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Land Readjustment:

Solving Urban Problems Through Innovative Approach

Written, edited and organized by

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JICA RESEARCH INSTITUTE

Japan International Cooperation Agency Research Institute

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(JICA-RI)

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Foreword

According to an estimate by the United Nations, the world's urban population is set to grow by an additional 2.5 billion people by 2050, with nearly 90% of that growth occurring in Africa and Asia. The "World Development Report 2016" states that the rapid urbanization of the developing world "creates urgency to get our cities 'right' because global response to our most pressing challenges – from climate change to rising inequality – will likely succeed or fail in cities." Against this background, Goal 11 of the "Sustainable Development Goals" (SDGs) aims to "[m]ake cities and human settlements inclusive, safe, resilient and sustainable." Land readjustment may be an effective approach for achieving this goal and addressing the global issues of urban population and human settlements.

Definitions of land readjustment differ according to country contexts. However, the essential concept can be found in the general provisions of the Japanese *Land Readjustment Law* enacted in 1954. According to this law, land readjustment means to alter the shape and land conditions of lots, and to install or improve public facilities in a city planning area in order to provide better public facilities and increase the usage of each lot. As this volume discusses, one advantage of land readjustment is that all dwellers remain in the area after project implementation and community cohesion is therefore maintained. Japan is considered a pioneering country in mainstreaming the land readjustment approach in its urban development policy. Japan has provided technical cooperation to developing countries related to land readjustment since the 1980s, with the former Ministry of Construction and the Japan International Cooperation Agency (JICA) playing a central role.

This book is the outcome of a research program on land readjustment conducted by the Japan International Cooperation Agency Research Institute (JICA-RI) with the participation of 33 researchers and practitioners, many of whom have played key roles in urban development in their respective countries. This book aims to provide insights into the main features of the land readjustment approach, focusing on its effectiveness, advantages, and challenges. This volume explores how experiences in Japan and other countries have been applied and further improved in developing countries. I am convinced that this book will offer insightful lessons for the inclusive, sustainable, and resilient urbanization/reurbanization that is essential for quality growth and the achievement of the SDGs, in particular Goal 11.

Naohiro Kitano
Director
JICA Research Institute

Preface and Acknowledgements

Land readjustment is an important instrument for the development and redevelopment of urban areas that is used widely around the world, especially in Japan, but still relatively unknown – or not extensively used – in other countries. In order to overcome this limitation, the Japan International Cooperation Agency (JICA) gathered international specialists and prepared this volume as a means of sharing high-quality knowledge and experience with an international audience. The past decade, in particular, has seen unprecedented academic and practical interest in land readjustment and, in an interconnected world, the instrument needs to be critically examined, disseminated, and adapted to suit highly diverse urban contexts. The major value of this publication is that it considers the underlying theories, provides an overview of the Japanese experience and offers many additional case studies from different countries. These case studies range from basic functions of land readjustment to the most complex processes, and are used to provide a better understanding of the fundamental contributions of the method to different systems of governance and urban planning. International readers seeking to implement – or improve – land readjustment within their own contexts will learn from the experiences of others around the world and will develop an appreciation of the major challenges, advantages and disadvantages of the process. This will limit the potential for misplaced ideas or oversimplistic blueprints in applications of land readjustment.

This publication is comprised of two parts and four major chapters. Chapter 1 introduces several land-related theories and problems faced as a result of the urbanization phenomena – including urban sprawl and real estate holdout – before considering how land readjustment can be used to address such problems. It also discusses public policies and institutional challenges such as path dependent planning policies, correction of coordination failures and structural reconfigurations that are likely to be faced when adopting and adapting new planning techniques such as land readjustment. After providing this substantial background, Chapter 1 takes us to Japan, which is one of a few countries that have, over the past decades, managed to utilize land readjustment to overcome urban problems faced by all developing countries, mainly related to migration from rural areas to urban centers, urban expansion and uncontrolled growth, as well as countless environmental problems. Chapter 1 also provides an explanation of the legal bases, the procedures, and methodologies as practiced in Japan and discusses why land readjustment had a successful and extensive usage there, according to different points of view.

Chapter 2 addresses the history of Japan's land readjustment, focusing on post-disaster

reconstruction processes, since its origins in the *Arable Land Readjustment Act* of 1899. The objective of this act was to improve productivity and modernize agriculture by consolidating scattered and irregularly shaped fields into areas with regular shapes while simultaneously developing irrigation canals and farm roads. However, it also began to be used for housing land developments in the suburbs of Tokyo and Osaka, where rapid urbanization was taking place in the industrial revolution of the early 20th century. After analyzing such "upgrading" process, Chapter 2 provides an in-depth examination of the usage of land readjustment in major disasters throughout Japanese history, such as the fire caused by the Great Kanto Earthquake in Tokyo and Yokohama and the massive destruction resulting from aerial bombing during World War II. This chapter also provides an overview of how the legislation progressed prior to the enactment of the *Land Readjustment Law* of 1954, and how it was later applied in events such as the Great Hanshin-Awaji Earthquake in 1995 and the Great East Japan Earthquake in 2011. The last is considered the worst natural disaster in world history in terms of economic damage, according to estimations by the World Bank.

Chapter 3 provides a brief history of the usage of land readjustment around the world. It starts exploring three well-documented experiences of land readjustment, dating back to the 18th and 19th centuries, before the approval of the first legislation related to urban land readjustment in history. In 1902, after approving a law related to the transfer of lands in Frankfurt, known as *Lex Adickes Frankfort-am-Main*, a compulsory process of land reorganization was initiated. This was hindered by the heritage of old laws that created extensive and narrow lands that were difficult to use for development. The main idea was to exchange land between the government and the private sector without requiring their expropriation. After the results of this new legislation in Germany became clear, an international dissemination of land readjustment to other countries was initiated, and Chapter 3 explores, decade after decade, country by country, what was significant in terms of practices and legislation up until the present. The subsequent pages present 19 international cases – from 29 different contributors – aiming to explain its legal origins, objectives, organization processes and results, as well as conflicts and impasses faced throughout its implementation. The presentation of such country cases provides a recognition that there are multiple paths for land readjustment in different contexts and realities.

Conclusively, Chapter 4 focuses on the global dissemination of land readjustment through the efforts of Japan and, in particular, its international cooperation agency. It ranges from small and unsuccessful initiatives taken to implement land readjustment up to the most successful cases, such as those in Thailand, Nepal, and Colombia. A chronology of land readjustment in these countries is presented, with the aim of illustrating the efforts, challenges and outcomes of the land readjustment adaptation process. Chapter 4 also discusses the significance of land readjustment for developing countries and publishes the main results from questionnaires directed at landowners in Thailand, with the goal of showing their particular perspectives before and after the implementation of a pilot project. This chapter ends with a discussion of land readjustment as a means of securing land for the urban poor and considers how some more diverse and inclusive frameworks for the

conversion of rights – reframed to address issues faced by the urban poor – should be created. These frameworks could include, for instance, the conversion of rights not only from land to land by administrative measures like practiced in Japan but also from land to building floor through agreements between private parties, as has been the practice in Colombia and Mongolia.

This book was created by dedicated contributions from around the world. We would earnestly like to thank those who contributed to this volume: Norihiko Yanase, Habib Ahmad Javid, Allan Cain, Beat Weber, Moises Festo, Tashi Wangmo, Lívia Monteiro, Tiago Esteves Gonçalves Da Costa, Thiago Medeiros De Castro Silva, Leonardo Amaral Castro, María Cristina Rojas Eberhard, Kauko Viitanen, Hans Joachim Linke, Jacob Manohar Abraham Peter, Harpal Dave, Andri Supriatna, Rassem Khamaisi, Ganbat Bayartuvshin, Kirti Kusum Joshi, Sunil Babu Shrestha, Adri Van Den Brink, Tommy Österberg, Tzu-Chin Lin, Hsiu-Yin Ding, Ittipong Tanmanee, Tahsin Yomralioglu, Bayram Uzun, Recep Nisanci, Robert Home, and Nguyen Ngoc Hieu.

The editors are most grateful to Naohiro Kitano, director of the Japan International Cooperation Agency Research Institute, for his strong support for this study project. We would especially like to thank Hiroshi Kato, vice-president of JICA and former director of JICA Research Institute for encouraging us to prepare this volume, and we are thankful to Yoshihiko Sato, chief editor of JICA Research Institute as well. Finally, we would also like to express our sincerest appreciation to Nobuko Kayashima, Naotaka Yamaguchi, Shimpei Taguchi, Kota Sakaguchi, Sayuri Uematsu, Yukiko Aida, and Imari Nakamine for their preparatory and editorial work, and their management in making the publication of this volume possible.

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Contributors

Introduction

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Part I

Felipe Francisco De Souza is an architect and urban planner, holds master's degree in government and public administration, and he is a Ph.D. candidate in urban engineering at the University of Tokyo, Japan. He has 10 years of work experience as project manager for the Municipal Government of São Paulo, and 7 years of work experience as consultant for international cooperation agencies, such as Vale Foundation, the Japan International Cooperation Agency, and the World Bank. Author of five books, and several research papers and government reports on urban policy making and planning tools, he worked as consultant for the UN-Habitat and the Brazilian Ministry of Cities on metropolitan governance, regional planning and integrated plans, and worked as consultant for the UN-Habitat and the World Bank on land readjustment capacity building and training development. Nowadays, he is a research fellow for the Lincoln Institute of Land Policy, United States of America.

Takeo Ochi is a JICA senior advisor in the field of urban and regional development with a master's degree in urban engineering obtained at the Tokyo University. He joined JICA after his 25-year devotion to Urban Renaissance Agency where he engaged in planning and management of many urban development projects such as large-scale new town development using the land readjustment method. As a JICA long-term expert he worked for the former Department of Town and Country Planning, Ministry of Interior in Thailand (1994-1997) for establishment of Thai land readjustment system

as well as for the Vietnam Institute of Urban and Rural Planning, Ministry of Construction in Vietnam (2009-2012) to enhance their urban planning methodology. Besides, he has been working for technical cooperation projects regarding urban planning and development with Mongolia, Brazil, Timor-Leste, among others. He has been also conducting JICA land readjustment training program and other training programs.

Norihiko Yanase holds a master's degree in environmental planning and has a Ph.D. in civil engineering, both degrees obtained at the Hokkaido University, Japan, in 1978 and 1996. His papers have been published in journals like the City Planning Institute of Japan and the Japan Society of Civil Engineering. He teaches in graduate and master courses on urban and transportation planning at the Ashikaga Institute of Technology and at the University of Gunma, Japan. Also, he has worked as executive officer for the Urban Renaissance Agency (1978-2008) and as a Japan International Cooperation Agency's expert at the Federal Department of Town and Country Planning of Malaysia (1990-1992).

Part II

Habib Ahmad Javid holds a bachelor's degree from the Department of Architecture, Faculty of Engineering from the Kabul University, Afghanistan. After the completion of that degree, he joined the United Nations Office for Project Services as architect. After two years of work experience, he joined The University of Tokyo to obtain his master's degree in urban and regional planning and, currently, to conduct his Ph.D. studies. Nowadays, he is working as urban specialist for a project conducted by the Japan International Cooperation Agency at the metropolitan area of Kabul.

Allan Cain is an architect, specialist in urban development and the director of the Development Workshop Angola. He holds a degree in environmental studies, did his graduate studies at the Architectural Association in London, United Kingdom, and further specialist studies at Harvard Business School, United States of America. He has over 35 years of professional experience in developing countries, many of those in conflict and post-conflict Angola. He has worked as consultant for the World Bank, UN-Habitat, the European Union and other international organizations. He has lectured at universities in Angola, Canada, China, Norway, South Africa, United States of America and United Kingdom, and his articles and papers have been published widely in international journals. He is the co-founder of Angola's first non-bank microfinance institution and has pioneered housing micro-finance in Angola.

Beat Weber works as independent consultant for the Development Workshop and has lived and worked in Angola for the past 14 years, most of that time in Huambo. He has a Ph.D. in urban studies and has provided technical advice for many of the

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Moises Festo works for the Development Workshop Angola since 2001. He is responsible for the company's land use management and land readjustment projects in Huambo since 2005. Also, he coordinated several similar projects in other provinces of Angola and, currently, he is coordinating a land use management project funded by the European Commission that is promoting participatory planning, land readjustment and the usage of cadastral systems in several town administrations of Angola's central highlands. He is also enrolled in the master's program of the San Lorenzo University in Paraguay.

Tashi Wangmo holds bachelor's degree in civil engineering from the Motilal Nehru Regional Engineering College in Allahabad, India and master's degree in urban development and design from the University of New South Wales, Sydney, Australia. She also holds a M.Phil. in infrastructure management from the Yokohama National University, Japan. Recently, she acquired a postgraduate diploma in urban management and development from the Institute for Housing and Urban Development Studies, at the Erasmus University in Rotterdam, the Netherlands. She works for the Department of Human Settlement, at the Ministry of Works and Human Settlement of the Kingdom of Bhutan, since 2000. She currently holds the post of chief urban planner under the Department of Human Settlement.

Lívia Monteiro holds bachelor, master and Ph.D. degrees in architecture and urban planning from the Federal University of Minas Gerais, Brazil, having performed a doctoral exchange at the Barcelona's Escola Tècnica Superior d'Arquitecture, Universitat Politècnica de Catalunya, Spain. Since 2006, she works as architect at the Deputy Municipal Secretariat of Urban Planning of the Belo Horizonte Government, Brazil, and has served as land use, tenure and environment manager (2008-2011), executive manager for the Municipal Council of Urban Policy (2011), and manager for urban planning policies (2011-2012). Nowadays, Monteiro serves as advisor.

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Thiago Medeiros De Castro Silva holds bachelor's degree in geography and industrial design from the Federal University of Minas Gerais and the State University of Minas Gerais, Brazil. He works with sustainable mobility and urban planning projects since 2010, and since 2012 he serves as public policy analyst at the Deputy Municipal Secretariat of Urban Planning of the Belo Horizonte Government, Brazil. Silva participated in the Urban Transport Planning (2015) and the Land Readjustment Method for Urban Development (2016) training programs sponsored by the Japan International Cooperation Agency. He is currently a master student on transportation engineering at the Federal University of Minas Gerais, Brazil.

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Harpal Dave holds bachelor's degree in architecture and master's degree in urban planning. Presently, he is serving the Ministry of Urban Development, Government of India, as assistant town and country planner. He has 8 years of professional experience and has been involved with the preparation of city development plans and special investment regional master plans, and facilitating public acquisition of private lands. He experimented land pooling for the implementation of master plans in the State of Gujarat, and he is part of the working group formed at the Ministry of Urban Development for the research, knowledge dissemination and guidelines preparation and recommendations on land pooling.

Andri Supriatna works for the Ministry of Land and Spatial Planning of Indonesia. He worked for 10 years in the Directorate of Land Consolidation, at the Directorate General of Land Management, and was responsible to prepare national land consolidation policies. He holds a bachelor's degree from the Bandung Institute of Technology, Indonesia, majoring in geodetic and geomatic engineering (2004), and holds a master's degree from the Faculty of Geo Information Science and Earth Observation, University of Twente, the Netherlands, majoring in land administration (2009). His master's thesis relied on a feasibility study of urban land readjustment for *Kampung* upgrading in Jakarta, Indonesia. At the present, Supriatna is a Ph.D. candidate on urban planning at the School of Earth Science and Environment, University of Queensland in Brisbane, Australia.

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Ganbat Bayartuvshin graduated from the Faculty of Foreign Languages at the Ireedui University, and holds a master's degree in arts from the University of the Humanities, Mongolia. She worked as senior officer at the "Housing Project of Ger Area," a capital city owned enterprise in Mongolia, which has developed land readjustment projects and established landowner's communities in 9 areas of Ulaanbaatar city. She also worked as assistant member for the land readjustment regulation draft for Ulaanbaatar city and was the leader of the training organization team responsible for over 300 trainings that provided general understanding on land readjustment for technical staff and landowners. She played an important role in developing the "9-steps program for land readjustment" and in making the handbook "Land Readjustment Based on Landowners Participation." Nowadays, she works at the Mongolian Urban Growth Capacity Upgrading Project-2 supported by the Japan International Cooperation Agency.

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Nguyen Ngoc Hieu holds master's degree in urban planning from the Hanoi Architecture University, Vietnam, and Ph.D. in planning and development from the University College of London, United Kingdom. From 1997 to 2014, he was lecturer and deputy dean of the Faculty of Urban Management & Rural Development of the National Academy of Public Administration, Vietnam. Since 2015, Hieu is senior lecturer in social science and sustainable urban development at the Vietnamese-German University, Vietnam, and visiting lecturer at the Technical University Darmstadt, Germany.

Introduction

Land Readjustment:

Making Cities Inclusive, Safe, Resilient and Sustainable

Akio Hosono

On September 25, 2015, the United Nations passed a resolution adopting "Transforming Our World: The 2030 Agenda for Sustainable Development" as its post-2015 development agenda. This outcome document set out the "Sustainable Development Goals" (SDGs) and targets as integrated and indivisible, global in nature, and universally applicable (UNGA 2015). Among the 17 Global Goals and 169 targets, Goal 11 calls on member states to "[m]ake cities and human settlements inclusive, safe, resilient and sustainable." A specific target of this Goal is to, "by 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries." In short, inclusiveness, safety, resilience and sustainability are attributes of urbanization that need to be achieved, and we therefore need to find effective ways and means to realize Goal 11.

