Potential for sustainable urban regeneration policies and practices in Daegu, Republic of Korea

Thorsten Schuetze¹, Emilien Gohaud²

¹Professor, Department of Architecture, Sungkyunkwan University, Suwon, Korea
²PhD student, Department of Architecture, Sungkyunkwan University, Suwon, Korea

E-mail: t.schuetze@skku.edu

Abstract. After a period of fast urban growth, which started in the 1960s, urban development in Korea slowed down since 2008 when housing units supply exceeded the number of households for the first time. Depending on the location and specific basic conditions, some areas undergo intensive redevelopments. In contrast, other neighborhoods experience economical and physical deterioration. To facilitate sustainable urban redevelopment, related policies need to address aspects of the New Urban Agenda. This research investigates the different urban development and redevelopment policies in the city of Daegu. Urban projects conducted after 2008 have been mapped and documented in terms of related policies and their degree of implementation, project size, building and population densities, and urban morphology. Potentials for the transformation and densification of existing urban areas are discussed. The research findings are compared with current redevelopment policies and result in recommendations for the evolution of policies towards increased integration of sustainable urban redevelopment aspects.

1. Introduction

The nationwide rush for housing provision that characterized Korea’s fast development [1] has ended since the beginning of the second millennium. In many cities, including Daegu, the population is stagnating or shrinking [2]. Urban regeneration is becoming the main paradigm of urban policies. Yet, such policies face many difficulties and conflicts of interest, as large high yield developments are still the main interest of many actors [2][3][4].

Urban regeneration is subject to various definitions. This research adopts a physical environment approach, distinguishing greenfield from brownfield projects [5], and opportunistic development from holistic regeneration planning [6]. Urban regeneration is understood as a process of “reinvestment after a period of disinvestment” [7, p2 par. 2] in an urban area. It is intrinsically a sustainable practice [5], aiming for compact, inclusive cities (SDG 11.3 & 11.6) and reducing consumption of land and construction material (SDG 12.2 &12.5).

Understanding the factors of urban decline and decay is crucial for urban regeneration planning [8]. General urban decline is caused by global and regional socio-economic factors such as de-industrialization or demographic transition. Localized urban decay, induced by phenomena such as suburbanization or inadequate regulations, is more directly linked to planning and policy. In the case of Korean cities such as Daegu, decay is concentrated in the inner-city area, called the ‘old city’ (Korean: kudoshi), characterized by low rise intricate urban fabric issued from natural growth and 1970-80s land readjustment process [9]. The decay of this ‘old city’ is accelerated by the potential wholesale redevelopment of decaying areas, that dissuades from incremental improvement, and the contrastingly
attractive offer of development and redevelopment areas, that drive affluent populations out of aging districts.

2. Research method
This research aims to assess the potential for the careful urban regeneration of Daegu’s ‘old city’ by analyzing the two phenomena that compete against it: suburbanization induced by greenfield developments (i), and unbalanced redevelopment through opportunistic land clearance (ii). Housing developments in the period from 2000 to 2019 are analyzed through literature [10][2][11][3][12], statistical data (kosis.kr, jigu.go.kr, stat.daegu.go.kr) and local government reports [13][14][15]. Project size, density, localization, level of implementation as well as urban form are observed on a macro morphologic scale.

The research focuses on housing because it constitutes a major function in the city and plays a key role in urban livability. Moreover, housing is largely documented by government institutions. However, the data analyzed were not complete and showed some inconsistency. The multiplicity of development processes made it very complicated to provide a full accurate vision of urban changes. This research was merely able to provide a general overview and to establish tendencies.

3. Results and discussion
3.1. Land development
Korean cities developed through a series of land development projects since the 1970s. Housing Land Development (Korean: t’aekchigaebal), is one of the main procedures sustaining the suburbanization process. After coming to a halt in 2009, Housing Land Development in Daegu started again in 2014, though at a more moderate pace (Figure 1). Later urban developments were located further away from the city center. The constructions were realized either as large independent new towns or as extensions of already built-up areas (Figure 2). Further developments are still in planning but take the form of smaller infills in between already developed areas.

