

# INTEGRATED STRATEGIES FOR SUSTAINABLE RENOVATION OF EARLY POST-WAR HOUSING: THE CASE OF TORPA, A HOUSING AREA AND NATIONAL HERITAGE ASSET IN SWEDEN

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## ABSTRACT

Based on experiences from a transdisciplinary research project this paper makes a post-reflective analysis of broad actor and stakeholder engagement to handle the complex decision-making process regarding the renovation of housing of cultural historical value. The transdisciplinary team was engaged in the early inventory and pre-study of Torpa, a housing area from the late 1940s in Sweden. The engagement of the transdisciplinary research was not of direct contact with the planning and design of the renovation of Torpa. The case of Torpa provides empirical testimony of the multiple values and the concurrence between qualitatively different objectives when aiming for sustainable renovation of culturally valuable housing. Further, the case shows how these multiple values are represented by stakeholders with different disciplinary belongings, knowledge fields and powers and legitimacy for action. In order to identify these stakes, stakeholders and powers we explore the use of stakeholder mapping and analysis. We argue that a broader stakeholder engagement will increase the understanding about the complexity of renovation among involved actors and stakeholders and thus support a learning process in which different perspectives are clarified and shared. Such a learning process is of importance to raise understanding for issues relating to the safeguarding of cultural historical values, but also of social values. A broader stakeholder involvement early in renovation can also make better use of knowledge among involved stakeholders. The case brings light to the shortage in correlation between different objectives where regulative and legislative demands for environmental protection and accessibility, national heritage interests, housing policy and economic feasibility for the property owner. From a research perspective stakeholder mapping and analysis seems fruitful as a means to identify and visualise different stakes and their power to influence decision for renovation. However, stakeholder analysis as a method for strategic planning is still on a conceptual level. To be fully integrated in renovation the method should be used by the project managers themselves.

## Keywords

renovation, multi-family housing, conflicting values, stakeholder mapping, learning process

## 1. Introduction

Early post-war housing in Sweden (~1941 – 1960) is in focus for large-scale renovations and transformations to address technical deterioration, high energy use, deficient accessibility, as well as poor in-door climate. Early post-war housing has been referred to as the ‘golden age’ of Swedish 20th century architecture designed with care for the residents as regards layout, materials and details: qualities which are still appreciated by modern users.

Renovation compared to new construction is a more complex and uncertain endeavour than new construction. Still, the latter is normative in how the construction sector organises projects. In renovation, there is a need to consider existing technical and social values and the historical context in which the building is inscribed. Although few examples are protected by law, there is an increased recognition for the historical and cultural historical values of modernistic housing. Furthermore, objectives for sustainable development and new legislation enforce the perspective of environmental protection and universal design with accessibility for all.

The many different aspects and values to consider for sustainable renovation call for a broad involvement of actors and different disciplinary knowledge including environmental and technical expertise, antiquarians, residents etc. As already identified, discrepancies among stakeholders, between diverse and sometimes contradictory professional discourses, agendas and interests create communicative barriers is one of the most significant barriers to deliver sustainable built environments [1]. The engagement of a wider spectrum of stakeholders has been stressed as a means to create transparency of processes aiming for sustainability but also to respect equity in planning and design [2].

We present a case study of a housing area, Torpa, built in the late 1940s which was in focus for a transdisciplinary research project involving participants from a broad range of knowledge areas: antiquarians, architects, engineers, planners, property owners, researchers, and a tenants’ association. The broad team of participants were engaged in round-table discussions, workshops, in which Torpa was used as a means to focalise discussions. The team contributed to an inventory and pre-study for a planned renovation of Torpa, but will not be part of the actual design and execution of the renovation.

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The overall ambition for the transdisciplinary research project was to develop integrated strategies for renovation of early post-war housing to balance environmental, social and economic goals with existing social, cultural and architectural values. For that, a multi-value model was developed to describe different values of existing housing as no such model was found and ready to use (Figure 1) [3].