Context

According to the High Level Panel for the post-2015 Agenda (henceforth, HLP), by 2030, there will be over one billion more urban residents in the world and, for the first time, the number of rural residents will start to shrink (HLP 2013). However, in many developing countries, urban conditions continue to be diffuse and disorganized. The lack of proper planning generates unsafe and dangerous conditions for everyday life, and blocks access to jobs, educational, and cultural opportunities (see Chapter 1 of this volume; Rolnik 2000). It is in this context that the United Nations resolution on SDGs was adopted. As stated by the HLP, "We recognize that sustainable urban development and management are crucial to the quality of life of our people. We will work with local authorities and communities to renew and plan our cities and human settlements so as to foster community cohesion and personal security and to stimulate innovation and employment" (HLP 2013, article 34). Indeed, urbanization is closely related to jobs and inclusive growth "because inclusive growth emanates from vibrant and sustainable cities, the only locale where it is possible to generate the number of good jobs that young people are seeking" (article 29).

Purpose of this volume

One method or practice that could provide an effective approach to achieving Goal 11 of the SDGs is "land readjustment." This approach could help to address the challenges of improving urban conditions, in order to achieve urbanization with more desirable attributes. This volume aims to provide insights into the main features of the land readjustment approach, focusing on its effectiveness, advantages and challenges. Based on experiences in Japan as well as those of other countries, this volume explores how these experiences have been applied and further improved in developing countries through Japan's international cooperation programs, as well as those of other organizations.

Land readjustment: characteristics and relevance for urbanization in developing countries

There are two main known tools that can be used to address the demand to reorganize urban structures and land patterns. The first of these is eminent domain, or expropriation, by which private property is compulsorily purchased for public usage or reallocated to third parties who will devote it to public or civic uses. The other is land readjustment. This has been promoted as an innovative land assembly method to overcome reorganization problems faced especially by developing countries (see Chapter 1; Sorensen 2009).

Japan is one of several countries over the past few decades that has managed to implement solutions to urban problems faced by all developing countries: migration from rural areas to urban centers, urban expansion and uncontrolled growth, and countless environmental problems. Throughout this entire process – which took place over more than a century – methods for territorial planning were developed and institutionalized. This included negotiation processes to control urban growth, and implementation of infrastructure and land pattern changes – especially through land readjustment practices – without the widespread use of expropriation (see Chapter 1). Therefore, Japan might be considered a pioneering country in mainstreaming the land readjustment approach in its urban development policy.

The usage of land readjustment in Japan is broad in scope and purpose. It can be divided into five categories: control of urban sprawl, development of new towns, urban rehabilitation, development of complex urban infrastructure, and disaster reconstruction (see Chapter 1). Indeed, the scale of its application in Japan is outstanding: "Widely applied throughout the country, land readjustment is known as the 'mother of urban planning' in Japan. Several project modalities have been introduced and improved over the past century, transforming 10,909 areas, or 329,249 hectares (as of March 2013), which represents approximately 1/3 of the whole country's urban area" (see Chapter

1). Land readjustment has been a driving force behind post-disaster reconstruction, in particular (see Chapter 2).

Definitions of land readjustment are diverse and differ according to country contexts as shown in the case studies of Chapter 3. However, the essential concepts can be found in the general provisions of the Japanese *Land Readjustment Law* enacted in 1954. According to this law, land readjustment means to alter the shape and land conditions of lots and install or improve public facilities in a city planning area in order to provide better public facilities and increase the usage of each lot.

The following explanation, from Chapter 1, describes land readjustment in terms of its goals and process: "through land readjustment projects, the main contribution is in the form of land that will simultaneously improve the public realm – roads, parks, sidewalks, sites for public schools and hospital sites – and, consequently, increase private land values. As purchasing land for public facilities can be prohibitively expensive, through the win-win potential of land readjustment it can be possible to finance and promote projects that would not be possible by any other means. Landowners' property rights, in this sense, still prevail, with a smaller land size and a possible higher total asset value, but aiming for a fair distribution of costs and benefits in urban development" (Chapter 1).

Main issues and analytical perspective

Based on the above-mentioned characteristics, we might ask how land readjustment can facilitate the attainment of the desired attributes of urban development: inclusiveness, safety, resilience, and sustainability. The following sections will discuss some general aspects of land adjustment first, and then consider its contribution to developing countries' urban development, by drawing from one concrete case.

Land readjustment and inclusiveness

In recent years, "inclusive development" has attracted increasing attention from the international community. A decade ago, before the term "inclusive growth" or "inclusive development" started to be used widely, related or similar concepts such as "equity" and "pro-poor growth" were used. For example, the "World Development Report 2006" featured "equity and development." Later, several pioneering studies on inclusive development were published. In these studies, inclusive development is understood to include concepts of full, productive and decent employment to maximize economic opportunities, social protection, and equal access to economic opportunities (Hosono 2016).

The "Framework of Inclusive Growth Indicators" (FIGI), published by the Asian Development Bank (ADB 2013), asserts that the outcomes of inclusive growth are achieved through three policy pillars: sustained economic growth and development of productive jobs and economic opportunities; social inclusion to ensure equal access to economic opportunities by expanding human capacities; and social safety nets to protect the chronically poor and to address the risks and vulnerabilities of the population.

Land readjustment may bring two significant social benefits in comparison to eminent domain, or expropriation. "The first benefit relies on the preservation of social, cultural and economic networks that are closely tied to a physical location, and the routines and interactions of everyday life in that place, through original community maintenance" (Chapter 1). This is because, in the case of land readjustment, all dwellers (landowners and tenants) remain after project implementation. Community cohesion is maintained or fostered in this approach. The second benefit is the realization of equitable distribution of costs and benefits in urbanization processes. All property owners (the original residents) contribute by providing a portion of their property to establish public spaces, or by providing land to sell to pay for improved infrastructure. Thus, "land readjustment projects can go a considerable distance towards a more equitable distribution of both costs and benefits of urbanization" (Chapter 1; Sorensen 2009, xi).

From the perspective of inclusive development, the inclusiveness of land readjustment is clear in indicators such as FIGI, as mentioned previously. On the one hand, land readjustment could potentially facilitate opportunities for residents to participate more actively in the economic and social development process through better access to opportunities. For example, in cases where new infrastructure constructed in a land readjustment area improves connectivity to public transport (new bus stops and so on) and to urban centers, access to higher education and specialized health care, as well as diversified job opportunities, could be enhanced. Moreover, land readjustment can secure necessary public space for basic education and primary healthcare through the landowners' land contribution mechanism.

Furthermore, land readjustment contributes to addressing increasing inequalities that may occur in the process of urbanization. It ensures fair distribution of the costs and benefits of urban development and avoids the problem of increases in land values (capital gain, or *plusvalía*) being monopolized by large landowners, developers or governments. With the costs of land readjustment mostly borne by beneficiaries, the need to use public funds for urban development can be minimized. Finally, social safety nets to protect the chronically poor and address the risks and vulnerabilities of the population can be enhanced directly or indirectly by land readjustment. In short, land readjustment may help to make urban development inclusive and equitable[1].

Land readjustment and safety, resilience, and sustainability

One driving force behind post-disaster reconstruction in Japan is land readjustment. After a disaster occurs, people aim to build back more resiliently and stronger than before, rather than simply trying to rehabilitate the disaster-stricken communities (see Chapter 2). In post-disaster reconstruction, both preservation/cohesion and stronger resilience of communities are essential and, as such, land readjustment has been the activity to revitalize and rebuild a better livelihood and living environment than they were before.

The improvement of sewage, waste treatment and drainage systems, construction of green belts and parks, and other facilities necessary for environment sustainability of community requires public space for which land readjustment approach may be effective. Without this approach, the cost of securing land for these investments in public expenditure could be enormous. Cities without facilities for environmental sustainability are likely to suffer from serious air and water pollution and its consequences. Public space and better connectivity, as well as community coherence, are important for the safety of residents and the city as a whole. As discussed below, there have been cases of re-urbanization through land readjustment that have contributed remarkably to improving public safety.

In summary, land readjustment is an approach that can contribute to making cities more inclusive, safe, resilient, and sustainable, as established by the SDGs, especially Goal 11.

Land readjustment in developing countries

Urbanization is accelerating in developing countries, where urban sprawl, slums, inadequate urban infrastructure, human insecurity, air and water pollution, and vulnerability to disasters are common. Urban slums continue to expand in high-risk areas. In this context, participation by the urban poor in the development process is constrained by inadequate access to jobs and economic opportunities and by limited access to education and healthcare undermining the capacity to take advantage of such opportunities. "Once urbanization happens, whether legally or illegally, and land is subdivided and settled, it is extremely difficult to reorganize or rearrange property ownership boundaries, especially to secure land for basic public needs" (Chapter 1). In these circumstances, land readjustment, or re-urbanization programs which include land readjustment, could provide an effective approach to addressing the above-mentioned urban poverty and slums and making cities of developing countries inclusive, safe, resilient, and sustainable (see Chapters 1 and 4).

Additional insights into these aspects can be drawn from an examination of one concrete case from a developing country. In Colombia, *Law Nº 9* was enacted in 1989 in order to introduce urban reform instruments for management and land use planning, conferring on the State the primary role as city builder. During the law's development process, the involvement of the Japan International Cooperation Agency (JICA) was reflected in the incorporation of instruments such as land readjustment and urban redevelopment in particular (see Chapter 3).

Later, in 1997, a new law (*Law Nº 388*) was enacted, which prompted all Colombian city councils to prepare an urban planning master plan. Japan's 10-year history of cooperation contributed greatly to efforts to establish this new urban planning framework. Former trainees from the JICA's country-specific training courses provided a driving force in Colombia's urban planning. In 2003, the Colombian government proposed new urban development projects and asked for the participation of the former trainees. This meant that JICA's support for capacity building in the areas of urban planning and land readjustment were relevant to the Colombian government and its development policies, and the high level of the capacity building was recognized (see Chapter 4).

The former JICA trainees worked in administrative institutions of important Colombian cities including Medellín, Cartagena and Chia and applied the urban planning and the land readjustment methods they learned. By 2013, land readjustment projects that included urban redevelopment projects had been conducted in five districts, including Medellín, and there were about 50 projects using methods similar to land readjustment that had been undertaken all over the country (see Chapter 4).

Integral improvement of communities (*mejoramiento integral de barrios*, MIB) in the Juan Bobo area of Comuna Nº 2 in the northeastern zone of Medellín was designed, coordinated, and implemented by the Company of Urban Development (*Empresa de Dessarollo Urbano*, EDU) between 2004 and 2008. The project targeted the dwellings that had been constructed along the banks of the Juan Bobo stream, with a population of 1,353 people (300 families) and a land area of 1.75 hectares. MIB is a part of the "Integral Slum Improvement Program," a city program that attempted integral slum redevelopment between 2004 and 2007. The project goals were (i) applying an efficient and flexible planning procedure based on technical criteria adjusted for each micro-territory, (ii) fostering community consensus and participation in generating secure co-living conditions, (iii) improving the whole neighborhood by securing proper financial resources, (iv) improving and legalizing residences on the basis of an analysis of demographic dynamics, and (v) improving degenerated land and the environment to help on-site resettlement (Sato 2013, 5; Alcaldia de Medellín 2011)[2].

In 2002, a public gondola-lift transport system called Metro Cable K Line was

inaugurated in areas called Comuna Nº 1 and Comuna Nº 2, providing a 7-minute service connecting the hillside neighborhoods of northeastern Medellín with the Medellín metro system, benefitting approximately 170,000 residents. This provided services to Comuna Nº 1 and Comuna Nº 2, areas where living conditions were the lowest in the city, and constituted a much-needed public intervention. Thus, the blueprint for MIB came to be included in the draft of the city development plan.

Through this project, the following infrastructure works were completed in the public space secured by land readjustment in Juan Bobo area: sewage pipes (2.7 kilometers), cleaning of the stream basin (200 meters), stream-edge improvement for pedestrians (1,500 square meters), public space and pedestrian mobility improvement and construction (4,500 square meters), restoration of environment (2,500 square meters), construction of a bridge to connect parts of the community, and construction of a library and two community salons. At the same time eight new apartment blocks were constructed and property rights were registered for 118 families. Along with this, 115 houses were improved (Sato 2013, 34).

This re-urbanization project utilizing a land readjustment approach was inclusive: coherence of the community was maintained and fostered through the whole project process and by the construction of two community salons. The conversion of property rights was made not only from land to land (i.e. moving to a new smaller property of approximately the same value) as practiced in Japan, but also from land to building floor in this case (i.e. moving to an apartment of similar value to the land). In addition, all apartment floors were legally registered. With improvement of roads in the district, together with the construction of the Metro Cable, access to jobs and other economic opportunities substantially improved.

The project contributed to the environmental sustainability of the district with construction of sewage pipes, cleaning of the Juan Bobo stream basin, and restoration of environment. Resilience of the community was enhanced, because the high-risk areas where houses were located (for example, where there was a possibility of landslides occurring) were converted into green areas. Furthermore, new apartments were constructed in areas where there was a low risk at a safe distance from the valley through which the Juan Bobo stream runs. Regarding public safety, the only available statistics are for the whole of Medellín city. While considered one of the most dangerous cities in the world at the beginning of the 1990s, the number of homicides per 100,000 persons decreased from 381 in 1991 to 184 in 2002, and just 26 in 2007. Although this decrease cannot be attributed exclusively to urban redevelopment programs, the completion of Metro Cable K Line and the implementation of these programs in the 2000s coincided with the rapid decrease in the homicide rate. In 2007, the homicide rate in Medellín was lower than the average for Colombia, yet still remains higher than the capital, Bogotá[3].

The improvement in inclusiveness (better housing, better access to jobs, and education and health facilities), safety, resilience, and sustainability through urban redevelopment with the land readjustment approach may have contributed at least partly to the improvement of Comuna Nº 1 from 73 in 2004 and 2006 to 79 in 2009 on the Human Development Index. At the same time, the status of Medellín also improved from 79 in 2004 to 80 in 2006, and 85 in 2009[4].

In short, experiences in Colombia and many other developing countries confirm that the land readjustment approach may provide a fundamental tool for improving poor areas, and in securing land for the poor, together with public spaces for inclusive development. In Japan, land adjustment is not usually regarded as a means of addressing issues of poverty (see Chapter 4). As such, the above finding regarding the relevance of land readjustment for improvement of poor areas is a result of mutual learning achieved through international cooperation. In Colombia, the establishment of a land readjustment framework contributed to the country's efforts in urban planning, in which the need to address issues related to urban poverty remains a major concern.

International cooperation for land readjustment

Japanese cooperation for land readjustment has been provided mainly through three schemes or programs: (1) active participation in international conferences and seminar, (2) structured training courses for developing countries' practitioners held continuously in Japan over the past three decades, and (3) technical cooperation with some developing countries carried out together with above-mentioned international seminars or training courses.

Land readjustment became internationally known in the late 1970s. The "First International Conference on Land Consolidation" was held in 1979, where the term "land readjustment" was used for the first time. The conference decided to switch away from the term "land consolidation" to "land readjustment" after considering the variety of land readjustment projects presented at the conference (see Chapter 4). The "Second International Conference" was held in 1982 in Japan as a commemorative event to celebrate the completion of the postwar reconstruction land readjustment projects in Nagoya city. This conference highlighted the active implementation of land readjustment projects in Japan. After the conference, several international seminars were held in the "Association of the Southeast Asian Nations" (ASEAN) region and in other countries, resulting in significant impacts on urban development in Southeast Asian countries. These international seminars came to an end in the year 2000 (see Chapter 4).

Japan started to provide technical cooperation related to land readjustment during the

1980s, in which the former Ministry of Construction and JICA played a central role. There have been two types of technical cooperation programs in this regard: (1) a full set-type technical cooperation program which includes dispatch of experts and feasibility studies on land readjustment, and (2) training courses and follow-up type support for developing countries to establish their own land readjustment frameworks.

JICA and the former Ministry of Construction began to provide training courses on land readjustment in 1983, aiming to disseminate Japan's urban development techniques to developing countries. JICA has continued to provide these training courses until today, with a total of 363 participants from 68 countries attending these courses from 1986 to 2014 (see Chapter 4).

Based on the experiences of international cooperation over the past three decades, JICA has introduced changes in the training courses, taking a more specific approach, such as the establishment of an institutional land readjustment framework and problem-solving, thus going well beyond a general introductory program of land readjustment. To this end, JICA decided to accept trainees from countries where land readjustment projects are being conducted, and from countries where a government organization is trying to introduce the land readjustment method at home. The training program contents do not focus solely on Japanese experiences of land readjustment but are based on mutual learning with countries that have been successful in applying their own land readjustment policies (see Chapter 4). Triangular cooperation approaches – in which pivotal countries, beneficiary countries and Japan all participate – appear to be a promising area (Hosono 2013). Colombia is now acting as the leader (or pivotal country) in land readjustment experiences for Latin American countries and Thailand is expected to be a leader in Asia.

Recently, some international organizations have become increasingly engaged in international cooperation in land readjustment. For example, the United Nations Human Settlements Programme (UN-Habitat) incorporates this approach into its cooperation program by paying attention to the participatory and inclusive attributes of land readjustment. This organization also considers land readjustment as a viable tool to enable public and private partnerships for land development. In 2016, the World Bank started to offer online courses on land readjustment (see Chapter 4). The "Development Cooperation Charter of Japan" was also released in 2015, the same year that the SDGs were adopted. The charter states that one of the most important challenges for development is "'quality growth' and poverty reduction through such growth," in which inclusiveness, sustainability, and resilience are stressed (Cabinet Office of Japan 2015, 5-6).

In these ways, land readjustment has increased its relevance in international cooperation for urbanization, urban redevelopment, and in particular for the achievement of the

SDGs, especially of Goal 11. In terms of its future perspective, the land readjustment method should be applied comprehensively and strategically while considering the issues that face developing countries. These issues include infrastructure development, slum upgrading and the guarantee of property rights, urban management, urban governance, inclusiveness, value capture finance, sustainable urban development, and climate change mitigation/adaptation. This vision coincides precisely with that of SDG Goal 11 to make cities inclusive, safe, resilient and sustainable, as mentioned at the beginning of this Introduction.

