Some of Challenges Faced by Eco-Neighbourhoods in Poland in Comparison with EcoQuartier Program in France

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Abstract. The first attempts to create eco-neighbourhoods date back to 1960’s. First they were developed in northern Europe – Denmark and Sweden, but the concept has gradually spread to other countries including Holland, England, Germany, France, etc... The French National program of eco-neighbourhood certification EcoQuartier was initiated in 2012. So far over fifty projects were awarded the certificate and many more are already engaged in the program. Although, there is some criticism, the program is regarded as a real-life laboratory which tests new sustainable solutions and offers additional educational value. The concept of eco-neighbourhoods is relatively new in Poland. New neighbourhoods are being constructed without officially using the term of eco-neighbourhoods. It is an interesting question to compare the new neighbourhoods build in Poland with eco-neighbourhoods in France, certified as ÉcoQuartier’s, and determine the challenges and obstacles for Polish neighbourhoods to become eco-neighbourhoods. The Assessment list and guidelines developed by French Government and used to evaluate and certify the projects in ÉcoQuartier program will be used as a reference. The challenges identified include: universal accessibility, access to public green space, mixed-use development, sustainable management of water and soil, energy saving, urban design and cultural environment, architectural quality, economic environment, social capital (e.g. different age groups), risk management, climate change adaptation and protection of biodiversity. Some of the challenges can be overcome with help from the local government. This study, in author’s opinion, may be used to start a discussion about implementation of standardized national certification program for eco-neighbourhoods in Poland and maybe in other Eastern European Countries.

1. Introduction
The first attempts to create eco-neighbourhoods date back to 1960’s. First, they were developed in northern Europe – Denmark and Sweden, but the concept has gradually spread to other countries including Holland, England, Germany, France, etc... They are treated as new approach to urban planning, opposed to concept of zoning and separation of functions. Eco-neighbourhoods are places to live, where most of basic needs are fulfilled within walking distance. They apply new technologies, e.g. solar panels, pneumatic waste collection, energy efficient technologies, water retention and reuse techniques, etc... Eco-neighbourhoods are natural size models. Thus, they are regarded as urban laboratories which test the most innovative sustainable solutions and represent a preliminary phase of the sustainable city process [1].
2. ÉcoQuartier - French national program of certification

The French National program of eco-neighbourhood certification ÉcoQuartier was initiated in 2012 by French Ministry of Ecology, Sustainable Development and Energy (MEDDE – MINISTERE DE L’ENVIRONNEMENT, DE L’ENERGIE ET DE LA MER) to promote good examples and educate the society [2].

There are three phases of ÉcoQuartier development.

1. First, a community signs the «Chartre des ÉcoQuartiers» (Charter of ÉcoQuartier) with twenty commitments e.g. developing the vacant lots in cities instead of sprawling into agricultural land, promoting local economic development and social diversity (age, social status, etc.), mixed use development, architectural and urban design quality, etc…)

Afterwards, that community becomes a member of «Club National ÉcoQuartier» (National Club of ÉcoQuartier).

2. The project is reviewed by three experts (national, local and external). At this stage, it receives a preliminary certificate «Engagé pour la labellisation» (engaged in the certification process). The Assessment [3] is based on the commitments of «Chartre des ÉcoQuartiers» and includes twenty criteria of evaluation. Experts analyze, among others criteria, twenty numerical indicators (e.g. percentage of green areas, number of square meters of green public space per inhabitant, percentage of non-permeable surfaces, etc.)

3. Finally, when the neighbourhood is completed and inhabited, after third evaluation it receives the certificate ÉcoQuartier. This certificate is a guarantee of French Government that the requisites of sustainable development are satisfied.

There is some criticism of the program. Critics demand verified data that the ecological footprint of ÉcoQuartiers is significant [4]. However, the program is regarded by most researchers as a real-life laboratory which tests new sustainable solutions and offers additional educational value. So far, over fifty projects were awarded the certificate and many more are already engaged in the program.

Today, it is not possible to build a new neighbourhood in France without undertaking the certification process.