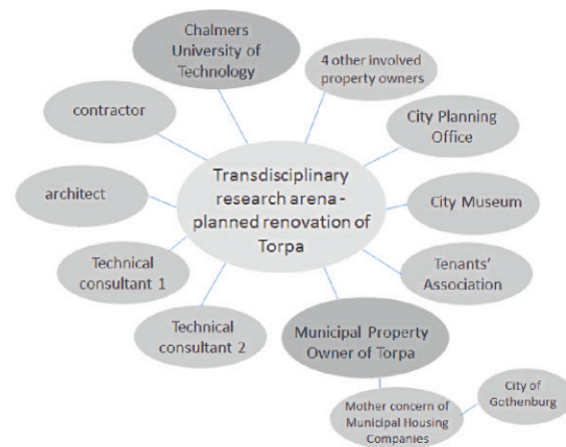
**Figure 1 Multi-value model for description of qualities/values in existing housing (elaborated from [3]).**

The case area Torpa is subject to heritage protection of national interest which proved a major challenge when searching for solutions for energy saving, accessibility and mould. The case of Torpa can be seen as a forerunner for the implementation of modern requirements in early post-war areas. Thus, the solutions for Torpa could be statutory for areas of the same kind. Results from the case should be of major interest for policy makers as well as consultants and property owners. At this stage, the final renovation option for Torpa is not yet decided.

### 1.1 Aim, approach and method

The aim for this paper is to describe the complexity of renovation and the need to involve a broad spectrum of actors and stakeholders early in the process. As a means to visualise different interests and values in the Torpa case, we explored stakeholder mapping and analysis. The stakeholder mapping is the continued development of the multi-value model in Figure 1. Instead of general value areas, the stakeholder analyses set the specific claims and 'stakes' in focus, and thus we complement the multi-value model which tends to become very broad and which do not take any specific actor's perspective. For example, instead of talking of social values in this paper we describe social values from the perspective of stakes, e.g. the tenants' perspective and their legal protection through regulation for health and accessibility.

With stakeholders we refer to those who can be affected by or affect a decision [4]. The stakeholders can be part of project team or external to the project. The actors involved in the transdisciplinary case study of Torpa are the following (Figure 2): the property owner, the tenants association, an architect office, the City Planning Office, the City Museum, two technical consultancy firms, a contractor and researchers. Four other property owners were involved in the discussion. It is important to state that these specific actors are not part of the real design and execution of the renovation of Torpa. The transdisciplinary team was involved in Torpa as part of the research project and as such they *represent* the different disciplinary belongings, powers, interest and legitimacy for actions in the planned renovation.



**Figure 2 Key stakeholders involved in the case study of Torpa within the transdisciplinary project.**

Normally, a renovation process will not involve all these actors in the early planning. For example, city planning officials, the museum, the tenants' association and the contractor are seldom involved in the inventory.

The method used in this paper is retrospective reflection carried out by the research team e.g. [5]. Based on observations and an analysis of transcribed discussions held in the transdisciplinary arena, and with references to documents produced by the involved actors, we explore methods to visualise the complex interactions and potential conflicts between stakeholders and values in renovation. These conflicts were revealed during the pre-study of the renovation of Torpa although not explicitly visualised until now.

We have been inspired by methods for stakeholder analysis as described by authors in the fields of environment management [6, 7] and construction management [8-10]

The paper does not focus on participatory aspects of stakeholder involvement, but on the group of experts and professional actors and the values and objectives they represent (see Figure 1). The residents were not part of the project directly. Their perspectives were represented by the local office of the Swedish Tenant's Association.

## 2. An introduction to stakeholder analysis

Stakeholder engagement has the last decades acquired a prominent place in management theory and practice, (see [11] for an overview in construction, and [7] for an overview in environmental management). The value of identification and understanding of diverse needs and expectations of stakeholders has been emphasised for strategic reasons (competitiveness, effectiveness) as well as a means to capture stakeholders' potential input to project development [8-10]. Stakeholder involvement has also been used as a management technique to avoid failure or delay of projects due to conflicts and stakeholder opposition. Balancing these sometimes opposing forces and stakeholder interests will be a major role for project management.

