

# Best Practice Evaluation of Sustainable Housing Transformation; Assessment of 3Awarded Projects

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## Abstract

The transformation of the ageing, socially and physically declining early post-war housing stock is one of the most demanding housing tasks of this time. Though the consciousness of this task is growing, the level of knowledge of and experience with appropriate approaches is still rather low.

To improve the knowledge of and insight in renovation based interventions we developed a method for systematic analyses and evaluation of best practices. We apply this method on the submissions for the 10th edition of the Dutch National Renovation Award, a biannual contest of renovation and reuse projects. We compare the results with earlier findings and discuss the conclusions.

## 1 Introduction

The research reported in this paper is part of the research project Best Practice Analysis of Renovation-Based Strategies. In three previous papers we reported other parts of the project. In the first paper we discussed the need for knowledge of renovation-based approaches. We stated that the analysis of best practices -“examples of action which could be recommended for further application whether in a similar or adapted form” (Minnery et al. 2000)- could be used to increase knowledge on these approaches. An analysis of Dutch best practice programs showed that the National Renovation Award (Nationale Renovatie Prijs, NRP), a biannual competition of realized renovation projects, is most promising for further analysis (van der Flier & Thomsen 2002).

We used the data from the entrees to four successive editions of the NRP to see whether analysis of these time series of data gives insight in Dutch renovation practice. We also wanted to find out what variables are relevant for the selection and analysis of best practice cases. We concluded that the analysis of the time series of data shows some interesting tendencies but gives limited insight. Regarding the relevance of the entree variables we found that the quantitative variables used are necessary for selection of the submissions as best practice cases, but are of limited value for analysis of best practices. Further qualitative information is necessary to find success and fail factors (van der Flier & Thomsen 2003).

In the third paper we used both quantitative and qualitative information in case studies of entrees to the NRP 2003 to find potential success and fail factors. To conduct the case studies we developed an

analytical model including potential success and fail factors and did a first test (van der Flier, Schalkwijk and Thomsen 2004).

In this paper we will apply and test our method on the three nominees for the National Renovation Award 2005 in the category Renovation of Housing Estates<sup>1</sup>. We will confront the opinions of the main participants about the projects with the result of our own analysis. We will answer the next questions:

- how did the nominated renovation projects take place: initial situation, process and development, and what product resulted from the process?
- how do the main participants assess the projects and what characteristics of the projects are according to the participants positively or negatively related to the results?
- how does this assessment and these characteristics compare with our own assessment and the success and fail factors we have found?

Our focus on the nominees follows our previous approach. The entrees to the NRP 2005 are the best practices of the years 2004 according to the professionals involved in Dutch renovation practice. Out of these projects the jury has selected three projects as nominees for the award; so they can be considered the 'best' best practices of the years 2003-2004. We also expect them to contain (at least a number of) success factors.

The remainder of the paper has four parts. We start with a description of our 'model' (section 2). In section 3 we will use this model to describe the three nominated projects and report the assessment by the main participants and the success and fail factors they mention. We will compare the results with our own findings in section 4. In the last section we draw some conclusions..

## 2 Analytical model

The analytical model starts from the NRP definition of renovation as 'transformation (process) of the physical, functional, financial, architectural and ecological characteristics of a building or project (product) to realize a comprehensive and useful extension of the lifespan' (Thomsen 2001). It takes two steps; the first one is a description of the initial situation and the objectives of the participants and a description of the renovation process and product. Second step is an assessment of the results by means of the evaluation criteria effectiveness of the process (goal attainment), efficiency of the product (cost-benefit relation) and legitimacy of both process and product (support and acceptance from participants). Figure 1 shows the model.

By the two steps mentioned we analyse the success of a project in terms of goal attainment, efficiency and support. To answer the question why a project is successful we have to identify characteristics of renovation projects, which relate positively (success factors) or negatively (fail factors) to good or best projects. In our previous research we have found the factors below to be relevant in successful renovation projects.