Endnotes

[1] On the one hand, land readjustment alone cannot assure inclusive development. In order to address urban poverty in slums, several policy measures need to be introduced, together with land readjustment, in slum areas. As such, a comprehensive scheme with a whole range of policies and tools is essential. On the other hand, traditional pro-poor approaches may be more effective when they are implemented with land readjustment.

[2] This and next four paragraphs are based on Sato (2013) and the author's field survey in Juan Bobo area in 2010.

[3] These figures are from Sato (2013, 7) based on the data from the Company of Urban Development (EDU).

[4] These figures are from Sato (2013, 7), based on Rivas (2011, 45).

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Part I.

Land Readjustment: Concepts and Practice in Japan

Chapter 1

What is Land Readjustment?

Concepts on Land Readjustment

Felipe Francisco De Souza

Urbanization, Compact City, Holdout Problem, Urban Sprawl and Land Readjustment

Urbanization, or urban growth, is the physical and functional increase of human population into particular areas, leading to structural changes in land use, usually from forest or agriculture to other patterns of usage. The effects of urbanization include changes in density, environment and infrastructure and, essentially, include a dramatic increase in transaction costs. Urbanization encompasses different kinds of people movement, including migration and commuting, and is strongly shaped by information exchange and by social and economic opportunities. Understanding this phenomenon is important because the structure of human life reaches another level of complexity here: the larger the urban area, the higher the human costs and benefits. If, on the one hand, a proportionate saving in costs can be obtained by an increase in production – known as economies of scale, and partially possible due to human agglomeration –, on the other hand, human agglomeration can lead to negative externalities caused by how that population is clustered within the territory. If we think of the existence of cities as the result of advantages outweighing disadvantages, cities do exist challenged by their geopolitical boundaries, social integration, environmental management, and spatial structure. And, of course, many different public policies, some wise, some not, can affect the extension of such externalities (O'Flaherty 2005).

The world has been facing decades of massive urbanization, mostly in developing countries, and 60% of the total world population is expected to live in cities by 2030. In 1990, more than 70% of all Latin Americans were living in urban areas, and the highest urban growth ratio was found in Africa at 4.9% on average, when the global annual rate was at 2.8% (UNCHS 1992). In 2000, more than 40% of the Asian population was urban and, excluding Japan, this level is expected to reach more than 50% before 2030 (UN 2012). This convergence of urbanization, therefore, is largely taking place in

emerging economies where government capacity to regulate local and regional development, to build public infrastructure, and to set aside green areas and other facilities, as well as to regulate land property rights, are weak or nonexistent. Enormous areas have been developed without any trace of planning processes, without a minimum amount of public space, without adequate road systems, and without green areas and basic infrastructure.

The accumulation of these disorders occurs when cities, especially in their peripheral areas, absorb increased human population, settling on a structure of diffuse and disorganized urban environments, as the result of a "structural transformation and intensified interaction between every point of a rural-urban continuum" (Guldin 2001, 14). Living in urban conditions that are diffuse, disorganized and without proper planning – in the so-called "obsolete urban structures" – generates "an unsafe and dangerous everyday life, blocking access to jobs, educational and cultural opportunities" (Rolnik 2000, 75). Not only do obsolete urban structures require intervention because they lack adequate urban facilities, but also because they retain the lower classes – excluded and in full expansion (Davis 2006). The problem is that these groups do not have access to the full possibilities offered by societies and economies, nor do they take advantage out of them. In other words, the accumulation of disordered spaces has greatly reduced urban livability, socio-economic opportunities, and quality of life.

Once urbanization happens, whether legally or illegally, and land is subdivided and settled, it is extremely difficult to reorganize or rearrange property ownership boundaries, especially to secure land for basic public needs. Such difficulties arise mainly due to two major factors (Sorensen 2009). First, any intervention requires displacement of existing users, which affects their social, cultural and economic networks – or the so-called "social capital" (Jacobs 1961; Putnam 2000) – and also affects their sense of equality and fair distribution of rights. Second, the value of urban land increases with its intensive usage, especially when supply is scarce in a situation of great demand. In recent years, the urban land value in developing countries has been increasing at levels above inflation or gross domestic product rates, as argued by Edwin Mills and Byung-Nak Song since the 1970s, and that is influenced by the result of the distortions caused by the inequality between the best and the worst lands served with infrastructure (Mills and Song 1979), among other factors.

Land has unique determinants that make it difficult for supply to respond quickly to demand (Doebele 1982). A plot of land, mainly in urban areas, has unique determinants that transform it into an agent of power, which are:

a. Every plot of land has a unique geographical location, which makes it impossible

– for that single reason – to produce an identical plot of land. Such a simple factor provides "a degree of monopoly power, especially to those controlling parcels in areas where economic development and increased migration are most intensely concentrated" (Doebele 1982, 1);

b. Even though it is impossible to produce an identical plot of land, it is possible to reproduce its characteristics by providing infrastructure; and all installed infrastructure generates a direct added value, proportional to the size of the land. It is worth pointing out that plots of urban land require a huge variety of infrastructure, including "water, electricity, roads, sewers, storm drainage systems, parks, schools, public markets, fire stations, police services, and other installations, which mostly must be provided by public bodies" (Doebele 1982, 1);

c. Besides, not every plot of land can be treated as a public asset, which leads to the existence of market transactions. Market transactions take place through the comparison between less productive lands (or less equipped) and the best (or more equipped) lands, added to their economic and environmental externalities. As government or individuals cannot easily create plots of urban land as migrations arise, "the basic principle of supply rising to meet demand encounters many obstacles and prices continue to rise" (Doebele 1982, 1).

It seems certain that urban areas occupied in the past, especially in countries highly affected by the globalization movement, will tend to "suffer pressures to reconvert land use and occupation, and the old rural land pattern, road systems and divisions of property will be a major obstacle to the emerging demand for readjustment or reorganization of urban areas" (Sorensen 2009, ix). The 21st century will experience a huge demand to reorganize obsolete urban structures with insufficient public facilities and path dependent ownership of property (Sorensen 2015); and, furthermore, will experience the need to find significance in these re-organized spaces, focusing on proximity and its costs and benefits within urban agglomeration economies.

Addressing the importance of proximity – understood as the nearness in space, time and relationship of urban functionalities – and its benefits on urban agglomeration economies, means that while some scholars decline significance in space and distance due to telecommunication innovations (Cairncross 2001; Newman 2005), others highlight significance in space and distance, correlating it to urban forms, structures, organizations and globalization (Hall 1988; Sassen 2001). This is the reason why the terminology "compact city" arose among urban planners advocating "sustainable efficiency," and the concept has emerged primarily in response to the acknowledged need to find better models for towns and cities around the world (Jenks et al. 1996). From the global

perspective, the compact city approach has been mainly associated with efficient public transportation, planned population density, land use control, low energy consumption and the reduction of CO_2 emissions (Dempsey 2010). The term compact city (neighborhoods) is often attributed to Jane Jacobs and her classic book "The Death and Life of Great American Cities" (Jacobs 1961); a critique on Modernism and modernist planning practices. A whole range of problems, such as disinvestment in urban central areas, reliance on private cars, and the holdout problem and urban sprawl (Ewing et al. 2002), have been discussed throughout the academic literature, and have served as arguments in favor of compact city as a model for planning policies.

Among the already mentioned urban problems, the holdout problem is defined as the problem of assembling land where an agent, for example, a land developer, must negotiate with several rights holders and must provide their consent to proceed. However, since the rights holders realize that their land is required and essential to the completion of a project, they usually try to extract an extra portion of the producer surplus above their opportunity costs; in other words, rights holders seek prices well in excess of their true reservation value (Miceli and Sirmans 2007). As a result, large-scale projects that require land assembly, such as housing developments, parks, stadiums and other facilities, will have high bargaining costs and are likely to be under-produced. This creates the incentive for developers, aiming to minimize costs, to look after that land whose ownership is less dispersed, which creates bias toward development at the urban fringe where average plot sizes are larger, resulting in urban sprawl.

Urban sprawl is a pattern of land use that exhibits low levels of some combination of the following eight distinct dimensions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity (Galster et al. 2001), and recently a correlation among sprawl and increase in public transportation costs, infrastructure network inefficiency, and income concentration has been shown (Nechyba and Walsh 2004). As argued by several scholars (Calthorpe and Fulton 2001; Dieleman and Wegener 2004; Sorensen 1999), in the absence of strong planning intervention at the regional and local scale, cities have a tendency towards urban deconcentration and spatial separation rather than spontaneous tendencies for new multifunctional forms and concentrated mixed land use settlements. Such trends are not a transient phenomenon, but rather the consistent outcome of a long-term fundamental change in economic conditions, modes of production and distribution, household patterns and lifestyles, and transportation technology (Dieleman and Wegener 2004). Whereas the most comprehensive review on urban sprawl literature (Burchell et al. 1998) concluded – after an analysis of 475 case studies – that sprawl has both positive and negative effects, and that compact development is less costly for both operating and capital costs, some scholars, like Michael Newman (2005), refute the paradox that compact development

is more sustainable than sprawl: "asking whether a compact city, or any other form of city, is sustainable is like asking whether the body is sustainable. The proper question is not if the body is sustainable, but rather, does the being that inhabits the body live sustainably?" (Newman 2005, 23). In other words, the author argues that the attempt to prove sustainability by measuring form or via other physical means is nonsensical; conceiving the city in "terms of process" would hold more promise in attaining the elusive goal of sustainability.

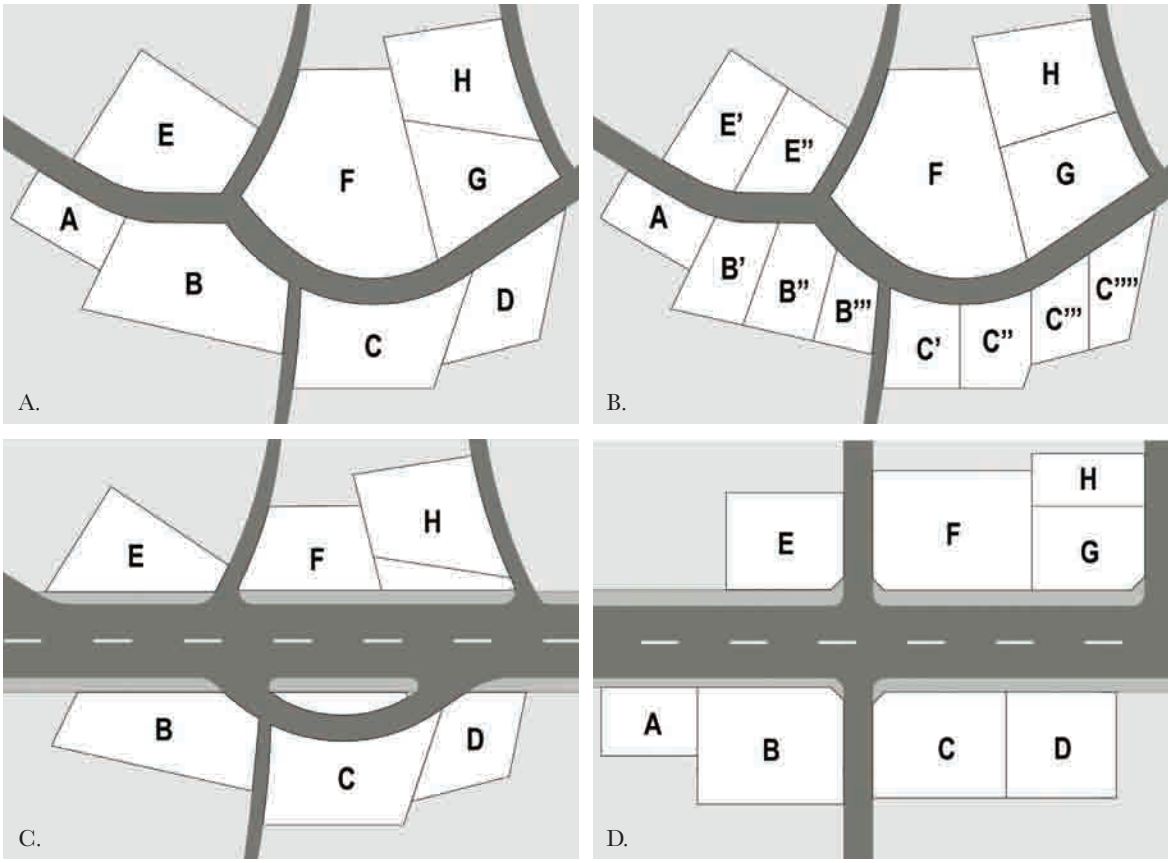
Concerned with this overview on compact city, the holdout problem and urban sprawl, there are two main tools to address the demand to reorganize urban structures and land patterns, and to address the lower likelihood of producing large-scale public and private projects. Eminent domain, or expropriation, is one of these and is delegated by the government, which exercises the function of compulsory purchase of private property for public use, or the delegation to third parties who will devote it to public or civic uses. However, the process doesn't consider "pareto-efficiency," as it is not clear whether governments that exercise eminent domain are increasing social welfare or simply having greater influence over a political process designed to transfer resources from one group to another (Miceli and Sirmans 2007). The other legal tool is a practice known as land readjustment. Because problems arise from market and government failures: such as (i) the market is not assembling land to promote sufficient housing projects to supply for the demand; and (ii) the government reveals itself as inefficient and unfair through expropriation procedures – land readjustment has been promoted as an innovative assembly method to overcome reorganization problems faced, mainly, by developing countries.

This innovative urban-land-assembly approach may bring two significant benefits when compared with the eminent domain one, as argued by Andre Sorensen (2009). The first benefit relies on the preservation of social, cultural and economic networks that are closely tied to a physical location, and the routines and interactions of everyday life in that place, through original community maintenance. Such a posture is quite opposite to the 20th century urban reformers' way of thinking; the one that too often proposed "erasure" – like removing underprivileged communities with signs of poverty from their original location – as the most efficient means of dealing with urban problems, with equally often catastrophic social consequences, as so eloquently exposed by Jane Jacobs (1961). In the case of land readjustment, "by engaging the existing community in a process of redevelopment, creation of new public spaces and infrastructures, and keeping them in that transformed place during and after the project, it is possible for the land readjustment processes to actually enhance and enrich places based on social networks instead of obliterating them" (Sorensen 2009, xi).

The second benefit relies on the equitable distribution of costs and benefits in the urbanization process: "by requiring that all property owners contribute with a share of their property for public spaces, and for land to sell to pay back improved infrastructures, land readjustment projects can go a considerable distance towards a more equitable distribution of both costs and benefits of urbanization" (Sorensen 2009, xi). In short, on the one hand, when landowners provide a significant land contribution to increase public spaces and to produce reserve land, they bear the costs of urbanization at the time of development or redevelopment; on the other hand, they have incentive to do that because their net land value may increase after the urbanization process. Usually, especially in developing countries, urbanization generates enormous increases in land values, and land readjustment can work as a form of betterment collection for the public good due to investment towards area improvement. According to Andre Sorensen:

> "In a situation where all the costs of the public infrastructure – buying land for roads, building roads and sewers, etc. – is paid by the State through taxes, while only a small percentage of the population owns land, a great inequity results, as the broader public is paying for improvements, while only a small number of land owners receive the benefits of property value increases. This inequity was so clear to urban thinkers in the period before the World War II that a number of schemes to collect betterment tax were attempted, perhaps most famously in Britain, where a tax of 100% of the 'unearned increment' of increased land values was applied during the late 1940s, but subsequently removed (Cullingworth and Nadin 1994; Ratcliffe 1976). All such attempts encountered major problems, however, not least of which were the difficulty of consistently and accurately measuring that portion of increased land value that was due to public actions (urban growth and public infrastructure) as opposed to private efforts (such as capital improvements or effective management). Actually, collecting the betterment tax also proved both practically and politically difficult. Today there is much less acceptance of the advisability of taxing unearned profits in land, but many countries do levy some form of capital gains tax on increased capital values, while property taxes are also widely used to pay for the costs of urban infrastructure." (Sorensen 2009, xi-xii)

In other words, through land readjustment projects, the main contribution is in the form of land that will simultaneously improve the public realm – roads, parks, sidewalks, sites for public schools and hospital sites – and, consequently, increase private land values. As purchasing land for public facilities can be prohibitively expensive, through the win-win potential of land readjustment it can be possible to finance and promote projects that would not be possible by any other means. Landowners' property rights, in this sense, still prevail, with a smaller land size and a possible higher total asset value, but aiming for a fair distribution of costs and benefits in urban development (see Figure 1.1).



▲ Figure 1.1 (A-D). Comparison between land intervention processes

A. Medieval, agricultural or unplanned pattern of growth: Owners A, B, C, D, E, F, G and H have property ownership of lands without basic infrastructure and/or without adequate public facilities;

B. Individual private subdivision and development, plot-by-plot: Owners A and F remain inert to any transformation; Owners B and E subdivide their plots into smaller ones and privately build up basic infrastructure; Owner C acquired owner D's land and subdivided it into smaller plots; Owners G and H mutually agreed to exchange part of their adjacent plots of land (amalgamation);

C. Development process through expropriation: Owners A and G are expropriated; Owners B, D, E, and in greater proportions F, receive compensation for the loss of part of their plots through eminent domain; also, they still benefit from the newly built infrastructure and consequently obtain asset appreciation of their remaining plot portion; Owners C and H remain intact and they fully benefit from their proximity to the newly built infrastructure; and

D. Development process through land readjustment: all landowners remain after project implementation; the plots of land now have adequate basic public infrastructure, even though smaller in size after the project implementation.

