteria)
MILO bureau of VNG: M. Hanegraaf	Expert on MILO, particularly on MILO application at the local level
VROM officer: J.J. de Boer	Expert on MILO and similar methods
VROM officer: J. Himbergen	Expert on space x environment
Environmental officer province of Gelderland: W. Knoppert	Expert on MILO and similar methods
Environmental officer province of Zuid Holland: M. Hozee	Expert on theories of policy making and environmental integration
Environmental Services region Midden Holland: L.M.de Jong	Expert on environmental integration, including MILO and similar methods
Public health + environmental policymaker RIVM: L. den Broeder	Expert on public health and environmental policy-making
Professor spatial planning Groningen University: G. de Roo	Expert on integrating environment into spatial planning
Professor spatial planning Utrecht University: A.M. Kreukels	Expert on spatial planning

B. List of interviewees for the pilot interviews selected on account of the size of the municipality they work for.

Municipality	Size	Name	Domain/sector
Amsterdam	Large	S. Verschuuren A. van Dongen	land use officer environmental officer
Houten	Rather small	J. Vlot	environmental officer
Eemnes	Very small	R. van Veen	land use officer

Appendix 2

List of empirical questions for the case studies

General

1. which factors were decisive for the choice to apply MILO or LOGO?
2. were adaptations to the local circumstances necessary?
3. is a method for environmental integration sufficient, what about social and economic aspects?

Content

4. why was an area of this size chosen?
5. in which way were the spatial relations and the influences on the area determined?
6. in which way was the danger of simply passing environmental pressure to another area fended off?
7. which attributes of environmental quality were used?
8. in which way were these attributes operationalised into measurable indicators?
9. how comprehensive are the used indicators and are they of a subjective and/or objective nature, and why is this so?
10. were other types of knowledge or information used, besides these indicators?
11. did policy makers lack knowledge or information, which had to be obtained from other parties?
12. in which way were the reference values determined?
13. in which way were environmental ambitions and goals set (weighing), was an environmental area vision made, or where the ambitions and goals laid down in any other way / plan?
14. in which way were environmental ambitions translated into concrete measures?
15. in which way are indicators monitored after implementation?

Process

16. Is there a kind of 'MILO or LOGO-ambassador', someone who is enthusiastic about using the method?
17. is the environmental officer a specialist, or is he/she capable of looking beyond the environmental aspects, of taking a broader view?
18. which (governmental) sectors were involved?
19. at what stage of the planning process did the environmental sector become involved?
20. how can the communication and cooperation between the different sectors be characterised, especially between planners and environmentalists?
21. which other stakeholders were identified and were they involved in the process?
22. did the application of MILO or LOGO prolong the time the project took?

Other circumstances

23. how was the application financed?
24. how 'green' is the municipality, both politically and administratively? Meaning are they supportive of environmental measures, or more cautious, afraid of obstruction power? And how concrete is their environmental policy?
25. does the municipality have former experience with area specific policy making, for instance with City and Environment?
26. how 'green' is the province, are they supportive of the environmental ambitions, for example providing personnel on secondment, knowledge or subsidies?
27. who owns the land and does this influence environmental integration?
28. how 'green' are involved real estate developers and housing associations?
29. is the local civil society resistant or supportive of the plan?
30. are local market parties resistant or supportive of the plan?
31. are there national or EU rules and regulations that either enhance or oppose the environmental ambitions of the plan?
32. can other circumstances be identified?
33. do you have any recommendations to improve MILO or LOGO and/or environmental integration and an area specific way of working?

Appendix 3

List of interviewees for the Nijmegen case

Name

Position

Municipality of Nijmegen

Jan Luijten	Environmental officer
Brigit van Kerkoerle	Quarter manager (stadsdeelmanager)
Ad van Dortmund	Planning officer
Jeroen Jansen	Economic officer

Municipality of Beuningen

Dirk Wim in 't Hoff	Environmental officer
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Members of the Kronenburger Forum

Ben de Jongh	Former plant director Heinz Nijmegen
Marga Jacobs	Environmental action group Leefmilieu
Claudia van Steen	Environmental action group Leefmilieu
Johan van der Mee	Community association Hees
Ton Seters	Community association Hees
Jo Smits	Community association Weurt +

Province of Gelderland

Roland Bus	Officer involved in environmental information system of NWW
Wim Knoppert	Expert on EPI and quality of life

Appendix 4

List of interviewees for the Harderwijk case

<u>Name</u>	<u>Position</u>
Luit Pijning	Project manager
Nienke van Keimpema	Environmental officer
Arjan van Vlekkert	Planning officer

