Temporary Housing Supply and its International Cooperative Background after the 1963 Skopje Earthquake
Masaru Tanaka

1Center for Fire Science and Technology, Research Institute for Science and Technology, Tokyo University of Science, e-mail: ketz[at]yk9.so-net.ne.jp (please substitute @ for [at])

Keywords : temporary city, temporary housing supply, the 1963 Skopje Earthquake, international cooperation in time of disaster

ABSTRACT

50 years have passed since the 1963 Skopje Earthquake occurred.

According to the official report edited by the United Nation, “Skopje Resurgent”, it is said that the planners had established “temporary city” within 1.5 year after the disaster to accommodate 120,000 people who had lost their place to live in, without caring how they would permanently reconstruct the city later on.

It means that those planners gave higher priority to stabilization of residence of sufferers for the moment than being anxious for the anticipated contradiction between non-planned-temporary reconstruction and planned-permanent reconstruction.

The prefabricated houses imported by the federal republic of Yugoslavia for constructing temporary city consisted of those ordered by the will of their own government and those provided by the favor of foreign governments.

Such international cooperation supervised by the United Nations should also be indispensable in the future disasters in which damage scale exceeds the capacity of building production of a certain country.

This research aims to find suggestions to remodel the ideal form of temporary housing and international cooperation after large scale disasters, with clarifying such facts, concerning prefabricated-temporary houses built after the 1963 Skopje Earthquake, as physical features and construction periods of temporary houses, procedures and means to construct them, location and attributes of their construction sites and the way how occupants for each temporary houses determined.

1 BACKGROUND, PURPOSE and METHODOLOGY of the research

1.1 Background and purpose

The population of the city of Skopje had been around 180,000 and because of the 1963 Skopje Earthquake, occurred on July 26th, around 150,000 lost their roof (Table 1). In large scale disasters, large amount of houses are lost at one time. So, it is necessary to supply also large amount of houses as soon as possible, to accommodate disaster sufferers.

According to a book, “Skopje Resurgent” by the United Nations Development Programme , to recover the loss of housing, the Executive Board of the Central Committee of the League of Yugoslav Communists planned to repair buildings to accommodate 50,000 and newly construct prefab-houses to accommodate 70,000 ( United Nations, p.50 ). It also says that some foreign countries donated prefab-houses but most of but 82% of the 14,000 single storey prefab-houses established in “the First stage of Reconstruction ( till the end of 1964, United Nations, p.74 )” were produced in Yugoslavia itself (United Nations, p.93).
But still, the fact how the former Yugoslav Government managed to achieve the plan is not clear in these sentences.

So, this paper aims to describe how housing supply was planned and implemented by the Government, focusing on the so-called “First Stage of Reconstruction”.

1.2 Methodology

Research was done through referring published books and documents preserved at the city archive of Skopje and supplemental interviews to residents.

1.3 General Information on the Urban Space of Skopje

![Figure 1. General Information on the Urban Space of Skopje](image-url)

**Table 1 General Information on the Damage**

<table>
<thead>
<tr>
<th>Date of Disaster</th>
<th>26 Jul 63</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>180,000</td>
</tr>
<tr>
<td>Breakdown</td>
<td></td>
</tr>
<tr>
<td>Died</td>
<td>1070</td>
</tr>
<tr>
<td>Mortality</td>
<td>0.59%</td>
</tr>
<tr>
<td>Injured</td>
<td></td>
</tr>
<tr>
<td>Number of</td>
<td></td>
</tr>
<tr>
<td>Damaged Buildings</td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>15,000</td>
</tr>
<tr>
<td>Damaged</td>
<td>28,000</td>
</tr>
<tr>
<td>Number of Roofed People</td>
<td>150,000</td>
</tr>
<tr>
<td>Roofless-rate</td>
<td>83.33%</td>
</tr>
</tbody>
</table>

References

* Glen V. B. Berg (1966), The Skopje, Yugoslavia Earthquake, American Iron and Steel Institute, p.14
** Slavko Janevski et al. (1970), Skopje, Miadost, p.249
*** United Nations (1970), Skopje Resurgent, p.91
Figure 1 shows the built-up area before and after the Earthquake and the names of the suburban settlements established with construction of prefab-houses. And Figure 2 shows division of built-up area before the Earthquake into Districts.