The most recent suburban developments are the result of central government policy to mitigate urban shrinkage. However, the result of this policy is controversial [2]. For example, the so-called ‘innovation city’ in Dong-gu district mainly attracted population from Daegu inner city [11].

3.2. Urban demolition and redevelopment
Land clearance by the demolition of existing built-up areas came into practice as part of slum resorption policies in the 1980s and became the main practice of urban redevelopments in Korea [16]. Such redevelopments are mainly realized through so-called maintenance projects (Korean: chŏngbisaop). The
designation of a maintenance area in Daegu requires two-thirds of the concerned buildings to be minimum 30 years old as its basic criteria [15]. Maintenance project areas need to go through a series of validation phases requiring landowner agreement to a certain proportion before implementation. Even once established, maintenance projects might not be carried out [10].

Figure 3: Map of maintenance project areas in Daegu according to the 2013-20 plan [15] and the maintenance project status [14].

The planned maintenance project areas in Daegu for the 2013-2020 period account for over 10 square kilometers. The areas are quite evenly distributed around the ‘old city’, with a higher concentration in the West and South (Figure 3). Maintenance projects constitute a drastic and somehow efficient answer to the depopulation that characterized the concerned city areas [12]. However, as of October 2019, more than half of the maintenance projects area in Daegu remained pending [14].

Maintenance projects can mainly be divided into redevelopment, targeting decaying areas with lacking infrastructure (Korean: chaegaebalsapsôp) and reconstructions, targeting aging housing with satisfying infrastructure. The concerned building types are either aging apartment complex or aging single and multi-family housing neighborhoods (Korean: chaegonch'ûksapsôp) [15]. Maintenance projects are not the only land clearance mechanism in Korea. Other laws, such as the housing law, or the simple direct purchase of every plot needed for a development contribute to the phenomenon of urban redevelopments and reconstructions but are less well documented.

3.3. Current housing development trend

| Type of housing development                      | Number of projects | Total land area (thous. m²) | Average land area (thous. m²) | Total floor area (thousand m²) | Average floor area (thous. m²) | Total number of units | Average number of units | Average unit increase (%) | Average Floor Area Ratio (%) | Average fl. number |
|-------------------------------------------------|--------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------|------------------------|--------------------------|--------------------------|----------------------|
| Redevelopment                                   | 20                 | 952                         | 47                            | 3505                          | 175                           | 23,684                | 1174                   | 211                      | 256                      | 28                   |
| Reconstruction / old city fabric                | 17                 | 498                         | 29                            | 1863                          | 124                           | 12,213                | 718                    | 273                      | 268                      | 23                   |
| Reconstruction / collective housing             | 15                 | 241                         | 16                            | 1061                          | 70                            | 6,540                 | 438                    | 158                      | 351                      | 24                   |
| Mix development 'chusangbokhap'                 | 17                 | 204                         | 12                            | 2255                          | 132                           | 9,963                 | 568                    | 764                      | 45                       | 45                   |
| Other urban renewal                             | 37                 | 882                         | 23                            | 3594                          | 94                            | 21,765                | 568                    | 292                      | 225                      | 25                   |
| **TOTAL URBAN RENEWAL**                         | **106**            | **2779**                    | **26**                        | **12191**                     | **117**                       | **73,685**            | **695**                 | **365**                  | **28**                   |                     |
| Urban development                               | 34                 | 1,153                       | 33                            | 3157                          | 92                            | 21,877                | 643                    | 187                      | 187                      | 20                   |
| **TOTAL**                                       | **140**            | **3933**                    | **28**                        | **15349**                     | **111**                       | **95,562**            | **682**                 | **322**                  | **26**                   |                     |

Table 1: Characteristic of the housing projects currently implemented in Daegu (data: Daegu city, Nov. 2019 [13]) *this data was only retrieved in 60% of the cases using project notice on luris.com.