3. Challenges faced by eco-neighbourhoods in Poland

So far, there is no official eco-neighbourhood certification program in Poland. New neighbourhoods are constructed without officially using the term of eco-neighbourhoods. It is an interesting question to compare the new neighbourhoods build in Poland with eco-neighbourhoods in France certified as ÉcoQuartier. The objective of this study was to determine the challenges and obstacles for Polish neighbourhoods to become eco-neighbourhoods.

For this study ten new neighbourhood in France (certified ÉcoQuartier or «Engagé pour la labellisation») and ten new-neighbourhoods in Poland (build after 2012 in Tri-city area: Gdansk, Sopot and Gdynia as well as adjacent rural communities) were chosen. The neighbourhoods in Poland were assessed using the twenty commitments included «Chartre des ÉcoQuartiers» and ÉcoQuartier French certification program. The names of the neighbourhoods chosen will not be revealed to avoid negative publicity.

The requisites of ÉcoQuartier program which were identified as the most difficult to fulfil in Polish neighbourhoods are discussed below and compared with solutions used in France. The challenges identified include: universal accessibility, access to public green space, mixed-use development, sustainable management of water and soil, energy saving, urban design and cultural environment, architectural quality, economic environment, social capital (e.g. different age groups), risk management, climate change adaptation, protection of biodiversity and public transport.

3.1. Access to public green space

Most of ÉcoQuartier are designed with centrally located urban park. That type of urban planning assures proximity to green space for the densely developed neighbourhoods. In French ÉcoQuartier, a public
park is constructed first, and the buildings follow. It will be a good practice to implement that rule in Poland. French ÉcoQuartier have generally larger proportion of natural open spaces comparing to traditional urban tissue - approximately one third of their urbanized surface [5].

This study revealed that access to green space was ensured only in some of the new-neighbourhoods in Poland. In others there were no public green space within walking distance – approx. 500m. Access to green space was not considered a priority in those neighbourhoods.

An idea that each apartment should have at least one window with a view of greenery is applied whenever possible within French ÉcoQuartier. That approach was not required in Poland.

3.2. Mixed-use development
Mixed-use development is a neighbourhood where all basic needs of residents are met within walking distance. The mixity of functions in French ÉcoQuartiers is well developed. A functional program for ÉcoQuartier always includes cultural and social services, local churches and libraries for various age groups.

In the new-neighbourhoods in Poland some of ground floors in multifamily buildings were designed to accommodate services and commerce. None of the studied neighbourhoods in Poland have been built with any cultural facilities.

3.3. Sustainable management of water and soil
Sustainable management of water and soil demands developing the vacant lots in cities instead of sprawling into agricultural land. That requisite was met by selected ÉcoQuartier projects.

Urbanizing rural areas was a problem in many of the new neighbourhoods in Poland. Some developers preferred to build on suburban land, which is cheaper to buy. Such new neighbourhoods were in most cases single use - only residential areas.

Diverse sustainable solutions are applied in French ÉcoQuartier: rain water collection and recuperation for green areas maintenance, sustainable drainage solutions - which filter and absorb rainwater and runoff from impervious surfaces, rain gardens, etc. In new-neighbourhoods studied in Poland sustainable drainage systems were rarely used, mostly on experimental basis.

3.4. Energy saving
Neighbourhoods in France and in Poland strive to minimize energy consumption. Modern materials and new construction techniques are commonly used, as well as energy saving heating and air-conditioning solutions. However, the design of new buildings in chosen neighbourhoods in Poland could be improved to profit more from passive solar energy.

3.5. Urban design and cultural environment
During this study, it was observed that new development, especially in rural areas, respects rather global architectural trends than local cultural heritage. That approach was observed in France as well as in Poland. The globalization of urban landscape and using street furniture and building materials transported from other countries and produced on a mass scale is a threat to local cultural environment.

3.6. Architectural quality
Architectural quality depends on individual design. A requisite of architectural variety is listed in ÉcoQuartier assessment. Each building in ÉcoQuartier is individually designed by a different architect. Architectural diversity, apart from esthetic and functional advantages, also facilitates the creation of mental maps.