As the reconstruction of the central part of the city had been left behind for the scheduled international urban planning competition, repairing damaged apartments or constructing prefab-houses were implemented in and for the districts for “Idadija”, “Kale”, “Staat Kula” and “Kisela Voda”.

The built-up area in 1961, 2 years before the earthquake, was around 1,200 ha. And in 1964, it has been doubled into around 2,500 ha. (these sizes were estimated through tracing built-up areas on the aerial pictures, taken in 1961 and 1964, shown at the Institute of Town planning and Architecture Skopje).

Even before the Earthquake, some parts of the suburban settlements as “Karpos”, “Crnice”, “Tasino Cesmice”, “Kisela Voda”, “Aerodrom” in which later prefab-houses were to be supplied had been somewhat built-up already.

2 HOUSING SUPPLY PLAN by the Yugoslav Federal Chamber of Economics

2.1 Repair Plan of the Damaged Houses

The Yugoslav Federal Chamber of Economics had issued a report on September 2nd, 1963 (2 months after the Earthquake) titled as “Construction of <Storage> accommodating 120,000 population in Skopje (Izgradnja smeštajnog prostora za 120000 stanovnika u Skopju, Savezna privredna komora)".

According to this report, each Republics consisting of the Federal Republic of Yugoslavia estimated around 8,000 apartment houses in the built-up area before the Earthquake could be repaired, though, at first 10,500 apartments could be (Table 2. The names of District were those once existed in the built-up area at that time as shown in Figure 2).

To accommodate 50,000 people (United Nations, p.50) through repairing 8,000 damaged apartments, average family size should be more than 6; it is unrealistic. So, it means the plan was not realized in fact.

2.2 Assignment of Housing Supply inside of the Federal Republic (Table 3 / Figure 3)
As mentioned above, prefab-houses were to be constructed in order to accommodate 70,000 people. Also in this report, it is described that they had wished to accommodate 70,000, but as it was not possible due to delay of water, sewage and electric work construction, they lowered the original target level as many as 60,000. In order to recover the original level, the necessity to start another construction of new prefab-settlement called “Taftalidze” was also described.

Until August 31st, 1963, contracts between the assigned entities established contracts between large companies; among them were timber-production or construction companies. But some of them seemed to have nothing to do with building (“Sport” from the Socialist Republic of Serbia, “Bosna Sport” and “Soko (dealing with military aircrafts)” from the Socialist Republic of Bosnia and Herzegovina, and so on).

### 2.3 Assignment of Import from outside of the Federal Republic (Table 4)

According to the report, the Federal Chamber of Economics had estimated that total area of prefab-houses as large as 904,000 sq. m were to be built until the end of 1963 and they also had shown the breakdown of the estimation; 61.3% (i.e., 554,000 sq. m) was built up with prefab-houses produced domestically, 27.6% (250,000 sq. m) with imported prefab-houses and 11.1% (100,000 sq. m) with donated prefab-houses from foreign countries.

Though detail of imported prefab-houses is not clearly described in the document, but at
least timber production companies were in charge of the import (suffix of company names, DRVO, means “Timber”) and half of the total import was from two Finnish companies.

Though I have described the plan to assign construction of settlements to each entities (republics or large scale organizations), it did not mean they were realized not only with domestically produced prefab-houses from each republic but also with imported ones.
According to my interview done in May 2013, for example, local resident from the settlement of “Dracevo” gave me an evidence that there were prefab-houses from the Republic of Finland and the Kingdom of Denmark there, though according to a book (United Nations, p.94) and document (“Construction of <Storage> accommodating 120,000 population in Skopje” by the Yugoslav Federal Chamber of Economics issued on September 2nd, 1963), the Socialist Republic of Serbia in the Federal Republic was “assigned” to construct the settlement. In addition to that, as Finnish prefab-houses were imported by Macedonian company (“Makedonijadrvo”, refer to Table 4), the Socialist Republic of Serbia must have procured them through Macedonian company.

So, such “assignment” did not mean self-containment within republics or organization.