The Housing Construction Project Status [13] provided by the city of Daegu gives an overview of housing development projects that are planned or under construction. According to the analysis of this data (Table 1), a total number of 95,562 housing units, equivalent to 10% of the city’s existing housing stock, are currently in project. Redevelopment accounts for 80% of the total projects’ area, only 20% of the total area is realized in the form of greenfield developments. The projects take the form of vertical superblocks with an average plot area of 26,000m² and 28 floors. Floor Area Ratios (FAR) are in the range of 250 to 290%, consistent with the zoning maximum allowances. The effective increase in urban
density compared with the area before redevelopment is hard to indicate due to a lack of available data. Available information on maintenance projects shows an increase of 158 to 272% in the number of housing units. Aged housing districts in different ‘old city’ areas have a gross FAR of approximately 100%, confirmed by analysis of comparable urban areas in Seoul [17]. The comparison of FAR before and after redevelopment suggests an almost threefold increase in usable building area. This densification is even more acute in the case of mixed developments (Korean: chusangbokhab) in central business zones that have a FAR above 700% and 45 floors on average, and account for 15% of the total floor area of all projects.

4. Conclusion

Large development and redevelopment projects competing with careful urban regeneration are still widely implemented in Daegu. Such “vertical accumulation” [18, p50 par.3] in a context of stagnation causes a daring threat to the livability and operability of existing inner-city districts. Population and investment are concentrated in limited project areas while wide spans of the city remain neglected. The high FAR allowed in those large projects constitute a promise of densification and achievable profits that are increasingly less likely to be fulfilled, due to demographic stagnation, unless other urban areas are abandoned and decay. Such planning practices do not comply with SDGs as it makes poor use of urban land (SDG 11) and implies short building life cycles (SDG 12).

Sustainable Urban regeneration should be carried holistically, in coherence with urban development and redevelopment projects [8]. Therefore, densification based urban redevelopment practices need to be revised in Daegu, and other Korean metropolises, because urban laws and practices are unified countrywide [19]. The required political change may take time to be accepted by the society. In the meantime, burgeoning urban regeneration policies should acknowledge the current adverse tendencies and create strategies to mitigate them, such as targeting discarded maintenance zones, promoting mid-sized development or encouraging infill development in-between redeveloped urban areas.

References

[1] Gelézeau V 2003 Séoul, ville géante, cités radieuses ** (Paris CNRS éd.)
[2] Jou Y-M and Seo B-K 2017 Cities 73 128-37
[3] Seo B-K and Jou Y-M 2019 Cities 92 27-35
[4] Wolfram M 2018 Ambio 48 478-93
[5] Jones P and Evans J 2008 Urban regeneration in the UK (London SAGE Pub.) 83-9
[6] Leary M E and McCarthy J (Eds.) 2013 The Routledge Companion to Urban Regeneration (London Routledge) 4
[7] Porter L and Shaw K 2009 Whose urban renaissance? : an international comparison of urban regeneration strategies (London Routledge) 2
[8] Roberts P, Roberts P W and Sykes H 2000 Urban Regeneration: A Handbook (SAGE Pub.)
[9] Kim K-J 2010 Korean Urban Geographical Soc. J.* 13(2) 43-58
[10] Choi S-J, Kim J-H and Kim H-S 2018 J. Korean Housing Ass.* 29(6) 111-9
[11] Park J-I and Kim J-H 2018 J. Regional Science Ass.* 34(3) 55-68
[12] Yim S 2016 J. Korean Ass. of Regional Geographers* 22(3) 599-614
[13] Daegu City Housing Construction Project Status* retr. Nov. 2019 [http://www.daegu.go.kr/build]
[14] Daegu City Maintenance Project Status* retrieved Nov. 2019 [http://www.daegu.go.kr/build]
[15] Daegu City and Ja-in E&C Architecture office 2018 2020 Daegu Metropolitan City Urban housing environment management basic plan (modified) *
[16] Shin H-B and Kim S-H 2016 Urban Studies 53(3) 540-59
[17] Kim K-J and Int. Sem. on Urban Form, (Eds.) 2003 International Urban Form Study: Development Pattern and Density of Selected World Cities (Seoul Development Institute)
[18] Shin H-B 2011 Urban Constellations 48-53 (M. Gandy (Eds.) Jovis)
[19] Kim, S-H. 2013 Architectural Research 15(3) 133-141

* Document in Korean ** Document in French