A democratic stance to stakeholder involvement has been advocated in the fields of urban planning [12] and environmental management [6, 7]. The desire to engage



stakeholders in participatory decision-making is thus linked to the sense of creating ownership of a project, to include marginalised and weaker societal groups, but also to give the environment a voice.

Apart from the strategic and the ethical motives to stakeholder involvement, broad stakeholder involvement as a means of initiating and supporting social learning processes has been emphasised [11, 13]. By focusing on the mutual understanding of different values instead of the management of concurring values and competing interests, stakeholder analysis and stakeholder involvement can support commitment to a deliberative and collaborative process. The learning process should provide stakeholders with the opportunity to speak without fear, ensuring that all opinions are respected and enable stakeholders to influence the outcome.

### 3. Torpa and its values and ‘stakes’

Torpa was the first area built in Gothenburg in 1949 according to the ideal of ‘good dwelling’, an important instrument of the Swedish socio-political programme of the early 20<sup>th</sup> century. The area reflects the architectural ideals of that time and is based on empirical studies for how homes are used by its inhabitants. The area of Torpa is under national heritage protection.

Torpa consists of 600 flats of mainly two rooms and kitchen of about 50 sqm organised in 17 blocks around an open green space of almost 3,5 ha. Half of the blocks have brick facades and the other half have plaster facades.



**Figure 3 Torpa, the inner green space and surrounding buildings. Photo. P Femenías.**

In the 1950s mainly families lived here and the green space was frequently used by children. Present population trends in Torpa suggest that there is a rejuvenation of the residents in the area. In 1990, more than 50% of the residents was 65 years or older, compared to only 22% in the same category in 2011. During the same period, inhabitants between 25 and 64 years increased, but the number of children is significantly lower than elsewhere in Gothenburg. The rent for a two room flats was 430 €/month in 2011. The low rent and the socially stable environment close to public transport, the city centre and green areas makes the area highly attractive and also stable in terms of turn-over. The area presents no vacancies.

In the following we present different values and interest which we discussed in the transdisciplinary arena. The values echo the multi-value model in Figure 1.

### 3.1 The perspective of the housing owner

Torpa is owned by a Municipal property owner. The Municipal Company has three sister companies which are all directed by a Mother Company which is owned by the city of Gothenburg. Together, the sister companies own and manage about 70.000 flats in Gothenburg city.

Since 1949, Torpa has only undergone smaller refurbishments. The sewage system has been changed in most housing blocks and all roofs were retiled about five years ago. Smaller leakages in connection to windows, balconies have been fixed and some exposed gables have been fitted with extra insulation and a new façade.

The area is currently subject to plans for renovation of the facades driven by complaints from the tenants concerning mould and fungus and requirements from the local Office for Environmental Management in Gothenburg is to secure a healthy in-door environment. Some of the housing blocks also have levels of radon originating from ‘blue concrete’ which exceed enforced norms. A demand for building permit for the renovation has already been submitted and is under evaluation.

In addition, the area has high energy use. The reduction of operational energy use in all stock is one main objective for the property owner, a goal which is driven by European and national objectives for energy use with 20% by 2020 and 50% by 2050. The high energy use and the mould problems have been identified as originating from technical deficiencies of the construction of the building envelopes. As long as the dwellings in Torpa were allowed to use more energy for heating, the moisture was pushed outwards in the walls. The mould and fungus problems escalated when the property owner started to decrease the indoor temperature in an attempt to save energy.

#### 3.1.1 The future vision for Torpa

Apart from the technical problems with energy use and mould Torpa area is socially stable and attractive, not least due to the low rent levels. The property owner has no plans to change the social composition of the area. The three-floor housing blocks have no elevators and even the flats on the first level are reached by a flight of stairs. This means that the old and disabled may become ‘prisoners’ in their own homes.