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1) In the meantime the winner was announced at the opening of the trade fair Renovation & Maintenance on May 25th 2005 in 's-Hertogenbosch [www.nationalerenovatieprijns.nl](http://www.nationalerenovatieprijns.nl). The winner was not known at the time of the survey and did not influence the assessment results.

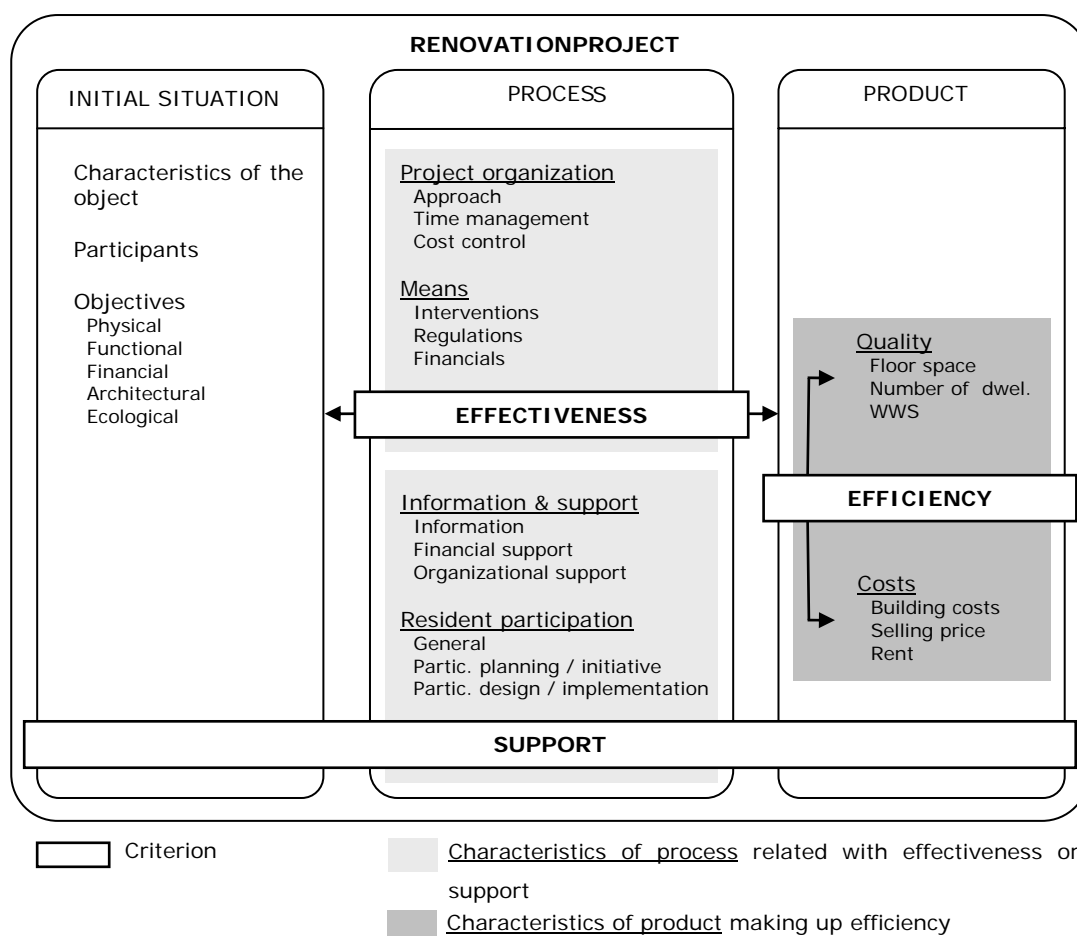


Figure 1: Analytical model

Success factors related to effective processes:

- organization of the project with elements: comprehensiveness of the approach; presence of time management and presence of cost control;
- means with elements: interventions, juridical regulations and financial regulations.