Appendix 5

List of interviewees for the Vlaardingen case

<u>Name</u>	<u>Position</u>
Wim Piersma	Environmental officer
Rob Lichtenberg	Planning officer
Betty Hoogeveen	Project manager
Rinus Huijbregse	LOGO expert DCMR
Koldo Verheij	LOGO expert DCMR

Appendix 6

Environmental Area Vision of Nijmegen West-Weurt

The environmental area vision of Nijmegen West-Weurt was planned to be ready mid 2006. The concept d.d. 31 May 2006) comprises:

- a profound description of the present environmental situation in Nijmegen West-Weurt
- division of Nijmegen West-Weurt into subareas depending on functions (in accordance with the MILO method), and the connected environmental aims (desired values)
- a description of all major developments in or close to the area that may influence the environmental quality in Nijmegen West-Weurt. In the descriptions serious attempts are made to also include the environmental effects. For West these are especially the city bridge and the 2000 houses at the Waalfront. For Weurt the focus is on the ring road, the overnight harbour and the elevation of the lock.

Recommendations are made for environmental improvements Three priorities are distinguished: 1. prevent that sensitive groups stay lengthily at places with a lot of environmental pressure (for example: no nurseries within 300m from the A73); 2. improve if possible; 3. concentrate highly dynamic functions in highly dynamic areas (this means: concentrate dynamic functions in areas like the city centre or Nijmegen West, which are already highly dynamic) in order to spare quiet areas elsewhere, and mitigate as much as possible.

Another recommendation is to stimulate transport over water and there are specific assignments concerning 'greenery', mitigation of hindrance and making the industrial site more sustainable, as well approximately ten recommendations to make use of the environmental opportunities.

Attention is also paid to cooperation between the municipalities of Nijmegen and Beuningen, the province and other involved parties at the one hand and 'fine tuning' between the different plans/developments at the other hand.

The last chapter of the Environmental Area Vision is dedicated to an implementation program.

Appendix 7

Transport over water in the Nijmegen West-Weurt case

The harbour of Nijmegen West-Weurt offers opportunities to replace road transport by transport over water. The EAV states that it is national environmental policy to replace road transport by transport over water. However, it remains to be seen whether in the case of Nijmegen West-Weurt a transfer to water transport substantially contributes to a reduction of air pollution in the area. According to a concise report of Tauw engineers (2005)¹⁴ ships perform better with respect to NO₂ and also a little bit better for fine dust, however this general 'emission' information does not tell what the immissions are locally. More adequate in the report, or more in line with area specific policy making, is the remark that ships are generally a lot further away from the houses than trucks, so, even though the ships are quite polluting - according to a TNO study (2004) on the Waal and the Waal-Maaschannel in 2002 an NO_x emission comparable with 180.000 vehicles a day on a motorway, and a PM₁₀ emission of 155.000 vehicles a day- and emission levels around the river axis are very high, concentrations rapidly decrease with a growing distance from the river axis.

Despite that, the air quality at the Waal riverside in Nijmegen West is generally not very good (Meetnet Nijmegen 2006). The TNO report (see underneath) shows that immission levels caused by ships are acceptable, but if Nijmegen succeeds in increasing the amount of transport over water these immission figures will get worse. It is a fact that ship engines are getting cleaner, but this is a slow process as ship engines have relatively long life-spans.

Combined with the autonomous growth and an increase in road traffic due to the City bridge, it may be unwise or even impossible to build 2000 houses at the Waalfront with regard to air quality.

Immissions from ships at the Waal

A TNO report (2004) shows emissions for NO₂ and PM₁₀ on the Waal for the years 2002 and 2010. The figures for 2010 are based on a linear extrapolation of emissions from 1994-2002. For the Waal quay at Nijmegen West the immission figures show that:

For NO₂

- 2002: average yearly concentration approximately at the legally required limit of 40 µg/m³;
- 2010: average yearly concentration probably below 40 µg/m³.

For PM₁₀

2002 and 2010: even though concentrations are higher than the limit at the centre of the river, yearly average concentrations for both years will probably not exceed the limit.

Whether or not it is good idea to change over to transport over water in NWW remains a question, however it can be concluded that these type of have to be sorted out, regardless whether MILO is applied or not.

¹⁴ Strangely enough the Tauw report made for the Nijmegen West-Weurt situation, comparing road transport with transport over water, mentions the fact that inland ships are a lot cleaner than seafaring vessels, which is of course completely beside the point.