The owner has no plans of improving the accessibility in the existing flats, and this will not be required by law if they do not make large reconstructions to the existing layout of the flats. Instead the owner wishes to densify the area and build 200 new dwellings to provide a broader variety of sizes for the flats and compensate for the poor accessibility among the existing flats.

The owners’ future vision of Torpa is stated in the *Torpa 2040 Vision*:

- The best and greenest area for 800 smaller households
- For whom? Young and old. Small and big.
- What houses? High and low. Old and new.
- Elevators and stairs
- A part of the ecological sustainable city where you travel by tram and bike.



It should be stated that the employees at the property owner are not united by a single idea for the future of Torpa. While some of the employees involved in the planned renovation wish to safeguard the cultural and historical values, others find that too much time is lost in discussion. From a strict property management perspective, these buildings have since long passed their technical and economic life. With reference to technical problems and the expected high cost to fix them they could be demolished.

The property owner is renovating other areas from the 1950s, which were not subject to heritage protection, using solutions that from a maintenance point of view present good technical quality. One solution turns the original brick façade into a plaster façade adding 5 cm of added insulation. The original façade decorations are recreated to some extent (Figure 4). Another solution wraps the building with sheets of metal imitating bricks but with a larger size. The property owner considers one of these two solutions for Torpa.



**Figure 4 Additional insulation and new plaster façade on original brick building at Kyrkbyn Photo. L. Thuvander.**

### 3.1.2 Property economic aspects

The property owner is governed by national laws for semi-public housing and their owners' directives. The owner is the city in which they operate. Since 2011, the commerciality of the actions of semi-public housing companies has been reinforced. The impact of the enforced law on the social responsibility of semi-public housing, the very reason why they once were installed and still one of their major objectives, has not yet been studied. The reinforced law seem to influence the way the semi-public property owner in Torpa reason about commercially secure investments.

There are presently no national grants or loans allocated for renovation or for energy improvements of existing stock in Sweden. The costs for energy performance measures (and other renovation actions) are thus to be covered by the property owner and their tenants. Torpa is ranked as belonging to a low risk area regarding future investments. The owner of Torpa is aware of the potential negative social consequences as a result of increased rent levels which could follow a major renovation.

## 3.2 The social perspective of the tenants

The residents in Torpa have rental contracts. In Sweden, tenants have the legal right through the Rental Act to give their approval of renovation actions which will affect their flat and common spaces. This means that each tenant should approve separately for actions within the proper flat, while a 50% approval of all tenants is needed for actions taken in common areas. In practice, the Rental Act has a weak power as it is overruled by another act (The Land Code) which in fact deprives the tenants of their tenure in case of major renovation. The outcome of several recent legal cases shows that the tenant's possibility to interfere with the property owner's plans for renovation and large rental increase is very limited.

There are two problems affecting the social quality of Torpa. The first is the problem with mould originating from technical deficiencies and maybe new living habits, e.g. more frequent showers than when the buildings was new. Many tenants have been complaining about mould problems and there have been articles in the media where tenants demand actions from the property owner. The second issue refer to the limited accessibility. We don't know if this is regarded as an urgent problem among the tenants.

The tenants in Torpa have not participated directly in the pre-study which means that we don't have their view of the qualities and deficiencies of the area. The property owner has not been willing to conduct a questionnaire, which has been proposed by the tenants' association. The motivation is that a questionnaire could provoke stress among the tenants due to uncertainties and potential inconveniences for them as a result of the planned renovation. A surface media review indicates that several tenants in Torpa appreciate the calm and green area as well as the culturally and historical valuable details in and around the dwellings. Drawing on questionnaires conducted by the research team among tenants in other semi-public housing areas can give some guidance. An ex-post renovation questionnaire [14] show that the tenants found that the increased standard in the flats match the increase in rents, but not out-door upgrading. Similar results were found in an ex-ante renovation questionnaire [15] where the tenants showed a slight willingness to pay for increased standard inside the flats but not for up-grading actions in common areas outside their own flat. These two earlier studies are not carried out in areas of the same cultural historical quality as Torpa so it is difficult to say if the present and future tenants would be willing to pay extra for the safeguarding of these values.

