CASE STUDY PROXIMITY-BASED PLANNING: SOVIET MICRO-DISTRICTS

In the period of the 1930s-1970s, the war-devastated Soviet Union was faced with the challenge of providing the masses with housing while simultaneously promoting a new Soviet way of life. The result was residential city blocks, called "Micro-districts" ("Microrayon"), which are an example of proximity-based planning, where amenities are organized based on the distance between each other. The planners put human social and basic needs at the forefront of their design. Although the system had considerable flaws in both implementation and design, its legacy lives on in the form of an improved modern urban planning concept of 15-minute-cities.

The primary resources being organized are buildings and various amenities contained wherein, whereas residents and communities are organized indirectly. The micro-districts were built on a large scale. By the end of the 1970s, they housed 60 million residents and were spread through all Soviet countries, covering 1/6th of the total Earth's land area. However, one standardized design was built without allowance for regional and climate variation and different community cultural needs.

The residents of micro-districts are the main users, while they are organized by the central government. While the main goal of the organizing system is to build a lot of cheap housing for everyone that needs it, a few more foundational principles were considered in the design: proximity, density, standardization, and ideology.

To satisfy the structural goals of the system, the proximity of all the public amenities to the residential housing blocks was considered. Everything that a person needs on a daily basis is within walking distance, and less needed things are a longer distance away or can be accessed by public transport or car. In the economic sense, this reduces the need for the majority to own cars and makes everything easily accessible. In the social sense, it creates self-sufficient, socialistic communities within each micro-district, where residents can access all the essential services they need without having to travel long distances, aside from work.

Density is another goal of the system that allowed for more people to live in the cities and addressed the housing shortage at the time. Each instance of a micro-district houses up to 20,000 people. Density also means that deliveries of products can be planned based on the number of residents because every resident shops within their respective neighborhood, which reduces transportation costs and over or under-consumption of products.

The system also aims to standardize the micro-districts to break the socio-spatial segregation between workers and the elite, ultimately resulting in a "classless city". This
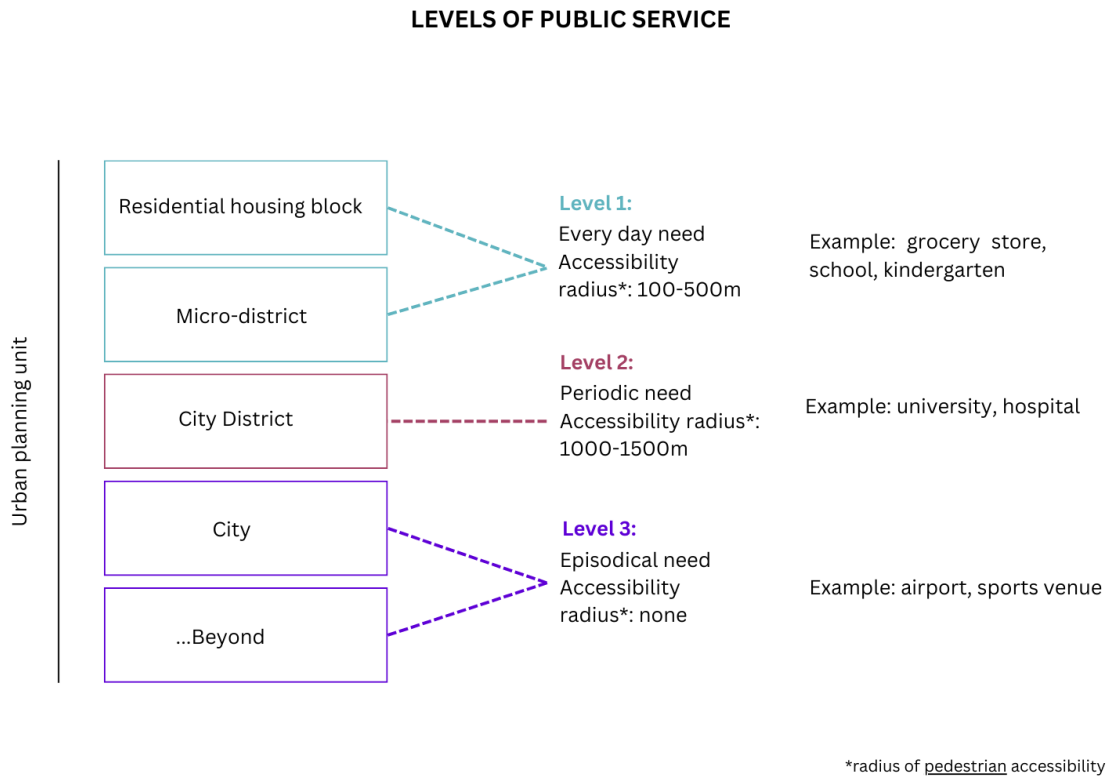
promotes equality since there is no "center" as opposed to a typical city where living closer to a city center is more prestigious since there are more resources readily available. Thus, nobody is disadvantaged by their location. Furthermore, all the buildings and designs are the same, regardless of the climate or community it aims to house, which relates to the Shamu question where individual instances (communities, climates) are treated as a single class. This leads to one of the main tradeoffs of the system, which is cost over design and personalization. The cost constraints further lead to challenges such as inadequate housing conditions and poor infrastructure.