Success factors related to support from residents for process and product:

- information and support to residents with elements: information and organizational and financial support;
- resident participation with elements: participation in general and participation in the various phases of the project.

Success factors related to efficiency of the product are costs and quality:

- quality can be measured in: quality points, floor space and number of dwellings;
- costs that can be measured in: building costs, selling prices and rents.

### 3 Three cases

#### 3.1 Introduction

In this section we will use the model to describe the three projects: initial situation of the projects, objectives of the participants, renovation process and resulting product. We will also report the assessment of the project by the participants and the success and fail factors they have mentioned. The description is based on the information in the application form submitted for the award and on interviews with the main participants: the principal (housing association or local government), the architect and the residents. We start with some characteristics of all the entrees to the NRP 2005 in the category Renovation of Housing Estates and compare them with the characteristics of the nominees.

#### 3.2 Nominees

The nominated projects have been selected out of a total of 54 projects. The main characteristics of the 54 projects are shown in tables 1 and 2

Table 1: Building period and type of dwelling of entrees to the NRP 2005, category Renovation of Housing Estates

	<i>Multi-family</i>	<i>Single-family</i>	<i>Total</i>
<i>Pre-war</i>	<b>8</b>	<b>3</b>	<b>11</b>
<i>Post-war</i>	<b>22</b>	<b>21</b>	<b>43</b>
<i>Total</i>	<b>30</b>	<b>24</b>	<b>54</b>

Table 2: Building period and tenure of entrees to the NRP 2005, category Renovation of Housing Estates

	<i>Social rental</i>	<i>Owner occupiers</i>	<i>Mix of social rental and home-owners</i>	<i>Total</i>
<i>Pre-war</i>	<b>4</b>	<b>1</b>	<b>6</b>	<b>11</b>
<i>Post-war</i>	<b>27</b>	<b>2</b>	<b>14</b>	<b>43</b>
<i>Total</i>	<b>31</b>	<b>3</b>	<b>20</b>	<b>54</b>

Most entrees concern the post-war housing stock; in this part of the entrees the number of multi-family estates is almost the same as the number of estates of single-family dwellings. If we look at the tenure we can conclude that the majority of the estates are social rental. A large and growing part of the entrees shows a tenure mix of social rental and homeowners. Most of these estates were originally entirely social rental stock; after the renovation a part of the dwellings has been sold to the residents.

The nominated projects are:

- *Marnix III in Amsterdam*, a pre-war multifamily block with a tenure mix of social rental and home-ownership;
- *Florijn Noord in Amsterdam*, a post-war multifamily block with a tenure mix of social rental and home owners;
- *Hof Loevesteijn in The Hague*, a post-war multifamily block in the social rented sector.

If we compare the nominees with all the entrees we may conclude that the categories pre-war and post-war multi-family estates are represented; the same goes for the social rental estates and estates with a mixed tenure. Estates of single-family dwellings are missing. The reason may be that the jury has selected estates with a complex task. Renovation of multi-family blocks is technically, organizationally and probably financially more difficult than the renovation of estates of single-family dwellings.

### **3.3 Marnix III**

#### **3.3.1 Initial situation and objectives**

Marnix III is a multi-family apartment estate built in 1884 on the west side of the Amsterdam city centre. Originally the estate was private rental but a number of dwellings had been sold to the residents. The local government and the housing association had bought the larger part of the dwellings with the objective to replace them. The 150 dwellings were very small and in a bad physical condition.

After a long period of partly squatter occupation following demolition plans and neglect, the residents protested against the demolition scheme and new construction because they did not want to move and were dissatisfied with the quality and impact of the new construction in the neighbourhood. They organized a manifestation "The battle for Marnix" and forced the local government to conduct a feasibility study about alternatives. The study showed that it was possible to renovate the block and to realize a quality comparable with new construction. So the decision was made to renovate the block with the next objectives:

- the new quality of all the dwellings, including the private rented dwellings and the dwellings of the home owners, should be on the level of new construction;
- all the owners should participate;
- the architecture of the façade should be restored;
- a part of the dwellings (30%) should be kept in the social rented sector.