Public Policies and the Fair Distribution of Costs and Benefits for Urban Development

Contemporary urbanism has a special focus on the nature of social change during urban development processes, and a significant number of studies refer to these dynamics as the arrangement and potential relationship of equity and fairness – racial, wealth, health – that may lead to less disparity among citizens in societies (Davies and Imbroscio 2009). In fact, concepts of justice, balance and fairness are related to national principles and guided by national constitutions. In terms of urban development, such national principles guide individual and collective rights on housing and private property, as well as their relationship with the public realm. Nations create urban legislation that can identify scales of operation between public and private interests, based on systems of territorial management through the delimitation of rural and urban areas, potentially guided by zoning laws, and through instruments and tools for specific interventions on predetermined zones, as established by master plan regulations.

The relationship between public (government, public bodies) and private (investors, brokers, buyers, and sellers) interests is part of the construction of the city: the decision-making of all individuals involved generates future reflections on the social, environmental, cultural, and, obviously, physical spheres. When a planning system deals with structural issues between social justice and economic demands, it must consider conditions for the fair distribution of costs and benefits for urban development. Even before advocating fairness as a requirement for urban policies, it is necessary to understand that unfairness leads to social exclusion, and "social exclusion is a shorthand term for what can happen when people or areas suffer from a combination of linked problems, such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown" (Li 2005, 2).

As urbanization increases, policies, decisions, structures and institutional behaviors may prevent communities from accessing properly equitable housing markets, employment opportunities, health care, and democratic participation (Silver 1994). Influenced by Henry Lefebvre (1968) and David Harvey (2013; 2014), among other scholars, several social movements have been criticizing the actual shortcomings of urbanization to promote the "right to the city." Such a slogan means "far more than a right of individual access to the resources that the city embodies," "it is, moreover, a collective rather than an individual right since changing the city inevitably depends upon the exercise of a collective power over the processes of urbanization" (Harvey 2016, 272). On the contrary, urban processes have undergone undesired transformations – which have become global – and, for a number of reasons, the power of the privileged few is making it hard for urban communities to truly access the city and its resources. This is the

reason why the contemporary ongoing debate criticizes the fact that the city has become a major real estate operation, in which the so-called "urban regulation" – including urban planning acts, master plans and zoning laws – is losing control over the real estate game, and the financialization of housing is challenging the security of both homeownership and subsidized rental housing (Aalbers 2016). In short, the debate asserts that the city, when operated only as a private asset generates social inequality, whereas as a collective asset, it establishes public spaces, allows resources redistribution and generates social inclusion; and profit becomes only one of its many functions, not its main driver. Therefore, there has been an international reflection on the close relationship between social justice, inclusiveness and real estate development.

Let us consider one of the problems of the real estate game presented internationally: on the one hand, the private sector undertakes – through private capital investment – construction works previously approved by urban legislation that regulates the land use and its occupation. On the other hand, the government undertakes infrastructure works through public funds generated through taxes – also national or international subsidies – in the public space, with the intention to create general conditions for production and consumption of public assets. Public assets paid by the public through taxes that benefit a restricted number of private property owners who do not necessarily invest proportionally to the benefits of property value they acquire. As highlighted by Andre Sorensen (2009), while only a small percentage of the population owns land, or owns land in areas where economic development is mostly concentrated, an increase in inequality and social exclusion may result. That is why the "fair distribution of costs and benefits of urban development," presented in many laws around the world, is under discussion. The concept itself has four definitions: fair (unbiased, right), distribution (division, balance), of costs (resources, risks) and benefits (values, profits). These definitions are important in urban development, and provide means to drive public or collective interest to prevail over private or individual interest (as exposed in the course "Urban development focused on land readjustment measures" in Japan, 2005).

By strengthening the link between fair and balanced actions from both public and private sectors, land readjustment can be used as a tool to achieve proper public policies, such as: (i) the transition between rural and urban areas performed in a controlled manner; (ii) the rehabilitation of regional and urban vulnerable districts performed periodically; and (iii) the urban development financing system performed to generate resources capable to create the surplus effect. Therefore, given the current intention in several countries to adopt land readjustment, to analyze its advantages and disadvantages in different contexts is highly recommended as, for this reason, there will be no room for "misplaced ideas" (Schwarz 1981).

Aiming to deepen some understandings, it is worth establishing a common ground between public policy and urban development instruments, such as land readjustment. On the one hand, public policy refers to administrative actions guided by the government to delineate and approach problems, facing them through technical means and rational decisions, made legitimate by legally established procedures (Villanueva 2006). It is also understood as the "State in action," therefore, any public policy achievement is enabled by action or omission, preventive or corrective, designed to maintain or change the reality of one or more sectors of social life. From this understanding, public policy is decision-making conditioned by values, ideals and visions from social actors, internal and external to public institutions, involving strategies and resource allocation, designed to achieve certain predetermined goals (Saravia 2006). On the other hand, urban development instruments, or tools, are technical-legal objects elaborated as one among several elements for the formulation of public policies. Although conceived in a specific context, these instruments might transcend political party administrations and might serve to differentiate additional purposes from those that were initially conceived. Even when idealized, for example, to guarantee the "public interest," such as the inclusion of social segments according to the "right to the city," they can serve specific groups and certain lobbies, creating conflicts between social actors around the public policy. We must admit, therefore, that no single urban development instrument can constitute a decisive factor in social inclusion or exclusion; still, it is necessary to recognize that an urban development instrument can be a factor that either causes the worsening or the mitigation of social exclusion, depending on its use.

The 20th century experienced the development and diversification of public policy instruments mainly resulting from the rapid growth of the welfare state in the postwar period (Lascoumes and Le Gales 2007). The growth dynamics of the major postwar States revealed a fairly explicit theorization of the relationship between the governing and the governed, which illustrates how public authorities tend to gradually gain ground in different policy fields within a context of permanent social conflicts until policies are made legitimate. In other words, policy-makers faced – and still face – immense difficulties in the practical implementation of innovative urban policies. The first difficulty is known as path dependency, or the set of decisions made in the past that are likely to limit current and future decisions, even though past choices may no longer be relevant (Arthur 1994). The longer the time that certain choices that initiated particular practices have been in place, the more institutions will be invested on them, and the greater will be the incentive that policies continue. There are thus important examples to explain path dependent planning policies, such as "restrictive residential zoning that is understood to protect property values, or greenbelts and green-space designation that guarantee landscape amenities" (Sorensen 2015, 21). Another example is the extensive usage of expropriation, for a long period of time in public policy that

might "lock the system," and constitute a possible challenge to the adaptation and incorporation of other urban development instruments.

The second difficulty is the challenge related to the correction of coordination failures. Coordination is the simultaneous organization of different elements in a project or policy to enable them to work together effectively. Its failures "arise either because the private sector held a different set of time preferences and did not trust the government's rosy forecast of future economic growth" (Hayami and Aoki 1998, 104), or when market mechanisms do not work, and government fails to stimulate entrepreneurs effectively. Imagine that urban planning policies are composed by several coordination elements that require simultaneous organization to promote "proper urban development," and that the identity of these elements, and even their number, may be unknown to policy-makers (Aghion et al. 2009). Deficiencies in enforcement, inefficient implementation, and time span and partnership risks are some examples related to challenges in the practical implementation of innovative urban policies. The third difficulty is the significant cost to promote urban institutional changes and improvement. When urban institutions, "such as water supply, sewers, development control, social housing, or condominium ownership models" (Sorensen 2015, 33), were initially adopted, they had enormous costs and profound impacts on urban outcomes, such as urban size, level of gross domestic product and urbanization rate. What would be the costs to promote an institutional change, such as throughout the implementation of land readjustment practices, not only financially but also related to the externalities produced? The answer to this question is likely to produce policies of significance to institutional reconfiguration.

In this sense, institutional reconfiguration – led by the overcoming of path dependent planning policies, correction of coordination failures, and institutional changes and improvement – may occur through politically imposed "reforms," or when captured and absorbed by other organizations, or when dissolved and supplanted by newly created institutions (Aghion et al. 2009). Such institutional "clash" related to new and old institutional legitimacy was experienced by Japan when adapting land readjustment on German principles, more than 100 years ago. As argued by Bashir Siman (1990), the scale of problems Japan was facing back then, to provide adequate infrastructure for industry and housing in a short period of time, were enormous. In other words, there was no gradual, or relatively long, transformation of Japanese society from an agricultural to an industrial mode of production, and this sudden change caused practical difficulties ranging from labor to administrative relations. In a technical sense, Japan experienced serious shortcomings after its early attempt to provide land for public use and infrastructure through purchase methods (under the *Regulations for Purchase Procedures of Land for Public Use* of 1875). Expropriation somehow

lacked the kind of legitimacy and efficiency necessary to purchase irregular plots and leftovers, and to change plot positions and street patterns, according to the short time span necessary for adequate industrialization. And, "land readjustment, seemed to offer a ready technical tool that could combine public works and town planning objectives," with a "considerable saving for public purse" (Siman 1990, 24), while promoting the fair distribution of costs and benefits arising from urban development.

Japan and Land Readjustment

Japan is an archipelago located in the East Coast of Asia. More than 6,000 islands and mountain forests occupy approximately 70% of the country's surface. "There's no oil, nor iron, nor coal of good quality, nor copper or aluminum and other nonferrous minerals essential to the industrial activity. Japan does not have enough arable land to feed its population" (Barros 1988, 5). Subject to volcanoes, typhoons and earthquakes, around 1,000 events happen every year and some can be felt almost every week. The last major earthquake and tsunami, the Great East Japan Earthquake (東日本大震災 *higashi nihon daishinsai*), which occurred in March 2011, killed approximately 15,900, injured over 6,000 and left 2,562 missing people across 20 prefectures (National Police Agency of Japan 2014).

The so-called "Land of the Rising Sun" has undergone major transformations, from the feudal period to the post World War II recovery process. The concomitant industrialization process has generated a population concentrated in urban areas and uncontrolled land occupation. In the past, agricultural communities were settled without the provision of basic infrastructure and there was little support for urbanization activities. How did a country with such a lack of natural resources and minerals, incomplete and inefficient in its basic infrastructure, the target of several natural disasters, and devastated by World War II, managed to achieve the rank of one of the world's greatest economic powers? Japan has nothing economically favoring its growth but 126 million Japanese people (as of 2016). "In spite of being a nation exhausted and defeated [72 years ago], and although [105 years ago] at the edge of the world, closed in a feudal structure, the four generations that came from the Meiji Era (1868-1912), have turned it into one of the first nations of the world" (Barros 1988, 5).

Despite the historical reasons offered for the whole growth process in the country, and the so-called "Japanese phenomenon," which are often subject to immediate and incorrect analysis due to their complexity, it is important to study land readjustment in the Japanese urban planning context. This is because the Japanese growth experience is one among a few, over the past decades, which have managed to implement solutions

to urban problems faced by all developing countries: migration from rural areas to urban centers, urban expansion and uncontrolled growth, and countless environmental problems. How Japanese society managed to overcome the limitations of centuries of agricultural patterns of property ownership and rearrange urban land to promote its economic growth? Japan, a nation with a high likelihood of natural disasters, over the past 120 years, has spent considerable effort to achieve better technical results in its urban reality transformation. Throughout this entire process, methods for territorial planning were institutionalized across the country, including negotiation processes to control urban growth, and to implement infrastructure and land pattern changes without the extensive use of expropriation, through land readjustment practices.

Land readjustment (土地区画整理 *tochi kukaku seiri*) is a public-private partnership instrument, in which governments and landowners bear the urban development costs and benefits in places where existing land use patterns are inadequate and inefficient; searching, in principle, for property title maintenance after project completion. The primary mechanism for project implementation is known as "replotting" (換地 *kanchi*). Replotting means the change of location, format and area of several plots of land to achieve a project's final scenario. Transformation processes using replotting are performed by land readjustment implementation agencies – local, prefectural, national government agencies, and private corporations – after attempts at "consensus and agreements" among the land rights holders, complying with the guidelines and conditions predetermined by the *Land Readjustment Law*. Often, the scenario expectations are that every piece of transformed private land will be smaller than the original one due to the significant increase in public spaces, such as roads, sidewalks and parks, that are often required, and a higher land value due to the added facilities (see Figure 1.2). *A priori*, it is expected that the value of the replotted land will be higher than the original land, due to the effective improvement in its use, and its proximity to new urban facilities, such as green areas and wide access roads. In those cases where land readjustment projects result in a decrease in land values, compensation in money might in principle be paid to landowners.

The percentage difference in private property area before and after replotting is called the "contribution ratio" (減歩率 *genbu ritsu*). Its value corresponds to the area of the reduced property after project implementation, and to the amount of benefits that a given area requires, shared among all rights holders. Replotting and contribution, therefore, serve two complementary purposes: (i) to adjust the demand for land required for proper urbanization (public infrastructure), and (ii) to create supply to – partially or fully – finance project costs. Also, contribution of land in Japan has the purpose to amalgamate shares in "reserve land" (保留地 *horyūchi*), which are plots of land to be sold to finance the land readjustment projects (see Figure 1.3). The location,

▼ Figure 1.2. The mechanism of land readjustment in Japan

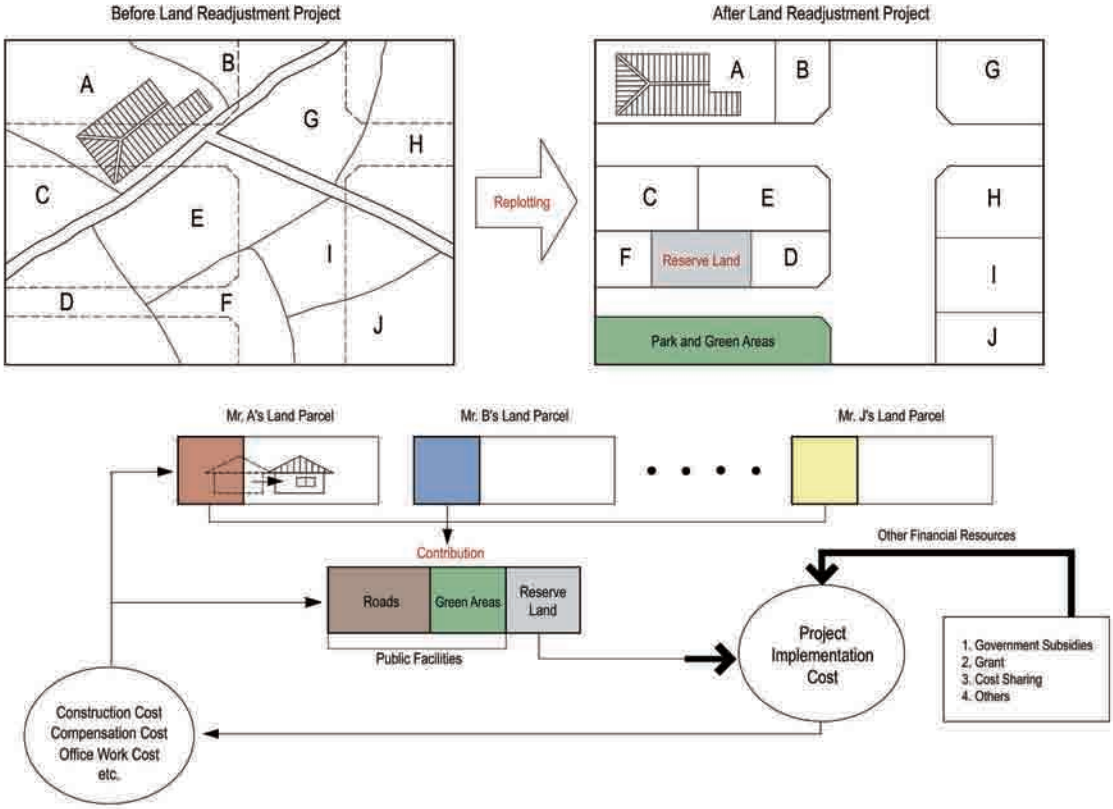


Figure 1.3. Reserve land after the implementation of the land readjustment project ▼

quantities and dimensions of reserve land are determined according to: (i) the economic criterion, which is the capacity to finance new public facilities; and (ii) the equity criterion, which is the ability to equitably balance the land value increase generated by the land readjustment project. In some cases, when the landowners need to remain with the same property, as they already inhabit a small sized plot, the contribution can be made in money instead of land. Although the sale of reserve land is intended for the payment of the project in most cases, the national or prefectural government can provide subsidies for the implementation of some larger infrastructure projects.

Land readjustment is performed on a voluntary or on a compulsory basis. The management of the transformation process of various land units is exclusively performed by implementation agencies. This refers to the administrative organization of the public sector (local, prefectural, national government, public corporations, and so on), or the private sector (cooperatives of landowners, a land readjustment stock company established by landowners, and so on). In addition, to command the "consensus and agreement" process between landowners and leaseholders during the project implementation, implementation agencies also play a key role by coordinating the dialogue with builders, contractors and other service providers for the planning and execution of construction works.