Appendix 8

Underneath all the three individual tables with summarised conclusions are placed into one table.

	Nijmegen West-Weurt (MILO)	Harderwijk central zone south (MILO)	Vlaardingen central station area (LOGO)
Why MILO or LOGO?	<ul style="list-style-type: none"> • MILO was expected to help with non generic area-based policy-making and reduce the complexity of EPI, as well as be useful to make an Environmental Area Vision as required by the new Law on Spatial Planning. 	<ul style="list-style-type: none"> • MILO was expected to reduce complexity of an integral area-based way of working. 	<ul style="list-style-type: none"> • LOGO was expected to reduce complexity and be helpful as a weighing tool.
Overall use	<ul style="list-style-type: none"> • Actual use limited; MILO provided a little guidance. 	<ul style="list-style-type: none"> • Not actually used. 	<ul style="list-style-type: none"> • Fully and successfully used.
Overall method	<ul style="list-style-type: none"> • Not sufficiently integral nor sufficiently versatile. 	<ul style="list-style-type: none"> • Not sufficiently integral nor sufficiently versatile. 	<ul style="list-style-type: none"> • Sufficient.
Overall issues and/or results	<ul style="list-style-type: none"> • Without EPI at the higher levels of policy- and decision-making, EPI at the area-level (such as MILO application) is marginalized. 	<ul style="list-style-type: none"> • Lack of dedication to the environment and choices made in favour of interests above area-level resulted in an insufficient environmental room to play with. The remaining problem of mitigation is too simple to make MILO application worthwhile. 	<ul style="list-style-type: none"> • Area suitable for application, sufficient (environmental) room to play with. • LOGO application made a significant contribution to EPI, but only reduces complexity up to a certain point.
Content	<p><i>Impeding</i></p> <ul style="list-style-type: none"> • NWW area is unsuitable for MILO; complexity and environmental pressure too high, leaving insufficient room to play with. • Clash between environmental interests at area level and those at higher levels which MILO cannot solve. • MILO does not solve the issue to combine objective and subjective indicators and if successfully combined the range of issues becomes too broad for the 	<p><i>Impeding</i></p> <ul style="list-style-type: none"> • Problems with demarcation. 	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> • LOGO proved good tool, one area-typology fitted well and indicator set found sufficiently complete. • LOGO reduced complexity, but area-specific way of working is thus complex that further reduction is unrealistic. <p><i>Impeding</i></p> <ul style="list-style-type: none"> • Lack of insight in feasibility and costs of measures may seriously impede integration of (environmental) measures into

	<p>environmental and planning department to deal with.</p> <ul style="list-style-type: none"> • The contribution of MILO as a weighing tool is limited to the preparation of the weighing process. • Application of MILO in no way reduced the necessity for fundamental up to date environmental knowledge during EPI. 		<p>operational spatial plans.</p> <ul style="list-style-type: none"> • Fundamental up to date environmental expertise still necessary (but DCMR and other environmental consultancies invited for workshops covered that, especially BOOM).
Process	<p><i>Impeding</i></p> <ul style="list-style-type: none"> • MILO did not fit into planning routine. • Interactiveness not included in method. • Municipal organisation too complex for MILO. • EPI into operational plans takes place after MILO application. • Lengthy planning processes makes timing of and synchronisation with MILO application hard. 	<p><i>Impeding</i></p> <ul style="list-style-type: none"> • Lack of support by VNG MILO-project bureau. • MILO did not fit into the planning routine. • Insufficient capacity municipal environmental department. • Project leader believes more in capacities of his team than in methods, implying that the abilities of the involved officers are partial to the success of methods like MILO. • Timing of workshop was not right (info on tools for integration too general and BOOM living concepts too specific at that time). • Interactiveness not included in method. 	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> • Workshop processes went well due to expert support by DCMR and BOOM. • Application rather separate from planning routine. • Municipal organisation quite simple; one department for environment and planning. • Interactiveness facilitated by LOGO. <p><i>Impeding</i></p> <ul style="list-style-type: none"> • EPI into operational plans takes place after LOGO application. • Lengthy planning processes makes timing of and synchronisation with LOGO application hard.
Contextual Factors	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> • Support from province (in the form of expertise and subsidy). • Support from within municipality. • Good working relationship with bordering municipality Beuningen, which also signed declaration of intent. • Enthusiastic environmental officer, surrounded by 'green' fellow officers in other departments • Local civil society supportive of environmental measures 	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> • Support from province (extra financial means anticipated). <p><i>Impeding</i></p> <ul style="list-style-type: none"> • Ground owned by real estate developers without green reputation. • No active local civil society to support environmental measures. 	<p><i>Enhancing</i></p> <ul style="list-style-type: none"> • Municipalities' support for EPI. • Support from province of South Holland in terms of expertise. • Subsidy from the province of South Holland played decisive role. • Support from within municipality. • Enthusiastic environmental officer and spatial officer in favour of environment. <p><i>Impeding</i></p> <ul style="list-style-type: none"> • 50% of ground owned by NS real estate. • No active local civil society to support environmental