The system also had the underlying goal of promoting a new way of life in line with the communist ideology to create a "new Soviet citizen" with the motto "A new society needs a new place". People should spend most of their time engaged with the community. Children should be raised outside, in their districts. The system also aimed to erase the previously patriarchal family structure. The ease of access to kindergarten and schools allowed either of the parents to drop their kids off on the way to work, which enabled both spouses to contribute financially, promoting equality in the household.

With the above goals and interactions in mind, resources were mainly selected on the basis of constructing lots of cheap houses quickly. During the design process, the selection of construction materials took place, with the cheapest, yet durable, materials chosen, such as concrete panels or brick. Then, post-design, the planners had to select geographical locations to build the micro-districts. Outskirts of a bigger city, or a remote location with an opportunity for expanding industry, such as coal mining, forestry, or oil fracking were the main two choices. Lastly, the residents that will move into the new residential dwellings were "selected". Families and individuals were assigned housing based on various factors, which included employment and social status, and family size. For instance, the veterans of the war had priority in housing allocation.
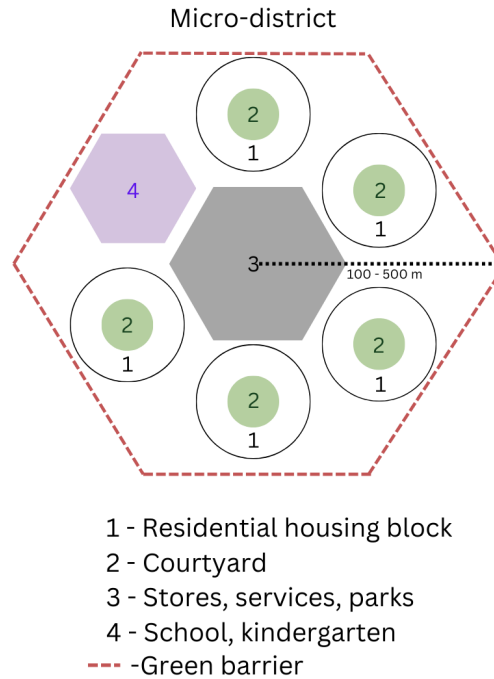
Soviet cities spatially follow three levels of organization based on the hierarchy of human basic and social needs: individual residential units and micro-district, district, and integration of the micro-district into the city on a larger scale. Micro-districts are made up of residential blocks, which consist of family or dormitory-like apartments, with minimal personal space. Then, micro-districts create city districts, then cities, then regions, and beyond that. This system is linked together by public transport. But each level is designed to contain specific public

amenities as you can see in Figure 1. Based on the principle of proximity, everyday needs services must be contained within each micro-district. Thus, the more attended the service is, the smaller the required proximity range.