In Japan, the usage of land readjustment is broad in scope and purpose, and can be divided into five categories:

a. Control of urban sprawl in suburban/peripheral areas. This type of land readjustment is implemented with the purpose of providing necessary urban infrastructure in peripheral areas, or in transitional areas between rural and urban, guiding growth and implementing residential areas with urban services (see Figures 1.4-1.5);

b. Development of new towns in suburban/peripheral areas. Land readjustment is used to develop new towns in suburban/peripheral areas according to city master plans to supply residential land to cope with the population increase in large cities (see Figure 1.6);

c. Urban rehabilitation. Land readjustment is used to reorganize areas that are highly populated, already have basic infrastructure, but need to regenerate their urban functions, change use patterns, and/or promote commercial zones or improvements in infrastructure (see Figure 1.7);

d. Development of complex urban infrastructures. This type of land readjustment is

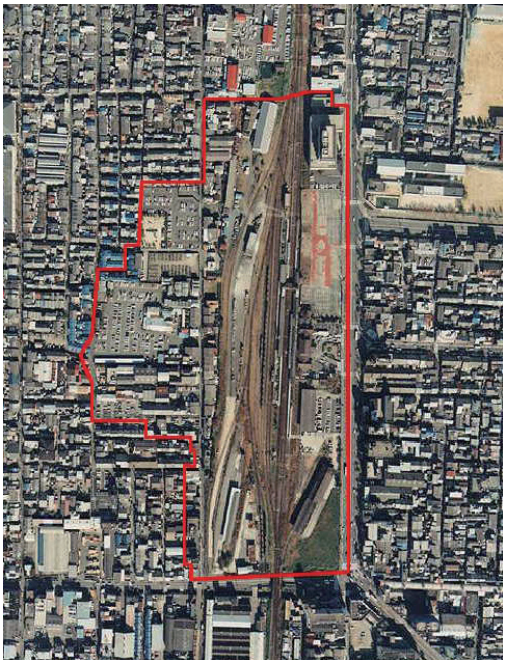
▲ Figure 1.4. Land readjustment for the development of agricultural areas (Tokoyama area 1994-2000, Aichi Prefecture)

▼ Figure 1.5. Land readjustment for the prevention of unplanned growth (Obu-Hantsuki area 1994-2002, Aichi Prefecture)

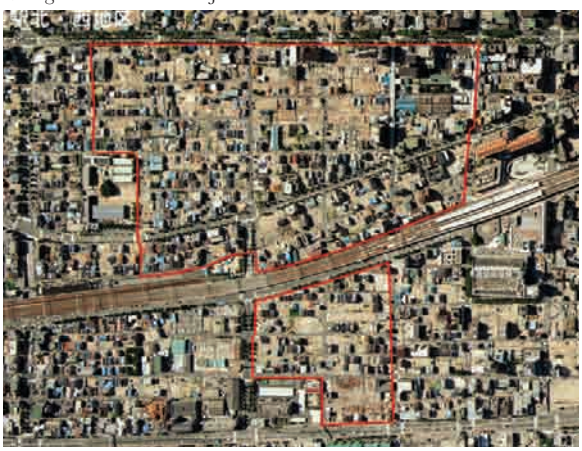
▼ Figure 1.6. Land readjustment for the development of new towns (Kayata area 1989-2005, Chiba Prefecture)

▲ Figure 1.7. Land readjustment for the urban rehabilitation of high-density areas (Dambara area 1987-2005, Hiroshima Prefecture)

▼ Figure 1.8. Land readjustment for degraded areas from railway lines (Nijo area 1998-2007, Kyoto Prefecture)



▼ Figure 1.9. Land readjustment for urban reconstruction and disaster prevention (Rokkomichi Station 1995-2007, Kobe Prefecture)



▲ Figure 1.10 (A-D). High quality small-scale public and private spaces developed through land readjustment projects (A-C Aichi Prefecture, and D Kobe Prefecture)

implemented with the purpose of developing urban infrastructure of greater complexity in intensely urbanized areas, in old industrial areas, or in degraded areas from railway lines (see Figure 1.8); and

e. Disaster reconstruction. This is designed to recover war-damaged areas (such in World War II), and recover areas destroyed by disasters from, mostly, earthquakes, typhoons and tsunamis, and their consequences, such as landslides, fires, and floods (see Figure 1.9).

Replotting, contribution, consensus, persuasion and opposition – these are all concepts related to the land readjustment projects in Japan. This means that land readjustment consists of several concepts and implementation phases and, therefore, the law plays an important role in determining not only the process but also the equity rules for costs and benefits distribution among all rights holders. In this sense, the Japanese legal framework is an appropriate place to begin to understand how land readjustment is fully regulated in a country with, probably, the greater amount of successfully realized (see Figure 1.10), and also unrealized, projects of land readjustment in the world.

Land Readjustment and the Law in Japan

Felipe Francisco De Souza and Takeo Ochi

In Japan, the *Land Readjustment Law* (土地区画整理法 *tochi kukakuseiri hō*) (LRL) Nº 119, promulgated on May 20, 1954 regulates land readjustment implementation. Currently, the law is divided into seven chapters, the second of which has six sections, and the third, nine (according to the latest amendment as of June 13, 2014):

Chapter 1. General Provisions (articles 1 to 3.5)

Chapter 2. Implementation Agency

- Section 1. Individual Implementation Agency (articles 4 to 13)
- Section 2. Land Readjustment Association: 1. Establishment (articles 14 to 24)
- Section 2. Land Readjustment Association: 2. Management (articles 25 to 44)
- Section 2. Land Readjustment Association: 3. Dissolution and Amalgamation (articles 45 to 51)
- Section 3. Land Readjustment Corporation (articles 51.2 to 51.13)
- Section 4. Prefectural and Municipal Governments (articles 52 to 65)

The purpose of the law is to facilitate the building of sound urban areas and to encourage public benefit by enacting necessary measures for implementation and the allocation of project expenses to land readjustment projects (LRL article 1). According to the law, land readjustment means to alter the shape and condition of plots of land, and to install or improve public facilities in a city planning area to provide better public facilities and to increase the usage of each plot (LRL article 2.1). Also, according to the law, the implementation agencies for land readjustment projects are divided into six categories (LRL articles 3 to 3.3): individuals; associations of landowners and leaseholders; land readjustment stock companies established by landowners; prefectural or municipal governments; the Ministry of Land, Infrastructure, Transport and Tourism; and the Urban Renaissance Agency (a central government agency) and the Corporations for Housing and Urban Development (prefectural or municipal government agencies).

In the case of an implementation agency set up by individuals, those who are going to implement the land readjustment project shall obtain a prior approval related to the project plan from the prefectural governor (LRL article 4.1) and in case of association, those who are going to establish it, in cooperation with seven or more people, shall determine the articles of the association and the basic policy of the project plan to

obtain the approval of the prefectural governor (LRL article 14.1). Regarding the project plan, "the plan for public facilities and housing plots shall be formulated in consideration of improving the living environment, securing traffic safety, preventing disasters and creating sound urban areas" (LRL article 6.8). Also, in case of association, it is necessary to obtain consensus from at least two thirds of all landowners and leaseholders respectively within the project area. Moreover, the total sum of the areas of the landowners' and leaseholders' plots that consent to the project's implementation shall at least total two thirds of the total land area of landownership and land lease rights (LRL article 18). Where the land readjustment project is carried by the public sector, this requirement is not necessary because the project shall be implemented as a city planning project according to the city master plan.

If there are objections to the implementation of projects, land rights holders may submit written objections to the prefectural governor or to the Minister of Land, Infrastructure, Transport and Tourism (LRL articles 20.2, 55.2, 69.2, 71.3.5). The governor or the minister shall examine all the objections: if an objection is accepted, they shall order the implementation agency to amend the implementation ordinance or the project plan, and if an objection is not accepted, the result of this decision shall be informed to the land rights holders who submitted it. The methods of appealing against the government's decisions are prescribed under the provisions of the Japanese *Administrative Complaint Reinvestigation Act* (行政不服審査法 *gyōsei fufuku shinsa hō*) Nº 160 of 1962, which is applied to examine the written objections submitted (LRL articles 20.4, 51.8.4, 55.5, 69.4, 71.3.9).

Each land readjustment project implemented by a government agency remains under the supervision of a land readjustment council that shall be established for each project (LRL articles 56, 70, 71.4). The council members are representatives of landowners and leaseholders elected by the rights holders. Also, experts on matters related to land readjustment might be added as needed by the implementation agency (LRL articles 58.3, 70.3, 71.4.3), which shall also appoint three or more advisors for property valuation, with the consent of the council. When the implementation agency evaluates the value and rights of the lands, when the agency decides the equity amount or sets reserve land in a replotting plan, or when it delivers compensation for loss in land value within the project area, the agency shall ask for the opinions of the aforesaid advisors (LRL articles 65, 71, 71.5).

During the period from the public announcement regarding the beginning of the project (approval of the project plan) until its completion, any alteration of physical conditions that could delay or hinder development works – construction, reconstruction,

expansion of buildings and other structures – shall be restricted, unless subject to permission and prior approval from the prefectural governor (or minister or mayor in some cases) (LRL article 76). If changes without this approval are verified, the governor or minister shall be able to order the violators or those who succeed to the land concerned, buildings and other structures, or the rights related to those objects, to restore the land back to its original condition or to remove the said building or other structures concerned (LRL article 76.4). Moreover, through replotting, the rights holders' rights are converted to newly replotted land lots. This means that the rights holders lose the right to use their original parcels. So, buildings, plants, soil, stones, and other structures need to be transfer or removed from the original land plots (LRL article 77). Article 77 enables the implementation agency to conduct this transfer or removal after they inform the possessors or occupants of the buildings in advance. However, the possessors or occupants usually execute this transfer or removal by themselves with compensation for loss – if necessary – provided by the implementation agency (LRL article 78).

Also, the implementing agency shall formulate the replotting plan to enforce replotting of the plots within the project area. According to the law, the replotting plan shall guarantee the maintenance of the characteristics corresponding to the original land "in terms of location, area, soil, water supply, land use, environment and other conditions" (LRL article 89). This is known as the "principle of correspondence" and in cases that a full correspondence is not possible, at least part of the transformed land must keep the original characteristics[1]. The replotting plan comprises of: (i) a replotting design, (ii) specifications of each replot, (iii) specifications for equity payment for each plot and each right, and (iv) specification of the lands with special arrangements, such as reserve land, among others (LRL article 87). Such plan shall avoid excessively small plots of land, considering the appropriate sizes for the prevention of disaster, and improvement of sanitary conditions (LRL article 91). To avoid excessive small plots of land from this process: (i) the small land and the adjoining land may be consolidated to one replot and the landowners may get co-ownership of the replot if they agree (LRL article 91.3); (ii) the replot may not be given to the small land and an equity shall be paid by the landowner instead (LRL articles 91.4 and 94); or (iii) land plots that are big enough shall be able to be reduced, and used for additional allocation to the small land. In this case, the landowner shall be given or pay the equity respectively (LRL articles 91.5 and 94). Imbalances which may arise during replotting shall be corrected by means of equity payments, which shall be calculated and established in monetary terms taking into account the location, area, soil, water supply, land use, environment, and other characteristics, of both the original plots – or their parts – and the replots (LRL article 94).

Concerning project feasibility, the law determines that, during the development of the

replotting plan, a certain amount of land must be left out of the replotting to be designated as reserve land, which shall properly be used to raise funds through its sale to pay the costs of the land readjustment project (LRL article 96). The equivalent value of the land contribution shall not exceed the percentage stipulated on the increase of the total value of private land after the project (LRL article 96.2). In case of public projects, revenue from reserve land may only be used to improve the project and cannot be allocated elsewhere.

Concerning replotting, it is executed by administrative measure, not by a contract between the parties (rights holders) involved. This administrative measure of replotting is called "enforcement of replotting," which is implemented according to the replotting plan (LRL article 86). The enforcement of replotting shall be carried out as soon as all the construction works of land readjustment finish (LRL article 103.2), and this shall be informed through a public announcement (LRL article 103.4). The replotted lands under the replotting plan shall be regarded as the original plots, and the rights related to the original plots having no replotted lands designated in the plan shall lapse on the day after the public announcement. Rights other than land ownership and easement are similarly treated (LRL article 104). The reserve lands designated in the replotting plan shall be incorporated by the implementing agency on the day following the public announcement of the enforcement of replotting (LRL article 104.11). The lands used for public facilities and the public facilities being created by the implementation agency shall revert to the government administrators of the public facilities (LRL articles 105 and 106). After the public announcement of the enforcement of replotting, the implementing agency must apply for or entrust the registrations relevant to the alteration of lands and buildings within the project area caused by the land readjustment project (LRL article 107).

Finally, the law provides penal regulations to land readjustment projects. In cases that the implementation agency is the private sector, any member of the implementation agency or the project board that accepts, demands or promises a bribe shall be sentenced to up to three years in prison, and if he or she conducts anything deemed dishonest or inconsistent with their duties and obligations, such member shall be sentenced to up to seven years in prison. In addition, if any member requests a third person to accept, demand or receive a bribe, such member shall be sentenced to up to three years in prison (LRL article 137). Any holder of rights who violates the requests made by the implementation agency or the project board, as well as members that fail to comply with their obligations, for example, one who provides false documentation of records and technical reports, shall also be subject to criminal penalties and payment of fines (LRL articles 138 to 146).

Table 1.1. Land Readjustment and the Law in Japan (as of June 2014)

Legal Content	Description
Urban planning tool (Objective of land readjustment)	Land readjustment means to alter the shape and conditions of plots and to install or improve public facilities in the city planning area in order to provide better public facilities and increase the usage of each plot (LRL article 2).
Relationship to local regulations	When the implementation agency is the private sector, the government examines if the proposed project area is suitable for urbanization, and is basically out of any urbanization control areas, in accordance with the city master plan (LRL articles 9, 21 and 51.9). When the implementation agency is the public sector, the project area shall be the area designated as a land readjustment project area according to the *City Planning Law* (LRL articles 3, 3.2 and 3.3; CPL article 7).
Implementation agencies (Both the public and private sectors)	Land readjustment implementation agencies can be divided in six categories: individuals; associations of landowners and leaseholders; land readjustment stock companies established by landowners; prefectural or municipal governments; the Ministry of Land, Infrastructure, Transport and Tourism; and the Urban Renaissance Agency and Corporations for Housing and Urban Development (LRL articles 3 to 3.4).
Major related concepts (Replotting, the principle of correspondence and transfer of rights)	The land readjustment law does not clearly define replotting, but it is taken for granted that it means the change of location, format and area of several plots of land to achieve the results proposed by a land readjustment project. The principle of correspondence means that the replot shall correspond to the original plot in terms of location, area, soil, water supply, land use, environment and other conditions (LRL article 89). Transfer of ownership rights means that the lands replotted under the replotting plan shall be regarded as the original plots (LRL article 104).
Rights holders' participation (Consensus building and minimum adhesion percentage)	In cases that the land readjustment project is carried out by the private sector, it is necessary to obtain consent of at least two thirds of all of the landowners and leaseholders respectively and, in this case, the sum of the areas of plots of those who consent to the project shall amount at least two thirds of the sum of the total areas of plots in the land readjustment project (LRL articles 18 and 51.6). In cases that the land readjustment project is carried out by the public sector, such requirement is not necessary because the project shall be implemented according to the city master plan.
Land contribution and cost recovery land	The area of a replot is smaller than the area of its original plot. This decreased area is called land contribution. Land contribution is used for additional surface of urban infrastructure and the reserve land. The land readjustment law does not clearly define land contribution but that this will happen is taken for granted since the purpose of land readjustment project is to install and improve public facilities (LRL article 2). Reserve land means a certain extent of land, which shall be left out of the replotting to appropriate profit from its sale to meet the land readjustment project expenses or for fulfilling the purposes prescribed in the project rules (LRL article 96).
Development restrictions until project completion	During the period from the public announcement regarding the beginning of the project until the project's completion, any alteration of physical conditions – land, construction, reconstruction, expansion of buildings and other structures – shall be restricted, unless subject to permission and prior approval from the government (LRL article 76).

Fair distribution of costs and benefits for urban development	The fair distribution of costs and benefits for urban development through a land readjustment project is achieved by the area or value of replots compared to their original ones through the replotting design. Each project establishes the rules of the replotting design and land evaluation method based on the *Land Readjustment Law* and its cabinet orders.
Penal regulations for bribes, dishonesty and violations	Any member of the association or implementation agency that accepts, demands or promises a bribe related to the project, shall be sentenced to up to three years of penal servitude, and if a person who conducts anything dishonest or does not carry out his duties as required shall be sentenced to up to seven years in prison (LRL article 137). Any holder of rights who violates the requests made by the implementation agency or the project board, as well as members that fail to comply with their obligations shall be subject to criminal penalties and payment of fines (LRL articles 138 to 146).