2.4 Donation from Foreign Countries (Table 5)

As mentioned above in 2.2, lack of capacity to accommodate 10,000 people (70,000 minus 60,000) in suburban settlements, another settlement called “Taftalidze” started to be built. Mainly, but not only for this “Taftalidze” Settlement, donated prefab-houses were distributed.

Table 5 shows information from the document “List of Donated-Prefab-Houses in each district and settlement” (Pregled za raspodeleba za stanovi dedeleni na opštinske so branija) (June 4th, 1964), how those donated prefab-houses were distributed to the original districts and newly built suburban settlements to accommodate sufferers from the Earthquake.

With this table, one can understand the situation how sufferers had to move to suburban settlements from the original districts in the damaged built-up area (some of the had to do so, due to the new urban developments) under the management of districts, but according to the interviewees, business companies were also responsible for such distribution of prefab-houses.

| Table 5. List of Donated-Prefab-Houses in each district and settlement (June 4th, 1964) |
|---|---|---|---|---|---|---|---|
| Edelija | Krizla Voda | Kale | Saat Kula | Total | Numbers of Rooms |
| From Mexico | 7 | 3 | 5 | 5 | 20 | 2 |
| From Italy | 11 | 6 | 6 | 7 | 32 | 2 |
| From France | 2 | 1 | 2 | 1 | 6 | 3 |
| From Finland | 6 | 4 | 4 | 4 | 18 | 3 |
| Total | 32 | 17 | 23 | 22 | 94 | |
| Djorce Petrov | Edelija | Krizla Voda | Kale | Saat Kula | City Assembly | League of Communists | Council for Culture and Academy | District of Djorce Petrov | Total |
| Blank (according to another document, from the U.K.) | 197 | 117 | 157 | 137 | 7 | 5 | 10 | 10 | 640 |
| Taftalidze | Edelija | Krizla Voda | Kale | Saat Kula | City Assembly | Red Cross | Total | Note |
| From Norway | 4 | 4 | 6 (in other document 4) | 4 | 2 (in other document “reserved 4”) | 20 | |
| From Poland | 9 | 7 | 7 | 7 | 0 | 0 | 30 | Two-Rooms Type |
| From Switzerland | 9 | 7 | 7 | 7 | 0 | 0 | 30 | One-Room Type |
| From Czechoslovakia | 12 | 8 | 8 | 8 | 0 | 0 | 44 | |
| From Mexico | 16 | 14 | 14 | 25 | 0 | 0 | 69 | one unknown |
| From Italy | 7 | 3 | 5 | 5 | 0 | 0 | 20 | |
| From France | 2 | 1 | 2 | 1 | 0 | 0 | 6 | Three-Rooms Type |
| From Italy | 11 | 6 | 6 | 7 | 0 | 0 | 32 | Two-Rooms Type |
| From France | 6 | 4 | 4 | 4 | 0 | 0 | 18 | Three-Rooms Type |
3 PROBLEMS PERCEIVED DURING CONSTRUCTION

3.1 Problems concerning the Execution of Construction

First of all, shortage of raw materials and prefab segments caused delay of construction work.

For example, according to the report issued by the Yugoslav Federal Chamber of Economics
says a firm called “Krivaja” which had made contract with the Republic of Bosnia and
Hercegovina to construct the settlement of “Butel” did not procure for the construction at all.
So, the report says the Fund of Rebuilding Skopje which was organizing the United Nations
Reconstruction Project should urge each republics to accelerate construction work of
settlements.

The Federal Chamber of Economics partially responsible for the planned economy managed
to import raw materials from abroad or give priority to consume them in Skopje. Production of
asbestos could be increased, but substituting asphalt for slates on roofs (usually using
asbestos) and divert them to cover outer-wall of prefab-houses. They tried not to consume
or import goods more than minimum requirement in order to avoid rise of price as well as to
subject to budget constraint.

Shortage of materials or segments for construction caused delay of construction period. And
so, in the report they admired the price of the imported Finnish prefab-segments equivalent
of 250,000 sq. m (refer to 2.3) being the same as domestically produced ones and
punctuality for delivering segments of prefab to the construction sites.