## 3.3 The technical perspective

The housing in Torpa although built from the same drawings was constructed by no less than five different contractors. The result is varying technical status of individual buildings which could be connected to a variation in mould problems but also variation in energy performance. There is also a large variation of presence of radon, though that can be the result of many factors.

The brick buildings are more affected by mould than the plaster covered buildings. The status of the brick facades is according to the property owner that bad that it needs to be replaced. However, the façade in some brick buildings



is 'glued' to the concrete structure while in other buildings a small re-current space has been created between the structure and the façade (those buildings are less affected by mould). These differences are probably due to the different contractors that were employed and to the novelty in the 1950s for the craftsmen of the construction type with concrete block covered with a brick façade. The fact that some of the facades are glued to the structure means that the façade cannot be detached and put again over an exterior insulation, a solution which could have saved the original aspects of the bricks which is one of the emphasised aspects of cultural historical value.

### 3.4 The environmental perspective

As demonstrated by one of the involved technical consultants in the pre-study, there are technical possibilities to increase the energy performance of the buildings and improve the in-door climate and comfort. However, this is likely to affect exterior cultural historical values as well as interior. For example, the buildings have natural ventilation. The installation of balanced mechanical ventilation with heat recovery will need space which is difficult to find in the small but well-designed flats. The installation of a balanced ventilation system could mean that the original place-built kitchens would have to be removed and probably replaced.

As shown in earlier studied, the application of energy saving measures which include major changes to the building envelope are efficient for energy saving, but costly. Such large investments for energy saving can normally only be defended from an economic perspective if large interventions are needed in the building envelope due to other deficiencies like technical obsolescence.

### 3.5 Cultural heritage

Torpa is protected by the Swedish Environmental Code (SFS 1998:808) as an area of national cultural concern. The whole area of Torpa is involved including roads, the small commercial centre and a 19<sup>th</sup> century mansion. The motivation for protection declares that the area is a well-protected example and one of the first examples where the social housing policy of the 1930s was implemented in Gothenburg. The motivation for the National Protection says [16] p. 112):

*The large central green area surrounded by lamella blocks with carefully designed details is an exquisite example of the ideals for urban planning and architecture of that time.*

In the descriptive part, the National Protection emphasises the character of the yellow brick facades and the plaster facades, and the traditional handicraft details expressed in the entrances, bow windows and roof eaves.

Upon demand from the planning authorities treating the building permit for the façade renovation, a detailed cultural historical assessment has been carried out by a consultant [17]. The assessment states that the planned façade renovation will widely interfere with both the objective of the National Protection to protect the overall quality of the area and the specific quality of the facades.

### 3.6 Architectural qualities

What can be regarded as qualities from an architectural perspective are not necessarily the same as those described using methods for assessment of cultural heritage. We find that aspects of user experiences are not emphasised when using cultural historical assessment. Further, from an architectural perspective, later additions can be preferred to the original [18].

The modernistic architectural ideal did not include the idea of alteration or renovation and some modernist architects even proclaimed the clearance of their design in case of functional obsolescence [19]. The search for a 'theory' of alteration is a quest in contemporary architectural research. There is little legitimacy to defend architectural qualities in buildings other than what the architectural professions are able to claim in discussions with the client.

In the pre-study of Torpa, the involved architects propose a differentiated view to the planned renovation as a means to address the variation in technical qualities between the different building volumes. For example, the brick buildings could be more extensively renovated than the plaster covered, as the former are more affected by mould. Different renovation options could also be applied to the four facades of the blocks reflecting their status and need for renovation. In such a way, some parts of the area could be left untouched and protected. The input from the architects illustrates the mediating position of architectural knowledge in a multidisciplinary team and the designed way of providing a solutions to a problem which can solve several of the problems simultaneously.

## 4. Discussion

As shown in the description of different 'stakes' and their stakeholders in paragraph 3, several of these are in direct conflict. It will be a major challenge to find a solution to the technical deficiencies of the building envelopes to avoid mould, health problems and high energy use at the same time as cultural historical values are safeguarded, and the social stability of the area is not threatened due to increased rents as a consequence of a major renovation.