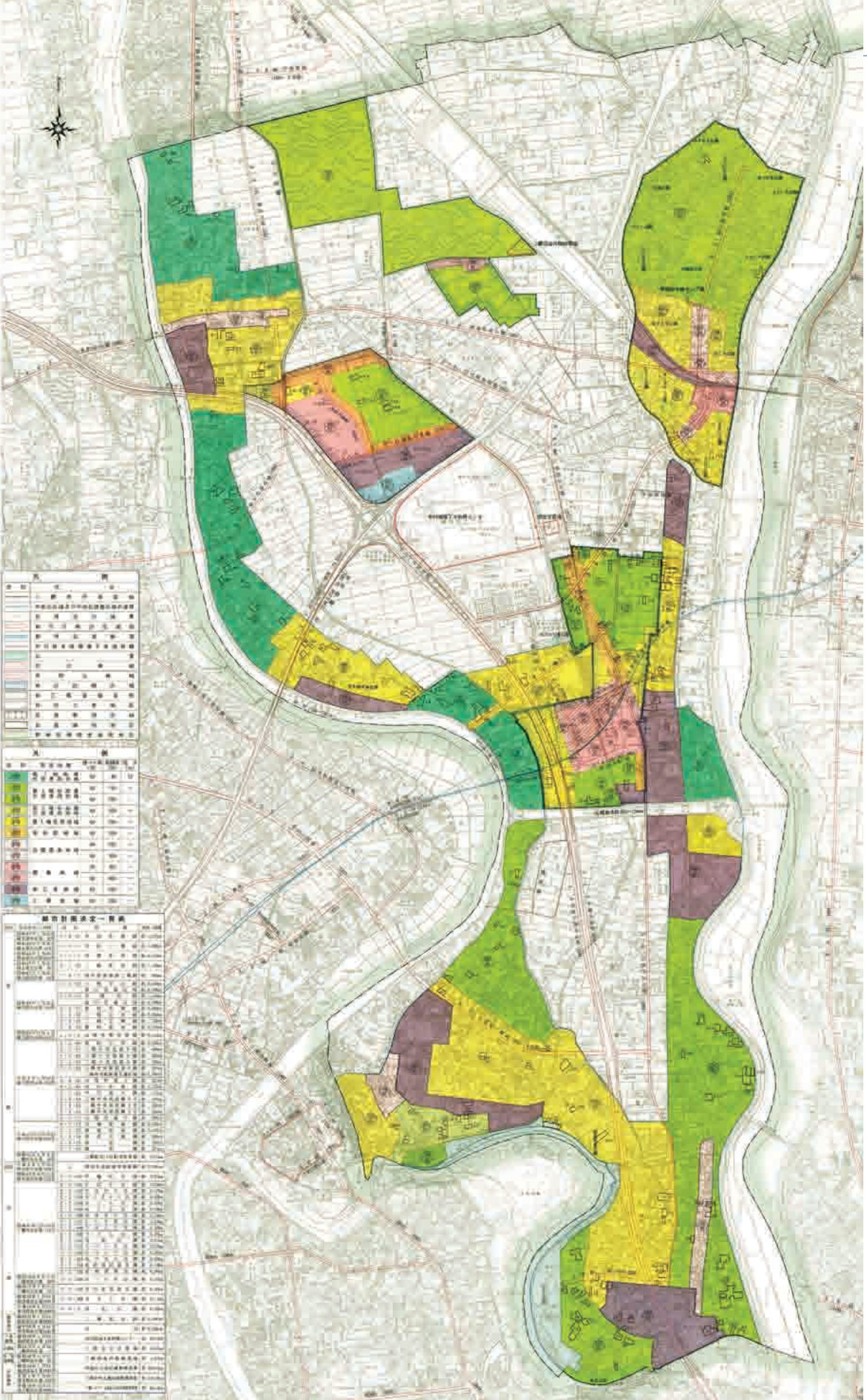
(Source: Felipe Francisco De Souza and Takeo Ochi based on the *Land Readjustment Law* of 1954).

The Japanese Procedures and Methodology for Land Readjustment

Felipe Francisco De Souza and Takeo Ochi

The application of land readjustment projects relies on the methodology and procedures established under the Japanese *Land Readjustment Law*. The legislation, as noted previously, established the description of land readjustment related concepts, such as replotting, reserve land, development restrictions, and the fair share of costs and benefits, among others. It also established the rights and duties for landowners, leaseholders, implementation agencies, and other third parties involved from the initial phase until project completion. We describe the Misato Chuo project as a case study to illustrate project implementation and financial planning for land readjustment projects in Japan.

Located in Saitama Prefecture, the Misato Chuo project was one of the locations, along with twenty others, where land readjustment was conducted to secure land for a new public transportation line – the Tsukuba Express – and to develop the area around its train stations. The new railway connects directly the metropolitan area of Tokyo, especially its central area, to the Tsukuba Science City, 50 kilometers towards the northeast. Predicting the impact that the new line would cause in the areas affected by the line construction, and considering its regional scale, land readjustment was chosen as the strategy to be used to coordinate the railway construction with land development, and to solve problems with land acquisition and limited public finances. Since 1998, the land readjustment project has been coordinated and implemented by the Urban



Renaissance Agency, a Japanese central government agency responsible for major Japanese urban development projects, and its team was responsible for the land survey, land appraisal evaluation and stakeholder coordination. The challenge for the project was to rearrange 114.8 hectares under 3,290 land plots, 925 land rights ownerships, and 790 existing buildings (see Figures 1.11-1.13).

▼ Figure 1.11. Satellite image of the Misato Chuo project area before the land readjustment project (2002)

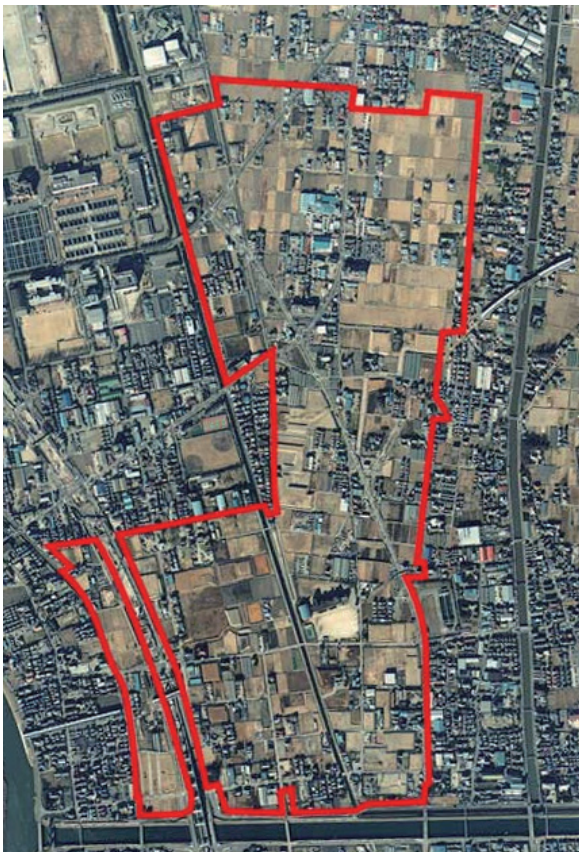


Figure 1.12. Cadastral ownership map of the Misato Chuo project area before its implementation ▲

◀ Figure 1.13. City Planning Map 1/20,000, with the delimitation of the land readjustment project

On the city planning map that includes the Misato Chuo project area, there are areas for urbanization promotion to be urbanized within a period from 5 to 10 years (colored, with existing and/or proposed uses); and areas where urbanization shall be controlled and not intensified (not colored), indicating the preservation of natural environment and agriculture. The map also includes the existing infrastructure, and any infrastructure proposals that need to be taken into account for further intervention possibilities. In this area, in addition to the sewage system, drainage, green areas and the residential and commercial land use that was proposed, the land readjustment project of Misato Chuo secured land necessary for the construction of the station and the railway line, attached to a new urban park.

Focusing on the financial planning and feasibility study for the Misato Chuo project, the first condition for its analysis was to establish a budget that could be approved by the Minister of Land, Infrastructure, Transport and Tourism, considering implementation expenditures and estimated revenues. Expenditure refers to all relevant costs: construction, removal and relocation of facilities, research and project development, and direct and indirect costs according to the specifics of the project. Revenues refer to all sources of funds for the project development: government subsidies – national, prefectural and local –, gains from the sale of reserve lands and other sources of investments. Table 1.2 shows the expenditure and revenue plan for the Misato Chuo project: 33% of all expenses came from (C1) constructions and (C3) infrastructure and soil preparation, and another one third came from (C2) removal and relocation costs; and revenues were divided into 41% from government subsidies and 57% from the sale of reserve lands. The construction costs of the Misato Chuo train station were not included in this calculation.

Table 1.2. Misato Chuo Land Readjustment Project: Expenditure and Revenue

Expenditure (million JP¥)		Revenue (million JP¥)	
Construction costs (C1)	8,918	National subsidies (NS)	11,192
Removal and relocation costs (C2)	19,242	Prefecture subsidies (PS)	9,307
Infrastructure and soil preparation (C3)	12,059	Municipal subsidies (MS)	4,850
Research and project costs (C4)	6,950	Revenue from the sale of reserve lands (R x e)	35,092
Miscellaneous and office costs (C5)	7,390		
Indemnity and interest (C6)	7,002	Other revenues (OS)	1,120
Total (T)	61,561	Total (T)	61,561

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

The second condition for financial planning and feasibility study was to establish a land evaluation system for all rights holders. Land evaluation has significant purposes: it is used to judge the contribution for reserve land, calculate compensation for loss in damage, calculate the replotting area, and calculate equity collection and payment. The equity is money to be collected and paid to clear imbalance for the replot value, if any. Besides the conventional system based on market value for land evaluation and real estate appraisal, the Japanese land readjustment uses three additional calculation methods: experience-based, zone value and street value evaluation. The street value is the most widely used today, and was first introduced by the Ministry of Construction (now the Ministry of Land, Infrastructure, Transport and Tourism) in 1950 as "The Standard for Calculation of Land Use Value" (宅地利用増進率算定基準 *takuchi riyō zōshin ritsu santei kijun*). The methodology was revised several times and, in 1978, became "The Standard for Land Evaluation in Land Readjustment" (区画整理土地評価基準

kukaku seiri tochi hyōkamotojun). This evaluation system has considerable advantages compared to the others: it allows the evaluation of large amounts of plots in a short period of time; the deviation in evaluation has been shown small; it is logical and scientific, which makes it easier to gain rights holders understanding; and it emphasizes acknowledgement of land prices before and after the project at the same time (Tamano 2005).

In the street value evaluation method, "the price per unit area of a plot facing a street with standard frontage and shape is assumed as the street value for a street. Plots are then evaluated based on this street value, with modifications made for the correlation of location with the street, shape and use conditions" (Tamano 2005, 11). The street value is composed normally by the sum of index figures evaluated separately; consisting of street, accessibility and land coefficients. The street coefficient gives a value according to the continuity, the degree of systematic production, and the condition of the road a plot faces (represented by road rank, road width, existence of sidewalks, pavement, street trees, parking lanes, slope and curves, among others). The accessibility coefficient gives value to the distance between the plot and the traffic and public facilities, like stations, parks and schools; and also, conversely, gas tanks, sewage treatment plants, graveyards, and other unwelcome facilities that are considered minus factors. The land coefficient gives value to the plot's features, such as scale, land use, public land ratio, street density, conditions of sunlight, ventilation and topography security, and installed infrastructure, such as water, sewage, electricity and gas supplies.

By using formulas and charts stating values for every coefficient already mentioned, the street value is converted into an index to be multiplied for each plot size according to its individual features; such as a corner plot, an ordinary plot, a through plot (a plot sandwiched between two streets), a flag-shaped plot, or an isolated plot. The evaluation of each plot "must be adjusted according to land market prices in the area, and judged by sales or by indices as the property-tax evaluation, national evaluation for succession tax, and publicly announced land prices" (Hayashi 1982, 111). In short, there is a numerical evaluation for every land parcel, a grading for every property, before the execution, to be compared with the graded property after the execution of the land readjustment project, and then the replotted plots will be adjusted according to the acquired benefits. In establishing the replotting plan, the implementation agency is legally required to obey the principle of correspondence, which is that the replotted land and the former land shall correspond as much as possible in terms of location, soil, water condition, land use, and environment, among other features.

After the evaluation of every land ownership and land use right according to the mentioned land evaluation method, the third condition for the financial planning and

feasibility study was to establish an overall contribution ratio from land in private ownership to increase the public area required for project implementation. In the case of the Misato Chuo project, within its 114.8 hectares, it was stipulated, according to the plan proposed, a public area increase from 14.0% (M) to 32.5% (N) (an 18.5% increase), proportionally compared to the reduction in private property from 86.0% to 67.5% (an 18.5% reduction). Included in the 67.5% private area after project implementation, 13.9% was earmarked for reserve lands (Table 1.3), targeting a revenue of JP¥ 35 billion to make the project financially feasible.

Table 1.3. Classification of Land Use Before and After the Project

Category	Before the Project		After the Project	
	Area (m^2)	(%)	Area (m^2)	(%)
Public areas				
Road system	82,285	7.2	267,461	23.3
Parks and green areas	12,329	1.1	40,812	3.6
Streams, rivers and water sources	65,752	5.7	65,294	5.7
Subtotal	160,366 (M)	14.0	373,567 (N)	32.5
Private areas				
Private properties	987,667 (A)	86.0	614,329 (E)	53.5
Reserve lands	-	0.0	160,137 (R)	13.9
Subtotal	987,667	86.0	774,466	67.5
Total (M + A) ǀ (N + E + R)	1,148,033	100,0	1,148,033	100.0

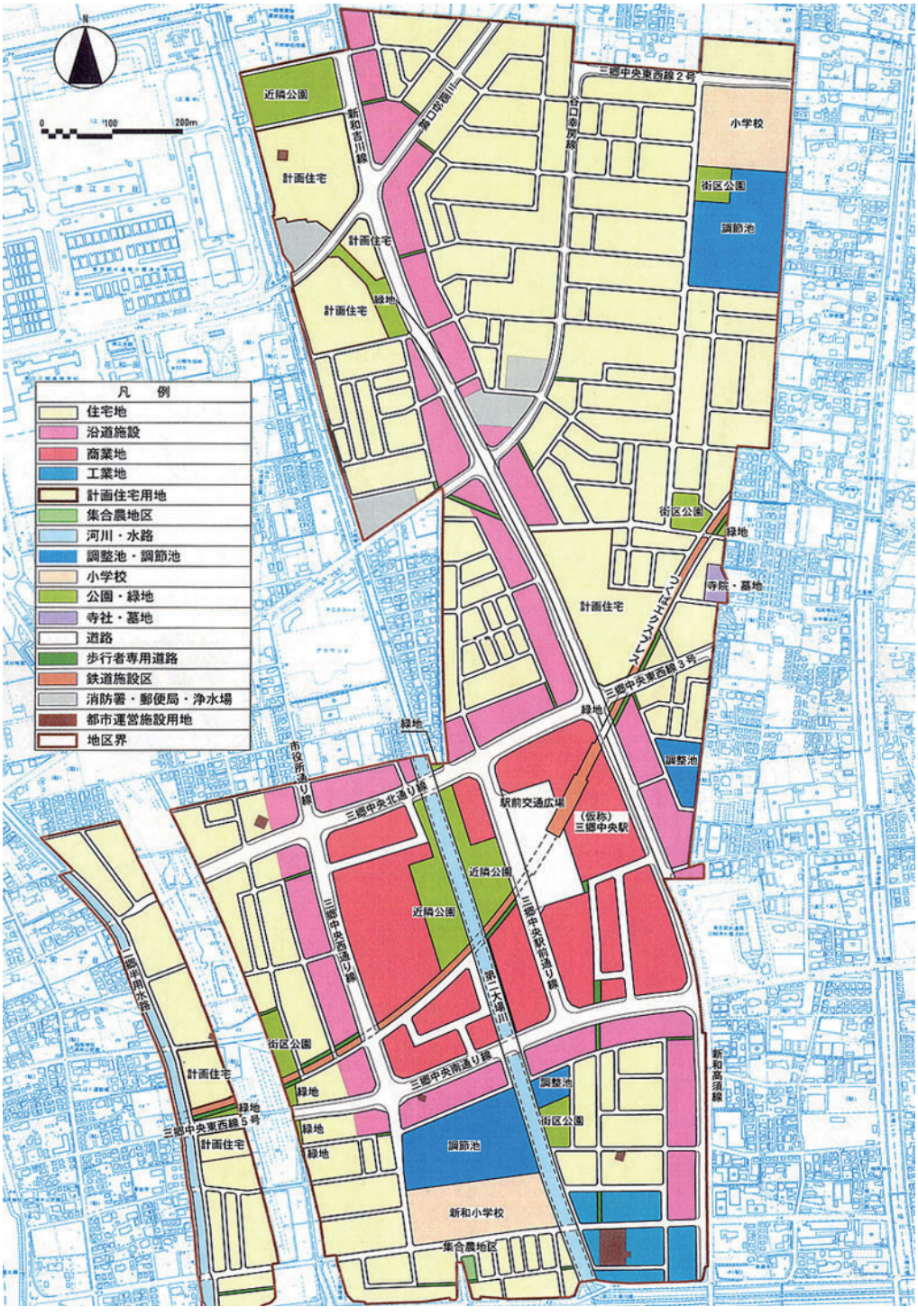
(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

Since a decrease in private property area will take place to allow for the improvement in public facilities and the establishment of reserve land to fund the project costs, the contribution ratio is the sum of land increase for public areas (P = N – M), plus the contribution for the establishment of reserve land (R), divided by the total area of private properties prior to the project implementation (A), and multiplied by 100 (or percentage). Table 1.4 shows the calculation of the contribution ratio for the Misato Chuo project. The total contribution ratio is 37.8%. This ratio is an average contribution of all the land parcels, which will be equalized – may increase or decrease – when an individual land parcel evaluation is conducted according to the original asset relationship with the previous road, infrastructure, and public facilities conditions, and the posterior characteristic of the plot after the replotting plan (see Figure 1.14) according to the street evaluation method previously described.

Table 1.4. Land Contribution Ratio Calculation

Private Properties		Contribution			Contribution Ratio		
Before the Project (A)	After the Project (E = A - P - R)	Increase in Public Areas (P = N - M)	Reserve Land (R)	Total (P + R)	Public Areas (P / A)	Reserve Land (R / A)	Total d = ((P+R)/A)
987,667 m^2	614,329 m^2	213,201 m^2	160,137 m^2	373,338 m^2	21.6%	16.2%	37.8%

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).