According to another document, “Information about the situation of donated houses and its
problems (Informacija za sostojbata i nekoi problemi na objektite dobieni od pomošta)
(unknown date)”, 80 prefab-houses with one room donated by the Kingdom of Denmark were
not equipped with waterworks for more than half a year since sufferers had moved in.

The document also says that prefab-houses donated by the Federal Republic of Germany in
“Djorce Petrov” caused dew condensation on walls, supposedly because of the difference of
climate between Germany and Macedonia.

We observed the possible ignorance of specialty of contractors in 2.2. It also might have caused delays or mismanagements of construction works.

3.2 Problems concerning location of the newly developed sites (Table 6, Figure 4)

Another problems were caused by the fact that those prefab-houses were built on newly developed sites. Though some temporary houses and some barracks were converted into shops, restaurants, schools, orphanages, health care centers, movie theaters etc., it seems to be inconvenient to move into new prefab-settlements from previous addresses.

Table 6 shows the situation of donated prefab- and temporary-houses (based on the “Information about the situation of donated houses and its problems (Informacija za sostojbata i nekoi problemi na objektite dobieni od pomošta) (unknown date)”).

Though the survey date is not clear, it can be said that sufferers had to wait for a while to move into multi-rooms prefab-houses supposedly because their completion were somewhat later than one-room houses and also decision-making was delayed (usage was not decided).

The same document also says that Metal-barracks mainly set up at “Momin Potok” and “Madzari” were expected to substitute insufficient prefab-houses, but as they were not so comfortable, some people did not move in and stayed at relatives or acquaintances.

Also it is remarkable that among temporary housing supplies such types of temporary “houses” as storages, nissen huts (Figure 4) or trailer houses were existing as to substitute the construction of prefab-houses.

4 PROBLEMS PERCEIVED AFTER COMPLETION (Table 7)
4.1 Vacant Houses

Table 7. Report on the situation of the donated Prefab-Houses (surveyed from September 30th to October 2nd, 1964) (“Izveštaj za sostojbata na naselbite od pomošta”).

<table>
<thead>
<tr>
<th>Settlements</th>
<th>Donor Country</th>
<th>Vacant</th>
<th>Sublease</th>
<th>Total Amount</th>
<th>Vacant-Proportion</th>
<th>Vacant-Proportion for the assignment to Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trnodol</td>
<td>Austria</td>
<td>9</td>
<td>4</td>
<td>125</td>
<td>4.8%</td>
<td>7.0%</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td>9</td>
<td>unk.</td>
<td>20</td>
<td>45.0%</td>
<td>14.3%</td>
</tr>
<tr>
<td></td>
<td>Switzerland</td>
<td>8</td>
<td>unk.</td>
<td>44</td>
<td>18.2%</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td>15</td>
<td>unk.</td>
<td>38</td>
<td>34.2%</td>
<td>36.4%</td>
</tr>
<tr>
<td></td>
<td>Poland</td>
<td>9</td>
<td>unk.</td>
<td>60</td>
<td>15.0%</td>
<td>22.2%</td>
</tr>
<tr>
<td></td>
<td>Czechoslovakia</td>
<td>2</td>
<td>unk.</td>
<td>70</td>
<td>2.9% N/A</td>
<td>85.7% N/A</td>
</tr>
<tr>
<td></td>
<td>Norway</td>
<td>4</td>
<td>unk.</td>
<td>20</td>
<td>20.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>8</td>
<td>unk.</td>
<td>18</td>
<td>44.4%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

Table 7 shows the situation of donated prefab-houses focusing on vacancy and sub-leasing, surveyed by the Skopje City Assembly from September 30th to October 2nd, 1964 (“Izveštaj za sostojbata na naselbite od pomošta”).

“Trnodol”, “Taftalidze” or “Djorce Petrov” were in the far western suburb (refer to Figure 1). So, it means that those people who lost their houses in “Kale”, “Saat Kula” or “Kisela Voda” (refer to Figure 2) had to move long distance.