The choice for renovation was supported by the residents because they rejected the alternative of demolition and because residents who had to move got good relocation opportunities.

#### **3.3.2 Process and product**

The project included 150 dwellings in 26 buildings. The housing association has renovated 17 of them and has cooperated with private principals in the renovation of another 5. The private owners themselves have renovated the last 4. To persuade the private owners to cooperate, the local government has mentioned the possibility to expropriate them. The local government also offered subsidies, like grants for sound insulation and for amalgamation of dwellings. During the design phase the project was organized in a design team with all the professional participants and the residents; in the building phase a building team was operating. The architect was responsible for the planning and cost control; each month the proceedings were reported in the design and the building team. Because of the tight building market the tender of the project took over a year.

In the design phase the residents (tenants and home-owners) were represented in the design team. In the building team the housing association and the local government represented them.

The residents were informed by means of folders and information-evenings; they had the opportunity to express their views in a survey, which has been conducted by the local government and during visits to individual residents. Residents who had to move have received an allowance for relocation costs.

Next to the technical and physical (insulation) updating of the dwellings the intervention consisted of amalgamation of one-bedroom dwellings into two bedroom apartments and the construction of maisonettes on the ground floor with gardens on the canal side. The old façade was restored.

The project included 99 renovated dwellings, out of the old 150. The average net surface increased from 35 m<sup>2</sup> to 77 m<sup>2</sup>; the average number of quality points from 68 to 102. The technical and physical quality can be compared to new construction. The average reinvestment costs were € 99.364 per dwelling (excl. private properties). The average rents increased from € 247 to € 388. The average selling price was €245.000.

### **3.3.3 Participants: assessment of the project and success and fail factors**

According to the participants the objectives of the project have been met. The residents are very positive about the results. The architect and the housing association expected that it would not be possible to realize the current requirements for sound insulation but by means of an innovative insulation method it has been possible to reach the same quality as new construction. Because the tender of the project took such a long time some of the private owners did not fully cooperate with the common realization, reason why some of the possible advantages, like common renewal of the foundation, have not been realized.

The participants have mentioned as success factors:

- the close cooperation between the housing association and the local government. This led to a common vision on the project and prevented the emergence of conflicts. This cooperation was also important because the role of the local government has changed from process participant to committed 'director'; so the local government needed the housing association to realize its objectives.
- the large support in time and means by the housing association and local government for the small private owners. At the start of the project the housing association has made an agreement with the private owners. The owners acted as principals but left the project management to the housing association. The agreement and support stimulated a smooth process and resulted in a high quality of the product.
- the direct relation between the architect and the private principals. This enabled the private principals to determinate the layout of their property.

One fail factor has been mentioned:

- the fragmented ownership prevented optimal solutions in some cases. Because of the mixed ownership it was impossible to make new wide stairways that opens up two dwellings<sup>2</sup>.

## **3.4 Florijn Noord**

### **3.4.1 Initial situation and objectives**

Florijn Noord is a social rented multi-family estate built in 1968 in the F-neighbourhood of the Bijlmermeer district in Amsterdam. From the outset this district suffered from social and physical problems because of its function on the Amsterdam housing market and its specific urban and physical qualities. The Bijlmermeer had to house large numbers of immigrants in an urban layout characterized by a strict separation of functions and a housing stock of large apartment blocks with storage box rooms on the ground floor in green areas only accessible for pedestrians and bikers. The entrances

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2) In their report the jury assesses the way this handicap regarding the result was handled on the other hand as particularly praiseworthy.

were situated on the first floor and connected to parking garages by long covered corridors. This combination resulted in a very unpopular district with a large share of residents with no choice on the housing market and substantial safety and management problems. To redress the problems the local government and the housing association have developed a restructuring scheme for the district. For each neighbourhood it was worked out in an urban plan. For Florijn Noord a plan was made in which new low-rise buildings were connected with the existing high-rise. To realize this end the bottom - the first three levels - of the high-rise was altered and new construction was added on one side of the block. A part of the high-rise has been demolished because of structural defaults.