▲ Figure 1.14. Land use plan, after the land readjustment development

After determining the average contribution ratio, an analysis and valuation of the properties' net asset value is estimated. The proportional ratio (Pr) is defined as the comparison between the previous and posterior land values, and the previous and posterior area of the private properties, excluding reserve land. For instance, if the contribution ratio (d) is 33.3%, the value per square meter is required to increase by 50% (land value increase ratio (y) = 1.5) to maintain the equal balance of values between previous land plot value and posterior replot value (in this case the proportional ratio (Pr) is 1):

$$\text{Equal balance: The proportional ratio } Pr = (1 - d)\, y = (1 - 33.3\%) \bullet 1.5 = 1$$

Table 1.5 shows that by dividing the estimated value after the project (e) by the value per square meter before the project (a) we will estimate the land value increase ratio (y = previous land price divided by posterior land price). In case of the Misato Chuo project, JP¥ 151,000 per square meter was the average assessed land price before the project implementation; estimated to rise to JP¥ 295,000 per square meter, an increase of 95.4% (y = 1.954) after project completion. If we divide the total value of private properties after the project (V′ = area of private land without reserve land (E) multiplied by the estimated unit value (e)) by the total value of private properties before the project (V = area of private land (A) multiplied by the unit value (a) before implementation), we reach a real appreciation of the value of private properties brought about by the project, which is called the proportional ratio (Pr). The Pr was 1.215 in this case (calculated for private land without reserve land).

$$Pr = V' / V = (E \bullet e)/(A \bullet a) = (1 - d)\, y = (1 - 37.8\%) \bullet 1.954 = 1.215$$

Table 1.5. Increase Ratio and Proportional Ratio Calculation

Private Properties Before the Project (A)	Price per m² Before the Project (a)	Total Value Before the Project (V = A • a)	Whole Replots After the Project (E)	Price per m² After the Project (e)	Total Value After the Project Without Reserve Land (V′ = E • e)	Land Value Increase Ratio (y = e / a)	Proportional Ratio (Pr = V′/ V)
987,677 m²	¥ 151,000/m²	¥ 149,139,227,000	614,329 m²	¥ 295,000/m²	¥ 181,227,050,000	1.954	1.215

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

The proportional ratio (Pr) is used to calculate the area of each individual replotted lot. Pr is used as a constant (common for all the land plots). The following formula determines the relationship between value of an individual plot before the project and value of its replot after the project:

Proportional Ratio Calculation

$Pr \bullet Ai \bullet ai = Ei \bullet ei$ (Pr is the same for all the land plots and replots)

When Pr is calculated, the area of an arbitrary individual replot (i) can be calculated as follows:

$$Ei = \frac{Pr \bullet Ai \bullet ai}{ei}$$

Pr: the proportional ratio of total private-plot value
Ai: area of an individual plot (i) before the project (m^2)
ai: unit value of an individual plot (i) before the project (¥/m^2)
Ei: area of an individual replotted plot (i) (m^2)
ei: unit value of an individual replotted plot (i) (¥/m^2)

The final analysis made for the Misato Chuo land readjustment project was the level of sharing of project costs through contributions for reserve land. Reserve land is the resource for project cost recovery, and landowners share the project costs through the contribution of their land for reserve land. The weight of the landowners' share of costs is expressed as r = R/Rmax; where R is the acreage of the reserve land that is secured in a project, while Rmax is the maximum acreage of reserve land that could be secured theoretically. The latter means that the total value of all the replots is equal to the total value of all the private land before the project (in which, theoretically, a landowner gets no profit from his land). The "r" (R/Rmax), as calculated in Table 1.6, shows how much of the costs and the benefits of the project landowners share: if "r" is 100%, it means that landowners' share of the project costs is quite heavy, but if "r" is 0% (there is no reserve land), landowners will receive most of the development benefits. In Japan, "r" is used as an indicator of the necessity for government financial support (subsidies). If R/Rmax calculated *without* subsidies is more than 1 (or 100%), the government will recognize the necessity for subsidies. If a project receives a government subsidy, "R" decreases, so, "r" also decreases. The condition of the provision of subsidies from the central government is that R/Rmax calculated with subsidies needs to be more than 50% in principle. In the case of the Misato Chuo project, the "r" was calculated at 59.55% considering an increase in land value, in average, from JP¥ 151,000 to JP¥ 295,000.

Table 1.6. Reserve Land and the Share of Costs and Benefits

Total Value Before the Project (V = A • a)	Total Value After the Project With Reserve Land (Ve = (E + R) • e)	Increase of Total Value (ΔV = Ve – V)	Price per m^2 After the Project (e)	Reserve Land		r = R/Rmax
				Maximum Acreage of Reserve Land (R max = ΔV/e)	Acreage of Reserve Land (R)	
¥149,139,227,000	¥228,467,470,000	¥79,328,243,000	¥295,000 /m^2	268,909 m^2	160,137 m^2	59.55%

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

Rmax is the acreage of the reserve land when the total value of all the replots is equal to the total value of all the private land before the project.

So,

$$V = Ve - (Rmax \bullet e)$$

Therefore,

$$Rmax = \frac{(Ve - V)}{e} = \frac{\Delta V}{e}$$

After drafting the project plan and the financial plan, consensus building was performed to implement the project. Then, the draft project plan with the financial plan was submitted to the Minister of Land, Infrastructure, Transport and Tourism. The plan included the draft of the implementation ordinance stipulating project costs sharing, the formation of a land readjustment council, the appointment of land evaluation advisors, and the equity estimation, among other features. The draft of the project plan and the implementation ordinance were presented for public inspection. According to the *Land Readjustment Law*, written complaints can be submitted to the minister within a two-week period during the project's time on public inspection through the prefectural governor. The minister must order the implementing agency to modify the implementation ordinance or project plan if the objections are found to be valid after examination, and shall notify the submitters that the objections were rejected if the objections are found to be invalid. In the Misato Chuo project, no written complaints were submitted.

After the project plan and implementation ordinance were approved, the land readjustment council was established. Representatives of landowners and leaseholders elected among themselves made up the council, and other skilled and experienced persons were appointed by the implementation agency. The council was responsible for the replotting plan, designation of the provisional replotting proposals, and the designation of reserve lands. The council worked for the dialogue between land rights holders and the implementation agency. To undertake construction works, the implementation agency designated the provisional replotting so that the landowners and leaseholders were required to stop utilizing their original land, when necessary for construction works. For the provisional replotting, the implementation agency formulated a draft replotting plan by listening to the opinions of the land readjustment council and land evaluation advisors, and negotiated the draft proposals with the rights holders through individual explanations about the relationship between the new and the old property locations, the new shape of the replots, and the reasons why he/she needed to bear his/her contribution ratio. The implementation agency had to deal with

complaints and grievances of the rights holders about the draft replotting plan.

In general, complaints in land readjustment projects are commonly related to equity issues. In some cases, landowners will require that former land should receive better treatment in conversion calculations than other lands: "some owners will have flat, easy-to-develop land that already has high value for farming. Others will have hilly, rocky, or marshy land more costly to develop, and generally of less agricultural value" (Doebele 1982, 6). In other cases, complaints will be mainly related to the land use designation after project completion: "each of these designations carries a different per square meter value. A plot near the center of a large project and designated commercial area may have many times the value per square meter of a low-density residential plot on the periphery of the project" (Doebele 1982, 6). And, in most cases, landowners will complain about difficulties and loss of income during the construction period: "some land plots will be immediately impacted (particularly those falling in the beds of planned streets or on the sites of utility plants and lines), while other land will be much less affected, permitting its use for agricultural income until the final stages of the project" (Doebele 1982, 6).

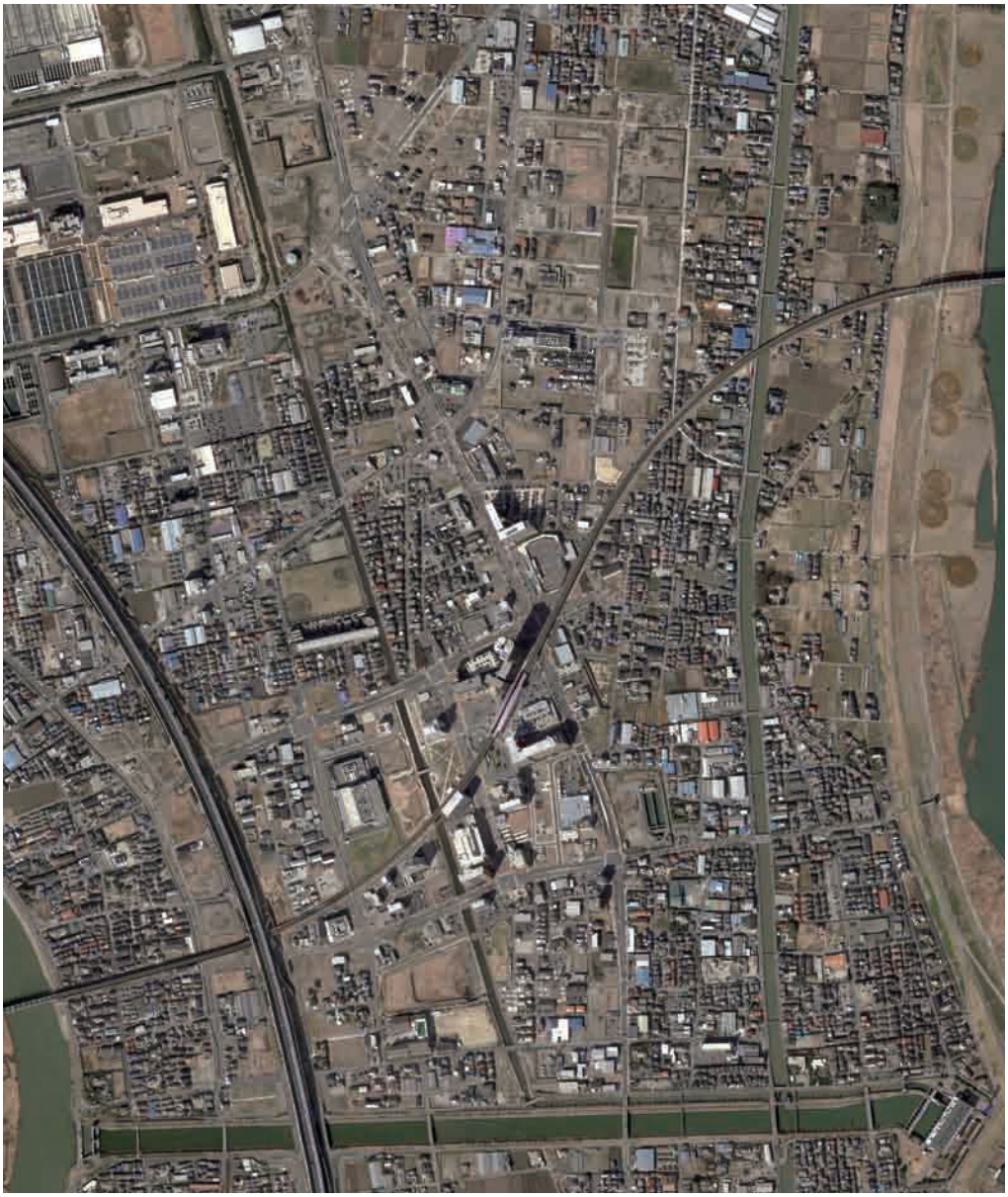
Lastly, after the construction works, the enforcement of replotting, which is an administrative measure in Japan, was carried out according to the replotting plan approved by the prefectural governor. So, the implementation agency drafted the final replotting plan based on the provisional replotting plan, and presented it for public inspection for two weeks before submitting it to the governor for final approval. According to Article 88 of the *Land Readjustment Law*, the persons concerned with the replotting plan could give their written objections to the implementation agency during the inspection period. In the case of written objections, the implementing agency shall examine them and: (i) if it deems that the objections should be adopted, the implementing agency shall make the necessary modification to the replotting plan, and (ii) if the objections shall not be adopted, the implementing agency shall notify this decision to those who submitted the written objections. When the implementing agency has drafted the replotting plan, and examined the submitted written objections, it is required to consult with the land readjustment council. After the enforcement of replotting and the end of the construction works, the new replots will be registered and the equity will be paid or collected to clear the imbalance of replots.

After these processes, the Misato Chuo project, whose project plan was approved in 1998, is expected to be completed by 2018 (see Figures 1.15-1.19).

▲ Figure 1.15 (A-D). New public facilities implemented by the Misato Chuo land readjustment project

▼ Figure 1.16. Aerial image of the region of the Misato Chuo project during its implementation

Figure 1.17. Satellite image of the Misato Chuo project area during the land readjustment project (2004) ▼



▲ Figure 1.18. Satellite image of the Misato Chuo project area during the land readjustment project (2012)

Figure 1.19. Panorama of the Misato Chuo project area during the land readjustment project (2013) ▼

The Successful Extensive Use of Land Readjustment in Japan

Felipe Francisco De Souza

Widely applied throughout the country, land readjustment is known as the "mother of urban planning" in Japan (都市計画の母 *toshikeikaku no haha*). Several project modalities have been improved over the past century, transforming 10,909 areas covering 329,248 hectares (Table 1.7) as of March 2013, which represents approximately one third of the country's urban area. These figures include projects completed even before when the *Land Readjustment Law* of 1954 was enacted, or more precisely, 1,285 projects completed before 1954.

Table 1.7. Achievements of Land Readjustment Projects in Japan (as of March 2013)

Category / Implementer		Completed		Under Implementation	
		Number of Projects	Project Area (hectares)	Number of Projects	Project Area (hectares)
Under the former *Urban Planning Law*		1,285	67,862	-	-
Under the 1954 *Land Readjustment Law*		9,624	261,386	928	36,296
Public sector	Local government	2,244	102,012	504	20,925
	Local government ordered by the MLIT (*)	83	4,150	-	-
	Government corporations	385	26,969	35	4,462
	Sub-total	2,712	133,131	539	25,387
Private sector	Individual	1,293	17,512	51	890
	Land readjustment association	5,618	110,738	337	10,016
	Land readjustment corporation	1	5	1	3
	Sub-total	6,912	128,255	389	10,909
Total		10,909	329,248	928	36,296

(*) The Minister of Land, Infrastructure, Transport and Tourism shall order a prefectural or municipal government to implement land readjustment projects, which are urgent due to disasters or other reasons of crucial national interest.

(Source: Urban Regeneration and Land Readjustment Association of Japan 2013).

The origin of land readjustment in Japan refers to the mid-1870s, when the method began to be drafted for the consolidation of farms, just as in Germany, and for the reconstruction of Tokyo after the Great Fire of 1872. Its first formal legislation was passed in 1919 in the former *City Planning Law* of Japan. Until then, projects were adapted with the rural mechanism approved by the former *Arable Land Readjustment Act* of 1899. The law of 1919 extended the system established by the law of 1899 to urban areas, and the effectiveness of its application was validated in the approval of

the *Special City Planning Law* of 1923. This law was promulgated in response to the Great Kanto Earthquake, which devastated Tokyo and Yokohama in that year. In 1946, after the destruction of the major cities of Japan during World War II, another *Special City Planning Law* was promulgated, this time focusing on the urgent need for reconstruction of the country.

After World War II, with a huge accumulation of experience, land readjustment became the target of a national act, the *Land Readjustment Law* of 1954. In the 1960s, during the time of intense population migration to urban areas, related to the beginning of the economic growth of Japan, land readjustment was used as a strong instrument for the prevention, control and remediation of urban sprawl, providing urban infrastructure in the peripheral urban areas. As a consequence of the great economic growth and the rapid industrialization process, various kinds of urban and environmental problems started to occur in major Japanese cities. In 1968, the *City Planning Law* Nº 100 was promulgated, designating land readjustment as a legal instrument for all scales of urban development.

So, what would be the reasons for such extensive use of this urban development tool in Japan?

Three relevant aspects may help to answer this question. The first is the fact that it was 1875 when the Japanese first land expropriation regulation was established, as the *Regulations for Purchase Procedures of Land for Public Use*. Back then, expropriation faced several shortcomings and lacked the legitimacy necessary to purchase irregular plots and to change plot positions and street patterns fast and efficiently enough. On the contrary, land readjustment offered a ready technical tool that could combine public works and town planning objectives, without considerable burden for the public purse (Siman 1990). Therefore, changing from one solution to the other paved the path for the application of land readjustment to different situations, reinforcing it – project after project – as a flexible instrument until its ultimate legal legitimacy in 1954.

A second relevant aspect is the country's historical context of difficulties, such as spatial constraints, lack of resources, natural disasters and wars, followed by major events of destruction. All these established an institutional responsibility by which the country would sacrifice whatever was necessary to recover (Barros 1988). In this sense, the strong Japanese bureaucracy and its reinforced structure successfully promoted land readjustment at the local level, within the country's centralized system of urban planning, to be the solution for recovery processes (Ishida 2000). In Japan, official government agencies attract the most talented graduates of the best universities, and the

positions of higher-level officials in the ministries have been the most prestigious in the country (Johnson 1982). The Japanese bureaucracy, therefore, reinforces its organizational structure, and the effectiveness of the State comes from the complexity and stability of its interaction with several stakeholders. This human resources' structure seems to enable Japan's collective actions and problems solving, helping the market to find solutions that would otherwise be difficult to achieve, even within the organized Japanese system (Evans 1989; 1992).

And a third important aspect of the extensive use of land readjustment in Japan refers to the Japanese ability to generate consensus to design and implement land readjustment projects. On the one hand, according to some scholars (Nagamine 1986; Nishiyama 1992; 1995), the Japanese tradition of participation, consensual decision-making and group mobilization made the extensive use of the instrument possible; moreover, the Japanese would be less individualistic and more cooperative than the citizens of Western countries. However, on the other hand, refuting such arguments, Andre Sorensen (2007) demonstrated that opposition and lack of consensus to operate land readjustment in Japan may be common, and not the exception. The scholar has provided his particular own view to explain the extensive use of land readjustment in Japan as follows:

a. First, the weak development control regulations, fragmented land ownership patterns, illiquid land markets, and limited amounts of land in public ownership. "It seems unrealistic to expect that local governments or other actors will be willing to pursue land readjustment so tenaciously in a country in which simpler methods for achieving adequate urban infrastructure, such as the [North] American system of subdivision control, are available. Similarly, where Japanese landowners do agree to land readjustment projects, a major incentive is that they are unlikely to gain such basic urban infrastructures as sewers, sidewalks, and local parks without them" (Sorensen 2007, 110-111);

b. Second, the strong incentives and/or effective restrictions on development without land readjustment, as well as able and numerous organizers. "The flexible *senbiki* policy[2] allowed planners to use the threat of downzoning to persuade landowners to engage in a process of land readjustment organizing" (Sorensen 2007, 108). In some cases, the expected results on development restrictions were successful, but in some others opposition emerged, as in case of Saitama Prefecture, during the 1980s: "even in the fifteen areas that had escaped downzoning through the establishment of a committee of local landowners to promote land readjustment, two thirds could not be converted to land readjustment projects, and in six of them opposition movements emerged" (Sorensen 2007, 109); and

c. Third, the major commitment of time and energy from government planning officers to overcome strong opposition movements. "Unless a substantial majority of landowners supports the project (the rule thumb is 80%), local government is seldom willing to go ahead. This is significant because the government may legally proceed without landowner consent if the project is initiated as a local government project […] but based on the bitter experience in the 1960s and 1970s, the implementation problems can be so severe when local landowners are opposed that is not worth pressing ahead without significant support" (Sorensen 2007, 108-109).