But, distance from the previous address was not the only factor which explains the vacant-proportion. For example, vacant-proportion of the prefab-houses in the settlement of “Taftalidze” donated by the Czechoslovak Socialist Republic (2.9%) and the People’s Republic of Poland (15%) were low compared with the other countries. In addition to that, the vacant-proportion of the prefab-houses assigned to “Idadija (the nearest district from the new settlement of “Taftalidze”, refer to Figure 2) from the Switzerland (16.7%, higher than “Kisela Voda” and “Saat Kula”), the People’s Republic of Poland (22.2%, higher than “Kale” and “Saat Kula”) and the French Republic (50%, higher than “Kale” and “Saat Kula”) were not the lowest.

The report describes the background of the vacant-proportion in the settlement of “Taftalidze” as follows; Prefab-houses donated by the Czechoslovak Socialist Republic and the People’s Republic of Poland were equipped with underground storages. Also, being less-green, unopened telephone-lines and amendments to construction works could be the reason.

4.2 Subleasing of Houses

For the settlement of “Djorce Petrov”, the report says that even though the vacant-proportion was low (0.6%), but many residents rarely “visit” distributed prefab-houses or have moved in without any contracts with the Fund for Rebuilding Skopje (to obtain right of residence).

For the settlement of “Trnodol”, 3.2% of the prefab-houses were subleased and in some cases financial compensations were required. Besides, some residents only “visited” their houses once or twice a month. It means more than 10% of the houses built in the settlement of “Trnodol” had some kinds of problems.

5 CONCLUSION

Organizing information on the housing supply after the 1964 Skopje Earthquake, written in the documents stored at the City Archive of Skopje, we observed the planning and
Implementation of housing supply in the former Socialist Federal Republic of Yugoslavia and problems following them.

To provide as many houses as possible to accommodate sufferers from disasters, sometimes public sectors have to cope with the huge housing demand. For the Skopje case, the excess housing demand was satisfied both with import and donation of prefab-houses from foreign countries, paying attention not to raise their prices when importing.

It is important to provide each households being under evacuation with private spaces as fast as possible. But on the other hand, as we saw, provided houses may have such mismatches as location and specification with evacuee households.

History of prefab-settlements in Skopje after the earthquake shows one lesson. In 50 years each residents, replaced one by one, altered or modified their distributed-houses as they had wished. Figure 5 depicted one example from the settlement of “Vlae (refer to Figure 1 and Figure 3)”. One of the four households (north-east part) extended their space. On the other hand another one (south-east part) did not extend much but altered inside of the house. The rests (north-west and south-west parts) have pulled down their parts and reconstructed completely new buildings.

Figure 5 Alteration of Slovene-made four-family prefab-building constructed in 1964 (left:1964, right:2012) (Tanaka. 2013)
Implication of this lesson is that we may only provide small spaces to sufferers in case housing demand excesses housing supply within a country or region. And though it may take times residents or public sectors may gradually alter or modify these small houses to satisfy each residents' housing demand.

ACKNOWLEDGEMENT

This is a partial result of a research project funded by the grant-in-aid from the Japan Society for the Promotion of Science under the title of "Large Scale Disasters and formation / transformation of Reconstruction Paradigm - Focusing on the modern and contemporary history of the former Yugoslavia-".

REFERENCES


ЗАВОД за урбанизам и Архитектура “Скопје” (Institute for Urban Planning and Architecture "Skopje"), 1981. Просторен План на Града Скопје (Spatial Plan of the City of Skopje) – Состојби и Тенденции, Книга 2 – Карти (Condition and tendencies, volume 2 – Map)

Savezna Privredna Komora, September 2, 1963. Izgradnja Smeštajnog Prostora za 120 000 Stanovnika u Skopju (Document from the City Archive of Skopje)

Unknown Author, June 4, 1964. Pregled na raspodelba na stanovi dodeleni na opštinskih sobranija (List of Donated-Prefab-Houses in each district and settlement) (Document from the City Archive of Skopje)

Unknown Author, Unknown date. Informacija za sostojbata i neki problemi na objektite dobieni od pomošta (Information about the situation of donated houses and its problems) (Document from the City Archive of Skopje)

Unknown Author, October, 1964. Izveštaj za sostojbata na naselbite izgradi od pomošta (Report on the situation of donated prefab-houses surveyed by the Skopje City Assembly from September 30th to October 2nd, 1964 ) (Document from the City Archive of Skopje)