LEVELS OF PUBLIC SERVICE

Urban planning unit

Residential housing block	**Level 1:** Every day need Accessibility radius*: 100-500m	Example: grocery store, school, kindergarten
Micro-district		
City District	**Level 2:** Periodic need Accessibility radius*: 1000-1500m	Example: university, hospital
City	**Level 3:** Episodical need Accessibility radius*: none	Example: airport, sports venue
...Beyond		

*radius of pedestrian accessibility

(Figure 1: Levels of public service and urban planning units; radius is measured in meters)

The micro-districts themselves encapsulate a design where form follows function. Roads are for driving, paths are for walking, playgrounds are for children to play, and the detailing is kept to a minimum. So it's highly utilitarian.

Micro-district

1 - Residential housing block
2 - Courtyard
3 - Stores, services, parks
4 - School, kindergarten
--- - Green barrier

(Figure 2: Typical structure of a micro-district)

As depicted in Figure 2, Soviet micro-districts are typically organized around a central core, which includes a school and kindergarten (4), grocery stores, and shopping malls (3). The cheap bulk prefabricated residential buildings (1) form courtyards (2) and are often separated from each other by large green spaces. The buildings themselves are usually multi-story apartment blocks, with standardized units designed to house multigenerational families. Additionally, they are typically in close proximity to nature or a larger recreational area. Lastly, the separation of residential and industrial areas by a green barrier around the micro-district is present. Figure 3 is an example of a micro-district, located on the outskirts of Moscow.

Schools, kindergartens   Residential housing

Courtyards

Green Barriers

Larger recreational areas   Services, stores, parks
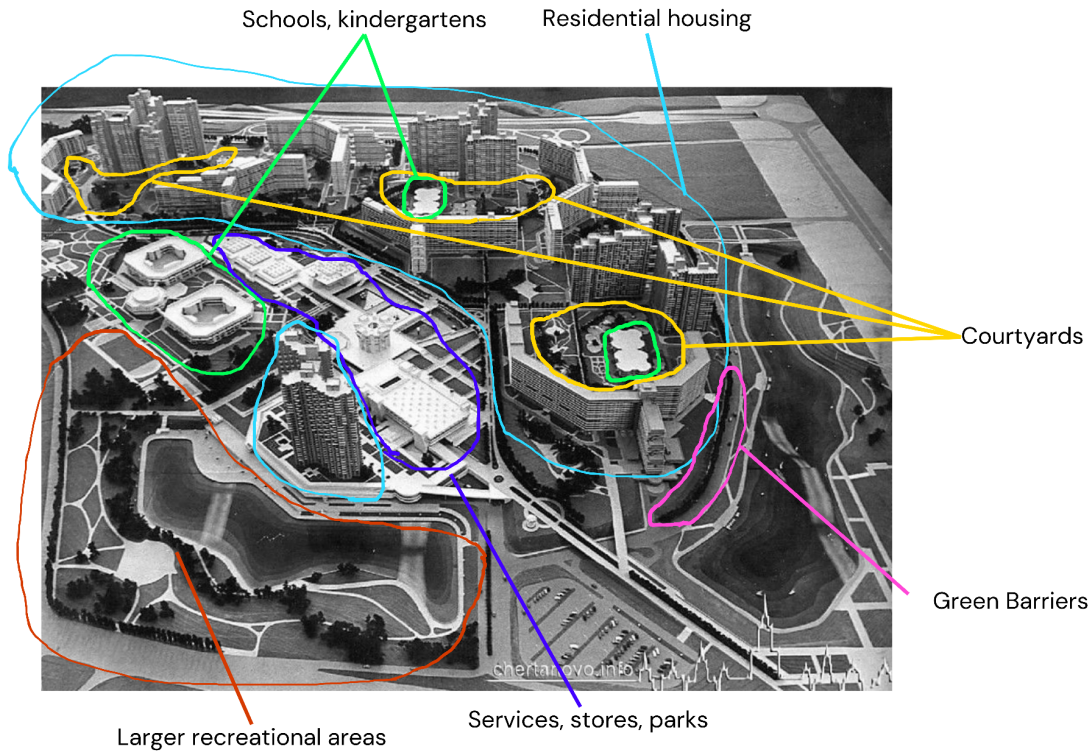
Severnoe Chertanovo, Moscow (Built in 1970s)