Many of the new-neighbourhoods in Poland were built of repetitious blocks of flats, which were invariable or only differ in minor details for example: colour of stucco or number of floors. Developers which build new neighbourhoods usually employ one architectural firm to design both the masterplan and all of the buildings in the neighbourhood. Other problem identified in Poland was the spatial disorder
when the adjacent neighbourhoods were built in completely different styles, with different building materials. The problem was that no colour scheme was prepared to harmonize the urban landscape.

3.7. **Economic environment**

The contribution to local economic development is one of requisites of eco-neighbourhoods. Employment for inhabitants is one of the largest problems facing eco-neighbourhoods. The solutions proposed in France included combining the residential with commercial and industrial (mixed-use) development. However, some of ÉcoQuartier are faced with difficulties to find tenants for commercial space and attract prospective employers.

So far, the question of employment for inhabitants of new neighbourhood was not taken into consideration for new development in Poland. In most cases new workplaces were created only during the construction phase.

3.8. **Social capital (e.g. different age groups)**

Social diversity and solidarity are objective of eco-development. In French examples of ÉcoQuartier blocks with both upscale private apartments and other parts rented as social housing are constructed next to senior residences, assisted living homes and student dormitories.

There were some attempts to organize social diversity observed in Poland. For example, building blocks of flats of different sizes (one bedroom, two-bedrooms, etc…) next to single family houses. However, there were no planned actions to guarantee social diversity like those observed in France.

3.9. **Risk management**

There are ÉcoQuartiers in France constructed on land which is susceptible to floods. In such cases that risk is calculated during the design process and tenants of premises, which are at risk are informed about it. It is their decision to include the risk into their business plans.

The official tendency in Poland is to avoid development on natural slopes, flood plains, etc. However, it was not always respected in studied new-neighbourhoods.

3.10. **Climate change adaptation**

There were attempts to facilitate climate change adaptation – green roofs and walls, green and blue infrastructure, energy self-sufficiency, etc. observed in France.

The requirement to consider climate change adaptation were not implemented in the design of new Polish neighbourhoods chosen for this study.

3.11. **Protection of biodiversity**

Numerous solutions to protect the biodiversity were observed in France: native plants, natural methods of maintenance of green areas (natural plant-based fertilizers, grass-cutting by animals, etc.)

The major threat to protection of biodiversity identified in Poland was using non-native plants in urban landscape.

3.12. **Put public transport over private cars**

One of the objectives of eco-neighbourhoods is to “reduce dependence on private cars” [6, 7]. ÉcoQuartier are designed to promote walking, cycling and public transportation. New tenants are invited to use well-developed public transport instead of private cars.

Public transport is well developed in Poland. It serves most locations where new neighbourhoods were build. The distance to closest bus stop might have been a problem, but in most cases new stops were eventually added next to new development. However, if the neighbourhoods were built far away from town in rural countryside, they rely only on private car transport. Other issue is parking space, which was usually calculated as one or two parking spaces per apartment.
4. Results and discussion
There were numerous challenges identified, which make construction of eco-neighbourhoods difficult in Poland. Their impact might vary depending on the scale of new development. Some would not require large investments. Architectural diversity would probably not impact the budget of new-neighbourhood significantly. Others would need promotion of ecological values, education campaigns and consent of new tenants to accept public transport, protection of biodiversity, energy-saving standards, etc. Some of challenges: risk management, climate change adaptation and protection of biodiversity would require rigorous enforcement of laws which are already applicable in Poland.

Nonetheless, majority of the challenges listed above require regulations enforced on private developers. The rules of economy have not encouraged the property market to build eco-neighbourhoods in Poland. It is difficult to foresee if that could happen if the government would not create a national program similar to ÉcoQuartier in France.

5. Conclusions
Some of the challenges of construction of eco-neighbourhoods in Poland can be overcome only with help from the government. National program of certification of ecologically friendly neighbourhoods is urgently needed. The certification should be free of charge and provided by government like the ÉcoQuartier program in France. Eco-neighbourhoods serve as real-time laboratories of innovative solutions and they have high pedagogical values. There are numerous advantages of construction of eco-neighbourhoods locally. This study, in author’s opinion, may be used to start a discussion about implementation of standardized national certification program for eco-neighbourhoods in Poland and maybe in other Eastern European Countries.

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