The main objectives of the Florijn Noord project were:

- improvement of the relationship of the high-rise block with the low-rise new construction in the neighbourhood;
- elimination of technical and physical problems like decay of concrete and insufficient insulation;
- redifferentiation (aimed at improving social cohesion) by a mix of dwelling types;
- increase of safety by adding new elevators and compartmentalization of the galleries;
- preservation / refurbishment of the larger part of the existing dwellings in the upper floors with a relatively high functional and technical quality;
- architectural redesign aimed at reducing the uniformity of the existing blocks.

### **3.4.2 Process and product**

The project has been initiated by the housing association in cooperation with the local government. Both parties participated in a project group on the neighbourhood level that steered the urban planning process. On the project level a design team was acting with the professional participants and the residents. This team has made the brief. A building team with the contractor was operating in the building phase. The housing association was in charge of the planning and the cost control. The architect was responsible for the development of the design. He has been working in close cooperation with the urban supervisor from the local government on the improvement of the relation of the block with the new construction in the neighbourhood. The local government has stimulated the project by subsidies for special types of dwellings and for energy saving.

The residents were involved in the design team; their wishes have been inserted in the brief. They were informed on information meetings. The individual residents have been visited to get their approval of the schemes for their own dwellings. The resident committee has been supported by a local organization for professional support.

The heart of the intervention was in the first floors of the building. The box rooms and the corridors have been replaced by new dwellings (studios) and the entrances have been remodelled. On one side of the block a full-height new head has been added containing dwellings for sale and an additional elevator. This enabled compartmentalization of the galleries. The dwellings in the curve of the block have been amalgamated into dwellings for students. The facade of the block was altered by replacing the concrete screens by glaze ones. All the dwellings have been updated technically and physically (insulation).

The renovation project has resulted in 260 dwellings instead of 309 before renovation. The average net square floor space increased from 64 to 91-99 m<sup>2</sup>. The average costs were €82.000 per dwelling for renovation and €167.000 for the new flats. The rent increased from €495 to €527; the selling price for the new apartments is €188.000.

### **3.4.3 Participants: assessment of the project and success and fail factors**

According to the participants the objectives have been met; by means of the programme for the dwellings and the (urban)design, the high-rise block and the low-rise new construction have been

connected. A supply of various types of dwellings has been created to enable a more differentiated population. The safety problems will probably be reduced by the remodelling of the urban layout and the bottom of the block. The residents regret the loss of covered parking lots. According to the housing association the introduction of free parking lots on ground level has reduced the demand for the remaining covered parking lots.

The participants have mentioned the next success factors:

- the close cooperation in the design team has enabled creative solutions. The brief for the dwellings in the bottom of the block resulted from this cooperation. The housing association wanted to add single-family dwellings; the architect was looking for more urban types like dwellings to combine living and working and the local government suggested dwellings for various kinds of artist. The result were studios subsidized by the local government.
- the cooperation between the housing association and a local institution for higher education made it possible to realize dwellings for students, to be managed by a specialized housing association.

One point was mentioned as fail factor:

- the phasing of the different participants did not fit. This mismatch resulted in slow progress and in problems with the management of the estate during the execution of the renovation scheme.

### **3.5 Hof Loevesteijn**

#### **3.5.1 Initial situation and objectives**

Hof Loevesteijn is an estate of social rented multi-family dwellings built in 1954 in the South-western part of The Hague. The estate contained 239 small gallery flats of 65 m<sup>2</sup>. Because of the small surface and the bad technical condition the housing association had the intention to demolish the dwellings and construct new ones. After protest of the residents the scheme has been changed into a mixed one. Two blocks with 124 dwellings were amalgamated and renovated into 79 dwellings. The other blocks with 115 flats were replaced by new construction of 84 dwellings for sale. The revenues of the sale should compensate for the deficit of the renovation part. The main objectives for the renovated dwellings were:

- increase of variation in dwelling types;
- increase of technical and physical quality to a level comparable with new construction;
- possibility for present residents to return to the estate;
- preservation of specific architectural quality of the estate.