(Figure 3: Bird's eye view of Severnoe Chertanovo, Moscow)

In line with the goal of promoting ideology, apartment units are typically purposefully small to maximize time spent outside in the community. Many windows face the courtyard. The presence of a plethora of public parks and recreational areas further encouraged people to interact with each other and take their children to play in the courtyards. Access to community facilities in the center also encourages community engagement with residents frequently forming committees in charge of managing certain social events or logistical questions. All of these design decisions blur the boundary between private, semi-private, and public. Furthermore, the isolation, independence, and access to basic needs reduce the desire to move, forming lifelong social connections with other residents. However, a human is more than just a social animal, and blatantly ignoring cultural differences is not satisfactory. While the overall typization and design where an individual is not taken into account promotes equality, it also dissolves a sense of identity, contributing to a stigma around micro-districts as inferior, low-cost housing, making it undesirable for people to move there in the first place.

To this day, the organizing system for micro-districts remains a highly innovative solution to many problems the contemporary city faces. The modern concept of a 15-minute city is claimed to have been inspired by the Soviet micro-districts. Although they share some common features, they fundamentally differ in their goals and implementation. Just like a micro-district, a 15-minute city is also a form of proximity-based planning. A 15-minute city is what's called a "smart city," meaning that it's highly reliant on data collected from the residents, who are the users of the system. The system is implemented on a small scale by the local governments using the collected data to create highly personalized design solutions to cater to the needs of the existing communities with a goal of modifying existing infrastructure to create multifunctional, eco-friendly, car-free neighborhoods that are safe for children to play in. Therefore, this results in a system that is unique to every community. Moreover, there are no rigid standards in place. Micro-districts were built on an "all-or-nothing" basis, meaning that the system had to follow the exact design, or not be built at all. But the 15-minute cities are flexible and unique. For instance, Australia has been building 20-minute neighborhoods, and some American cities consider reducing a 60-minute commute to basic needs facilities to a 50-minute commute a success since it is a step towards making a neighborhood more accessible. Thus, 15-minute cities eliminate the tradeoffs of the organizing system of the micro-districts (cost vs design and personalization), resolving the resulting flaws.

SOURCES

The Role of a Humane Environment in Soviet Urban Planning on JSTOR. (n.d.).
https://www.jstor.org/stable/pdf/214802.pdf?refreqid=excelsior%3A519f5353049da62e0
8c17b309196078f&ab_segments=&origin=&initiator=&acceptTC=1

Abdelfattah, L., Deponte, D., & Fossa, G. (2022). The 15-minute city: interpreting the model to
bring out urban resiliencies. *Transportation Research Procedia*, *60*, 330–337.
https://doi.org/10.1016/j.trpro.2021.12.043

Department of Environment, Land, Water and Planning. (n.d.). *20 minute neighbourhoods*.
https://www.planmelbourne.vic.gov.au/current-projects/20-minute-neighbourhoods#:~:te
xt=What%20is%2020%2Dminute%20neighbourhoods,cycling%20and%20local%20trans
port%20options.

Andrianova, G. (2015). ARCHITECTURE OF SOVIET HOUSING AND MAIN SOVIET
URBAN PLANNING CONCEPTS. *ResearchGate*.
https://doi.org/10.13140/RG.2.1.5147.5366