In Table 1 we estimate the power to influence the decision for renovation in Torpa, in relation to their legitimate powers. The analysis is based on discussions in the transdisciplinary arena, but is also influenced by the researchers pre-knowledge of the area of research and first and second hand experiences from other cases of renovation. The analysis is made solely by the researchers and has not been discussed with the stakeholders. A common analysis with involved stakeholders is something that is encouraged by scholars in the field of stakeholder analysis [7], but was not possible to realise within the scope for this paper.

In the analysis even 'stakes' which are powered by regulation and law are not always estimated to have a high level of influence. In the case of cultural heritage, with a high level of legal protection, we estimate that this protection will have little power in comparison to protection of the tenants' health and in respect to the commerciality of the investment (Law on semi-public housing). Energy efficiency



and accessibility both have strong regulative power. Accessibility will be applicable if changes are made to the interior layout of the buildings, which is probably not the case in Torpa. Earlier studies have shown that large changes to the exterior affecting the cultural historical values are the result of applying the regulative demand for energy saving in renovation [20]. However, it is not certain that this regulation will be applicable if only the facades are altered.

**Table 1 Stakes and their stakeholders in Torpa and their estimated power to influence**

Stake-holder	Stakes in Torpa	Legislative Power	Estimated power to influence
Property owner, Housing Provider	Secure value of property	Law of semi-public housing, Owners' directives	Very high
	Efficient operation		Medium to high
	Social responsibility		Medium to high
Tenants' Association	Present & future tenants' interest	Rent Act	Medium
Environm. manager (from architect office)	Healthy indoor environment	Health Act	Very high
City museum, County administrative board	Cultural heritage. National cultural interests	Environmental Code	Low to medium
City Planning Office, Technical consultants	Energy saving	Building RegulationEU Energy Performance Directives	Low to Medium
Environm. manager (from architect office)	Environmental protection	-	Low to Medium
Contractor	Secure efficient process	-	Medium to high
Architect	Architectural values	-	Low
City Planning Office	Accessibility	Building Regulation	Low (not applicable for facade renovation)

## 5. Concluding remarks

The aim of this paper has been to give an empirical insight into the complexity of decisions for renovation not least when dealing with stock of cultural historical value. The description of the many stakes and stakeholders in the case of Torpa points out conflicts where different objectives and views are difficult to reconcile. We find it important that this kind of empirical testimony is spread so that professional actors involved in the planning of a renovation.

The paper is the result of a post-reflective analysis of a transdisciplinary project in which many different professional actors were involved in an open-discussion arena and the pre-study of the planned renovation of Torpa. The results of the transdisciplinary arena show the value of discussion over disciplinary boundaries and fields of expertise. The transdisciplinary arena was a 'neutral' discussion forum apart from the actual design and planning. This gave actors which normally are not present in a face-to-face dialogue in a planned renovation the possibility to express their and explain their point of view. The open dialogue had an impact on all participants and increased the understanding of the problem of decision-making in renovation. For example, the technical consultants aired the experience of having understood that renovation is much more complex than they first had thought and goes beyond the technical challenges.

We explored the use of stakeholder analysis which seems to be a useful method to analyse and predict effects of different 'stakes' for a planned renovation. A more adequate analysis could be obtained if the analysis had been made by the transdisciplinary team which unfortunately was out of the scope for this paper.

What regard cultural historical values, in the case of Torpa, consideration for these values are ensured by the fact that the area is protected. In the case of unprotected areas these values could be overrun by other objectives which are more easily defended. This is why models which illustrate multi-value aspects of existing buildings and emphasise also softer aspects such as architectural, cultural historical and social values are important. Front-line research point to the necessity of creating value for different stakeholders in business, something which also has been brought up in property economics [21]. Further research is needed to establish the created value for property management and other affected stakeholders by cultural historical, architectural and social values.

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