#### **3.5.2 Process and product**

The project has been organized in a traditional way; the housing association has been acting as principal; the architect has made the design and the contractor has realized the building. The housing association has been responsible for the planning and the cost control. The (local) government has supplied subsidies for the amalgamation of dwellings and for thermal insulation.

Because of the protest of residents the original demolition scheme was changed into a mixed scheme with new construction and renovation. The wishes of the present residents were starting point for the brief of the renovation. They were informed on several meetings, by means of a booklet describing the project and by newsletters. The project has been executed in close cooperation with the residents committee. On several occasions the individual residents have been asked to give their opinion. Former residents have returned into 45 of the renovated 79 dwellings.



During the renovation project a mix of dwelling types has been created: horizontal amalgamation of small flats into larger ones, addition of elevators and renewal of the galleries to make accessible flats for the elderly and vertical amalgamation of small flats into family dwellings on the ground floor with an own entrance and a garden. The technical and physical quality has been improved to the level of new construction. The façade has been cleaned and restored; new balconies have been added with respect to the original architectural quality.

The 124 old dwellings have been transformed into 79 new ones; the average net surface increased from 56 m<sup>2</sup> before to 88 after renovation. The average number of quality points went from 70 to 144. The average costs were €140.000 per dwelling and the average rent increased from €261 to €461.

### **3.5.3 Participants: assessment of the project and success and fail factors**

The participants consider the project to be a success. Most of the objectives have been realized. In a few cases choices had to be made because of budget constraints. One example is the decision to renew the old galleries and balconies for functional and architectural reasons. This decision and its budgetary consequences made it impossible to invest in a sophisticated heating system with energy recovering.

The participants have mentioned the next success factors:

- the housing association has taken a year between draft design and final design to create consensus between the participants on the objectives of the project. After this year the project proceeded relatively smoothly
- the housing association 'used' the project to improve the disturbed relationship with the residents. This meant more financial means and more inclination to listen to and cooperate with the residents from the part of the housing association.
- one employee of the housing association was the 'engine' of the project. She was hired to improve the relationship with the residents and has done this very energetically and effectively.

## **4 Comparison**

### **4.1 Initial situation and objectives**

In our model we have defined successful projects in terms of effectiveness of the process (goal attainment), efficiency (relation between quality and costs) of the product and the support of the participants for process and product. In the interviews we have asked the participants to give an assessment of the projects. We have related their answers to the three elements of success from our model. Based on the case descriptions we have also made an assessment ourselves. Comparison of both assessments results in the next table (table 3).

When asked to assess the effectiveness the participants in all cases say that the projects have been successful: the main objectives have been attained. In the Loevesteijn Noord case a choice had to be made between two objectives because of budget constraint but the large majority of the objectives has been realized. We do agree on the positive assessment of the effectiveness of the process by the participants; when we compare the objectives set in the initial situation with the resulting intervention the larger part of the objectives has been realized.

The participants do not mention support as part of the success of the projects. However, when we look at the description of the processes we can see in at least two of the three cases a strong support by the residents for both the process and the product. In the Marnix III case and in the Hof Loevesteijn case

the residents managed to turn demolition into renovation and in both cases residents were deeply involved in the process after this decision had been made. The same applies for Florijn Noord, but in this case the main battle has been fought in earlier stages of the process and on other scale-levels.