	<p><i>Impeding</i></p> <ul style="list-style-type: none"> • Apart from frustrating local participants whose support for EPI could be useful, lack of EPI at higher levels of decision-making seriously hampered EPI at the local level (location new bridge). 		measures.
Miscellaneous		<ul style="list-style-type: none"> • Website Ruimte x Milieu (VROM) found more inspiring than MILO. • BOOM living concepts could have been a useful supplement. 	<ul style="list-style-type: none"> • BOOM living concepts were useful supplement. • By focussing on the area, there is the danger of exporting negative environmental impacts elsewhere.
Additional findings	<ul style="list-style-type: none"> • The methods can contribute to an increase in environmental awareness at the municipal level. • Municipalities that are frontrunners as it comes to EPI, have officers which can be characterised as 'integral thinkers.' As this appears to be true for relatively young officers, it is likely that this is due to EPI being integrated into their educational programme. 		

Appendix 9

Reaction on the criticism of VNG MILO-project bureau at the RIVM expert meeting

At the RIVM expert meeting the overall reactions on the presentation of this research were rather overshadowed by criticism from the side of the VNG MILO-project bureau. This criticism entailed drawing conclusions on the basis of one case only (1), assessing MILO in the wrong way (2) and neglecting some positive effects of MILO, like the fact that environmental aspects were included in the choice for the location of the 2nd bridge (3). The first point cannot be denied, but it was made adamantly clear to the audience – consisting of experts - that the presentation concerned just the one case.

With regard to the second point, the criticism was that MILO should not be seen as a methodology, but rather as a ‘set of ideas, suggestions and examples.’ But, because this had already been pointed out to me in January 2006 during the first stages of my research, the frame of analysis was constructed with this kept in mind. There is, for example, no requirement demanding application of the seven steps in the described order of the MILO guide. On the contrary, the frame was left as ‘open’ as possible, geared towards assessing the adaptability of MILO (and LOGO) to the local circumstances, its overall flexibility and particularly to the outcomes of its application.

During personal communication at the expert meeting I was told that, because of the high environmental pressure and complexity, the Nijmegen case is unsuitable for MILO assessment and should therefore not have been selected in the first place. However, during the consultation in January 2006 the VNG MILO-projects bureau had made no objections against the Nijmegen case.

At any rate I disagree, because there is far more to learn from a complicated case than from an easy one. And I never stated that the lack of success in Nijmegen was to blame on MILO, but rather that the Nijmegen case proved too complex for MILO. It simply is not realistic to expect any tool to miraculously create opportunities for environmental quality in such a highly complex area with severe environmental pressure.

A statement that I did make, was that MILO application appears a waste of time in the Nijmegen case, not so much because of the limited effects, but because higher level decision-making taking place simultaneously utterly ignored the environmental consequences *thereof at the local level*. This points irrefutably to a lack of EPI at these higher levels of decision-making and *not* to a failure of MILO and/or its application. So, what I did point out is that there are limitations to MILO’s applicability and that the Nijmegen case proved unsuitable for MILO.

The third point of criticism, namely that, contrary to my conclusions EPI was included in the decision-making on the 2nd bridge, is simply not true. According to several interviewees the reasons for the choice of the location were that:

- the municipality needs the bridge there to connect the new residential area north of the river Waal with the city;
- a 2nd city bridge is necessary as a temporary alternative, because in the near future the old bridge needs to be closed for repairs;
- the municipality prefers to have the new bridge within its municipal borders so as to have maximum control over the bridge.

Furthermore:

- if there is EPI *concerning higher level interests* during decision-making processes this can never be contributed to methods like MILO *when applied at the local level only*, but must rather be contributed to Environmental Impacts Assessments (Milieu Effect Rapportages), and
- the envisaged local environmental measures at or around the 2nd bridge are only mitigating measures geared towards adhering to legally required standards, so that these measures cannot be contributed to MILO either.

On account of the above, my conclusions are that there was no ground for the criticism and that my opinions are in agreement with the opinions of the VNG MILO-project bureau.