Table 3 Assessment of the projects by participants and by researchers

	<i>Marnix III</i>		<i>Florijn Noord</i>		<i>Hof Loevesteijn</i>	
	<i>Assessment participants</i>	<i>Assessment researchers</i>	<i>Assessment participants</i>	<i>Assessment researchers</i>	<i>Assessment participants</i>	<i>Assessment Researchers</i>
<i>Effectiveness</i>	+	+	+	+	+	+
<i>Support</i>	<i>n.m.</i>	+	<i>n.m.</i>	+/-	<i>n.m.</i>	+
<i>Efficiency</i>	<i>n.m.</i>	?	<i>n.m.</i>	?	<i>n.m.</i>	?

\*n.m.= not mentioned

The participants do not mention efficiency of the product in their assessment and we do not have sufficient reliable information to assess the projects in this respect. Efficiency turns out to be a difficult criterion for success for at least two reasons:

- it is difficult to measure efficiency because the data on the costs are difficult to interpret without detailed analysis or own calculation;
- it is hard to find a relevant benchmark.

#### 4.2 Success and fail factors

The success and fail factors mentioned by the main participants in the interviews have been summarized in table 4.

Table 4: Success and fail factors mentioned by participants

	<i>Marnix III</i>	<i>Florijn Noord</i>	<i>Hof Loevesteijn</i>
<i>Success factors:</i>	<ul style="list-style-type: none"> <li>- Cooperation between and common vision of housing assoc. and local government.</li> <li>- Support in time and means by local government and housing associations for private owners</li> <li>- Agreement of the housing association and the private owners on organization.</li> <li>- Close relation between architect and (small) private principals</li> </ul>	<ul style="list-style-type: none"> <li>- Cooperation in the design team</li> <li>- Cooperation of housing association with local institution for higher education about the realization of dwellings for students</li> </ul>	<ul style="list-style-type: none"> <li>- Housing association has taken a year to create consensus between the participants on the objectives of the project.</li> <li>- Financial means for and strong inclination of housing association to listen to and cooperate with the residents.</li> <li>- One employee of the housing association was the 'engine' of the project.</li> </ul>
<i>Fail factors:</i>	<ul style="list-style-type: none"> <li>- Mixed ownership</li> </ul>	<ul style="list-style-type: none"> <li>- Mismatch in phasing of the different participants</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>

In section 2 we have described a list of factors that are positively or negatively related to the elements of successful projects: effectiveness of the process, support for process and product and efficiency of the product. In table 5 we have scored the success and fail factors mentioned by the participants on this list. We have also scored the success and fail factors we have found ourselves in the cases.

When we compare both scores we get table 5.

Table 5: Success factors (+) and fail factors (-) mentioned by participants and found by researchers

<i>Success and fail factors</i>	<i>Marnix III</i>		<i>Florijn Noord</i>		<i>Hof Loevesteijn</i>	
	<i>Particip.</i>	<i>Resear.</i>	<i>Particip.</i>	<i>Resear.</i>	<i>Particip.</i>	<i>Resear.</i>
<i>Effectiveness</i>						
- <i>organization:</i>						
• <i>comprehensiveness of the approach</i>	+ , -	+	+ , +	+	+	+
• <i>time management</i>		-	-	-		+
• <i>cost control;</i>		?		?		?
- <i>means:</i>						
• <i>Interventions</i>	+	+		+		+
• <i>juridical regulations</i>	+	+		+		+
• <i>financial regulations.</i>		+				
<i>Support</i>						
- <i>information and support to residents:</i>						
• <i>information</i>		+		+		+
• <i>organizational &amp; financial support;</i>		+		+	+	+
- <i>resident participation:</i>						
• <i>participation in general</i>		+		(+)		+
• <i>participation in phases.</i>		+		+		+
<i>Efficiency:</i>						
- <i>quality:</i>		+		+		+
- <i>costs:</i>		?		?		?

When we compare the scores of the participants with our own scores we can see four groups of success factors:

- In all cases the participants mention the importance of the comprehensiveness of the approach in the sense that it was important for the success of projects that all the participants have been involved and have worked close together. We do agree with this; there has been a lot of struggle and debate in the initial phase of all the projects but after the decision had been made to renovate the close cooperation between all the participants resulted in a product with a high quality. In the Marnix III case the mixed ownership has been mentioned as a fail factor because it hampered comprehensive (collective) solutions; but being more and more characteristic for this type of projects mixed tenure is more given fact – and thus an implicit challenge - than a manageable fail factor.
- The participants do not mention the interventions themselves, but from the information collected we conclude that in all cases innovative and creative solutions have been important; the solution to the insulation problem in Marnix III, the specific types of dwellings in the bottom of Florijn Noord and the various types of amalgamation in Hof Loevesteijn.
- In Marnix III support and subsidies (financial regulations) to small principals have been mentioned as success factor; in all projects we can see the importance of subsidies to make

specific solutions feasible: subsidies for insulation, for amalgamation and for special types of dwellings.

Information and support to residents has been mentioned only in the Hof Loevesteijn case where the housing association used the project to improve the disturbed relation with the residents; they also hired a dedicated employee to execute this policy. In all projects we have found the importance of information and support for residents and participation by residents. This support and information led to a smooth process and a positive assessment of the product by the residents.

(The absence of) time management seems to be a fail factor:

- in the Florijn Noord case the mismatch of the phasing of the various participants has been mentioned as fail factor. In both the Marnix II case and in Florijn Noord we can see negative effects of the long time renovation processes take. In this respect the Loevesteijn Noord case shows a paradox. The housing association took a year between draft design and final design to discuss the project with the residents and to create consensus.

Since the participants did not say anything about the efficiency of the product, they did not mention success factors related to efficiency either; from the collected information we cannot assess the efficiency or factors positively or negatively related with efficiency.

## 5 Conclusion

In this paper we have applied and tested our method to analyse best practices in the field of renovation-based approaches. We have described the initial situation and the process and product of the three projects, which have been nominated for the National Renovation Award 2005 in the category Renovation of Housing Estates. We have asked the main participants in the projects to assess the projects and to name factors, which seem to be positively (success factors) or negatively (fail factors) related to process and product. We have compared their answers with our own assessment of the projects in terms of effectiveness, support and efficiency and with the success and fail factors we have found in the case descriptions.

The conclusion can be that the elements effectiveness and support are relevant for the assessment of the success of practices; all the participants mention the effectiveness in the sense of goal attainment. They do not mention support but the description of the processes show the importance of support, not only for the process to reach the objectives but also for the product in order to realize a sustainable answer to the housing demands of the residents. The element efficiency is difficult to assess without further analysis of the cost data or own (re)calculation of the costs. As long as practical assessment tools are not within reach we better leave the element efficiency out of the assessment of projects.

Regarding the success and fail factors we have found four groups of factors that are positively related to the success of projects:

- In all cases the cooperation of all the relevant participants is important. In the first phases of a project there can be a lot of debate and struggle but after some time decisions about the type of intervention has to be made. When these main decisions have been made the cooperation of the participants is possible and important for a smooth process and high quality of the product. Probably we can turn the argument around; if no consensus is reached after the first phases of the project and some participants do not cooperate, the results will be probably negative or suboptimal.
- Compared with new construction renovation is a relatively new branch of sports; in all cases innovative and creative solutions to the specific problems of existing buildings have been important to reach success.

- To make the specific solutions feasible subsidies are often necessary, especially for projects in the social rented sector with rent constraint because of affordability
- One of the differences between renovation and new construction is the presence of residents. Information to and support of residents and participation by the present residents are important for an effective process and for acceptance and appropriation of the product by the residents.

The conclusion may be that the model is useful to analyse projects and can help to identify factors which lead to success and give in this way more insight in and knowledge about renovation based approaches.

In our list of success factors the human element has not been mentioned often. However, as shown in all three cases, the efforts of dedicated individuals are often decisive for the success of renovation based approaches.

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