Sorensen's findings were mainly focused on his case studies in Saitama Prefecture and the Tokyo metropolitan area. Other authors have their own perspectives on the successful extensive use of land readjustment in Japan. Kiyotaka Hayashi (1982) attributed such successes to a separate set of four reasons and their Japanese roots cultivated from the feudal age. According to him, the first reason for the successful extensive use of land readjustment was that "[Japanese] people were forced to obey the government and knew that obedience was essential for self-defense" (Hayashi 1982, 107). The long domination of the Japanese military government from the 17th century to the 19th century helped to develop a characteristic social discipline important for the initial political acceptance of land readjustment. The second reason was the strong attachment to land of the Japanese people. Somehow, there is an historical principle that people are completely dependent on agricultural land for family welfare, which makes difficult to treat land as a mere commodity and easily expropriatable. The third reason was that Nagoya city – Hayashi used Nagoya, his hometown, as case study to elucidate all these reasons – "has received less national investment than other large cities in Japan, forcing the city to develop urban areas at its own expense" (Hayashi 1982, 107). With the strong and centralized Japanese State lending its efforts, from time to time, to specific goals – such as the promotion of specific infrastructure to promote industrialization or specific reconstruction projects for Tokyo capital city – the potentiality of land readjustment spread to other local governments to develop urban areas. And the fourth reason was that the Japanese farm flat plot was well suited for land readjustment. During the rapid industrial revolution and urban expansion towards agricultural areas, even with the limited and small-scale construction techniques known at that time, land readjustment was suited to the agricultural land flat characteristic in Japan.

Different authors – and different case studies – have produced different opinions on the successful extensive use of land readjustment in Japan. Our contribution to this debate relies on two other reasons. The first seems to be a sort of Japanese pragmatic planning culture – developed throughout the years – combined with a more technical and specialized project-driven system. Therefore, land readjustment is an important

engine of this system because it encompasses important aspects of the Japanese social life: (i) it is heavily dependent on social mobilization, which is the foundation of the Japanese nation to overcome important problems throughout its history; and (ii) it contains an answer to unearned increments due to urban improvements that not only could have led to social injustice, but to a heavier burden on the Japanese centralized State and, consequently, to a lack of resources to promote other important major goals. Somehow, Japan could not find a better answer to return the collection of betterment to its mobilized society in the form of basic infrastructure – leaving important resources to other major goals of the State – other than land readjustment.

The second reason is the particularity that land readjustment in Japan is not project contract-based, but is an administrative measure guided by the Japanese *Administrative Complaint Reinvestigation Act* (行政不服審査法 *gyōsei fufuku shinsa hō*) Nº 160 of 1962. In a regular project relying on a contract, two or more parties create legally binding obligations between them, on which actions can be taken if obligations are not met. In other words, a single party that disagrees with some particularity of – or entirely – its implementation can take the project to the Court. In Japan, a single party, or landowner, can disagree entirely or partially with the project – he is not in favor of his contribution ratio or the place of his plot after the replotting, for instance – but he cannot stop the project or take it immediately to the Court as in the contract-based case. In a situation that a single project – extremely complex and difficult to implement – gathers over 1,000 rights holders to build consensus, a single landowner cannot generate a transitional provision to paralyze or stop its implementation. Of course, conflicts are inevitable, making the role of mediators inside implementation agencies quite a key factor but, if legal actions are taken against the project – beside previous administrative attempts to build solutions and positive results – the project is still valid and its implementation can continue until the legal action is judged under strict rules and procedures. And these strict rules and procedures are considered lengthy processes that weaken the landowner's potential opposition and strengthen their disposition to obtain consensus and best results as possible.

Therefore, we cannot neglect the centrality of land readjustment in Japan and the efforts of the Japanese governments and the civil society to overcome problems to execute successful projects. So far, there is no single answer on the reasons why this urban development instrument has had such successful and extensive use in Japan, but it is fair to attest that much can be learned from the Japanese experience, from the legislative to the methodology approach, and from the landowner's reactions to the project's completion. Chapter 2 will present a detailed historic overview of land readjustment in Japan by Norihiko Yanase, followed by Chapter 3 with an extensive presentation of international case studies. And lastly, Chapter 4 will discuss Japan's endeavors to

achieve the global dissemination of land readjustment, written by Takeo Ochi.

Endnotes

[1] According to some Japanese scholars, including Ikuo Shimomura (1999), the principle of correspondence between the original land and the replotted one is highly controversial in Japan. The concept states that all characteristics should be maintained through a comprehensive evaluation of all land conditions before the project. However, the characteristics to be maintained and how to correspond to them are not stipulated in the law and regulations. Although there have been many experiences and Court decisions regarding the characteristics of the principle of correspondence, they are still ambiguous.

[2] In 1980, the Ministry of Construction of Japan issued a notice to local governments relating to the change of zoning designation between "urbanization promotion areas" (UPA) (where land development was to be promoted), and "urbanization control areas" (UCA) (where land development was, in theory, not to be allowed). This system became known as *senbiki* (線引き *sen biki*), or "drawing the line" between town and country, which was literally a boundary, intended to prevent urban sprawl (Sorensen 2007). However, flexible *senbiki* made it possible to change a UPA where plot of farmland exists to a UCA (downzoning) on the premise that this area would be changed to a UPA again when the implementation of a land readjustment project in an area is ensured. This idea was born in Saitama Prefecture.

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Chapter 2

Land Readjustment and Post-Disaster Reconstruction in Japan

Norihiko Yanase

To begin the chapter, it is important to start by defining key terms. "Rehabilitation" (復旧 *fukkyu*) means "the disaster response activity that restores the pre-disaster conditions"[1], and "reconstruction" (復興 *fukko*) means "the activity to revitalize and rebuild the disaster-stricken communities for a better livelihood and living environment than they were before." In other words, reconstruction is the act that aims to overcome vulnerabilities and rebuild disaster-resilient communities to the extent that a repeat of similar damage can be prevented (Hayashi 2010). After a disaster occurs, whether in the East or West, people aim to reconstruct more resilient and stronger disaster-stricken communities, rather than just try to rehabilitate them.

Three major factors necessary for recovery from natural disasters are: (i) "livelihood restoration," which provides basic daily necessities and emergency shelters for those who have lost their families and assets, and are facing difficulties in everyday lives ; (ii) "economic reconstruction," which creates new and/or temporary jobs for those who lost their jobs to help them earn a living; and (iii) "reconstruction of affected areas" which must be conducted in conjunction with the above two activities.

A driving force behind the post-disaster reconstruction is land readjustment. Some of the oldest known examples of the post-disaster reconstruction are Osaka and Edo (currently known as Tokyo), i.e. the big cities affected by wars and great fires in the early 17th century. Records exist that detail urban development through the appointment of a person in charge of reconstruction, the expansion of roads, and the accompanying changes in land ownership. This method was also applied during the reconstruction of Tokyo after the Great Fire in 1872.

In the West, after the Great Fire of London in 1666, the famous architect Sir Christopher

Wren attempted to reconstruct the fire-affected city through land readjustment, but it was a failure, since no consensus for the land readjustment was reached among the residents. However, following the Great Fire of Hamburg in 1842, a law concerning the reconstruction of the fire-affected areas was enacted. The law centered on zone condemnation[2] and had some of the characteristics of land readjustment.

Why is land readjustment, or a method that exchanges and consolidates ownerships to land parcels, useful for reconstruction following disasters? During post-disaster urban development, it is quite reasonable for the authorities to plan, for instance, wide lane roads and/or large parks to serve as fire breaks. However, for the disaster-affected people who have lost most of their assets acquired over many years, the only asset left is land. Therefore, they may offer stronger resistance to the authority's attempt to purchase their land than they otherwise would, and infrastructure development through land purchase could be extremely difficult. This is why land readjustment may be used for post-disaster reconstruction, since consensus is relatively easily reached (though it is never easy).

From Arable Land Readjustment to Land Readjustment

It is well known that land readjustment evolved from arable land readjustment. The former *Arable Land Readjustment Act* enacted in 1899 institutionalized an "enforcement of replotting" system, which involved the transfer of ownership to new parcels in exchange for the former parcels and the land registration is also revised according to this ownership transfer. It could be said that this formed a model for land readjustment based on administrative measures. Nevertheless, there were more institutional reforms before arable land readjustment became a tool for urban development and post-disaster reconstruction.

The objective of arable land readjustment was to improve productivity by consolidating scattered, irregularly shaped fields into areas with regular shapes while simultaneously developing irrigation canals and farm roads. Arable land readjustment was a scheme conducted by landowners of their own accord. Note, however, that those who owned land located within the designated "project area" who objected to the project were forced to comply with the plan for replotting after the required legal formalities had been undertaken (this is called "enforcement of replotting"). If replotting of the project area were not determined by the enforcement of replotting, only one opponent

would be enough to put an end to the project. In other words, replotting without an enforcement order, by administrative measure, would be nothing more than a voluntary exchange of land parcels between parties concerned. Which is to say, if a person who obtained the land by purchase or inheritance refused to accept the replotting plan previously agreed on by the former owner, the project would be back to square one.

Arable land readjustment commenced to modernize agriculture and was used in the industrial revolution era in the early 20th century for housing land development in the suburbs of Tokyo and Osaka where rapid urbanization had occurred (Yanase 2011). Although planning standards in those days were not sufficient to develop housing sites[3], the technical levels of planning were improved to contribute to the development of good residential areas in urban areas of Japan. This happened during the Taisho and early Showa periods (approximately between 1910 and 1930), before the time of motorization started in earnest, while influenced by the concept of garden cities.

Many arable land readjustment projects were conducted in large cities in Japan, such as Tokyo, Osaka (Matsuura 2011), and Nagoya (Sasaki 2011), leading to the development of the current high class residential areas, such as Denen-chofu in Tokyo, Tezukayama in Osaka and Yagoto-chiku in Nagoya. Based on the development of these housing sites, when the former *City Planning Act* was enforced in 1919, a land readjustment scheme started to be regarded as a tool for urban planning. Thus, the *Arable Land Readjustment Act* was applied to a series of operational procedures such as the approval of land readjustment projects, including designs and replotting.

That was a time when urbanization rapidly progressed and people continued to migrate from rural to urban areas, creating some small urban slums. The *Urban Building Law*, or the predecessor of the *Building Standards Act*, was also enforced at the same time as the former *City Planning Act*, thus providing a legal framework to regulate buildings. However, many urban residents were poor and public transport in urban areas was in poor condition, and even though land use restrictions as "use districts" were designated to avoid mixed land uses, i.e. separating industrial areas and residential areas, in reality, it was too difficult to achieve the separation of home and work. As a result, the two most realistic options for urban planning tools at the time were building restrictions through the creation of major road development plans and land readjustment in urban planning project areas. Some planners praised the method, saying, "Land readjustment is the mother of urban planning."

But the *Arable Land Readjustment Act* did not allow land plots with buildings to be included in a project area. Or more precisely, the scheme was not expected to be applied to urban areas. Nevertheless, Article 13 of the former *City Planning Act* stipulated that

in case of emergency, such as post-disaster rehabilitation, land readjustment shall be compulsorily carried out, not by following procedures for arable land readjustment, but in compliance with the order for enforcement of the former *City Planning Act*[4].

Reconstruction Following the Great Kanto Earthquake and Land Readjustment

In 1921, the first land readjustment projects were carried out in Tokyo city based on the former *City Planning Act*, following the Great Fires in Shinjuku and Asakusa, which burned 113 hectares. (Please note that Tokyo city (*shi*) was merged with Tokyo prefecture (*fu*) to form the Metropolis of Tokyo in 1943.)

More than 4,300 hectares of land were burned in Tokyo city and Yokohama city in total by the Great Kanto Earthquake in 1923. The government immediately established the "Reconstruction Board," and decided to implement a reconstruction project using land readjustment. Then, the former *Special City Planning Law*[5] was enacted and, under this law, various frameworks were created to conduct land readjustment in urban areas. The most noticeable one stipulated a contribution of up to 10% of parcels by landowners without compensation, and compensation payment for the losses exceeding the afore-mentioned level. In addition, a "Land Readjustment Committee" and a "Compensation Review Board" were established to build consensus regarding the project. The law also stipulated "replotting planned areas," which provided an institutional framework to keep consistency between landownership and construction works such as building relocation and public facility construction occurring in the project area. This idea of the replotting planning area led to the provisional replotting designation system to be created at a later time.

Efforts were also made to improve the technical aspects of land readjustment. Land assessment methods based on the price of land adjoining a major road (the assessment method by street value) was introduced to assess large areas of land in a short period of time, and to assess each land parcel correction factors developed in Cleveland, Ohio, USA were introduced for the first time in Japan. Thus, the readjustment of approximately 3,500 hectares of land in Tokyo city and Yokohama city was completed in a short period of time by 1930. Consequently, after the Kanto Earthquake, Tokyo city's road density was increased from 11% in the previous year to 25%, which compared favorably to those in London, Paris, and Berlin, or advanced countries' capitals at the time. Fifty-five parks of varying sizes were developed totaling 42 hectares of land in Tokyo,

increasing the ratio of park areas relative to the whole city area to 3.6%. Truly, the imperial capital of Tokyo city was "reconstructed," and, in fact, the land contribution average ratio was 15% for public facilities. The former *Special City Planning Law* was abolished in 1941.

Postwar Reconstruction and Land Readjustment

As of August 1945 when Japan was defeated in the World War II, 215 cities with a total land area of 64,500 hectares had been damaged. Most of the cities – except the historic cities of Kyoto and Nara – were burned down by aerial bombings by the US Army air force. In the following year, 115 cities (63,153 hectares in total) were designated as war-damaged cities. The number of deaths and the severity of damages were unprecedented in Hiroshima and Nagasaki, where atomic bombs were dropped, and in Tokyo, where aerial bombings were repeated due to its relevance as the capital of Japan and the center of its industries. Nevertheless, the government was absolutely determined to reconstruct the land, as seen by the establishment of a "War Damage Rehabilitation Board" in November and the cabinet decision on the "Basic Policy of War-Damaged Area Reconstruction Plans" on December 30. The objective of this basic policy was land readjustment.

In September 1946, the *Special City Planning Law* was again stipulated and promulgated (and later abolished in April 1956). The law was generally based on the former *Special City Planning Law*. However, compared to the previous one, the new law placed more focus on land readjustment implemented by prefectural governments and municipalities based on the central government's order in existing urban areas. Regarding the designation of planned replots, the law stipulated the extent and period of the rights to use or benefit from land in the period between its designation and the enforcement of replotting. Thus, more considerations were given to the protection of land rights during the project implementation, compared to the provisions of the previous law. In addition, detailed revisions were made to the law to include the provisions for the non-allocation of replotted land upon the consent of the right holder, the size optimization of excessively small housing land, and installment payments for equity. In addition, the responsibilities and member selection process concerning the "Land Readjustment Committee" and "Compensation Review Board" were stipulated in the enforcement orders and regulations, creating a legal framework similar to the current *Land Readjustment Law*.

While the old law had stipulated a contribution of up to 10% of a land parcel by the owner without compensation, the ratio increased to 15% under the new law. For the contribution of land exceeding 15%, compensation for the loss of the land would be granted. Forcing landowners to freely give 5% more land than under the previous law, was perhaps the result of the recognition of the effects of urban facilities in past land readjustment projects. However, the current Constitution enacted in 1946 strongly protects the rights of the people, and a question arose that the contribution of up to 15% of land without compensation failed to satisfy the constitutional requirements.

This was because certain features in the land readjustment areas might prevent the land prices from increasing to a level that would offset the 15% contribution. As a result, a revision was made by a Diet Resolution in 1949 to include a provision stipulating that "the implementing agency shall be bound to pay the amount of money equivalent to the decrease in the total land value of the project area through the land readjustment project to those who own the original plot or rights as compensation for the decreased value," which led to Article 109 of the current *Land Readjustment Law*.

The "Basic Policy of War-Damaged Area Reconstruction Plans" set high standards for public facility development in place. The policies required the width of a major road to be 50 meters or more in large cities and 36 meters in small and medium-sized cities. They required the development of wide lane roads that varied in width from 50 to 100 meters and public squares, and also required green spaces and open spaces to account for more than 10% of the city area. Consequently, symbolic roads and tree-lined roads in major cities were developed in postwar reconstruction projects.

The following are the topographic maps of Hiroshima city and Nagoya city while the postwar reconstruction projects were underway.

The map of Hiroshima city represents five years after the dropping of the atomic bomb (see Figure 2.1). The map shows that housing reconstruction progressed to a certain degree. The major street running through the center of the map (shown in white) is Heiwa Odori Avenue (Imao 2011).

In Nagoya city (see Figure 2.2), Hisaya Odori Avenue, which runs south from the Naka Tax Office (shown as a white line that runs east to west in the map), was developed as a street with a width of 100 meters during the postwar reconstruction project, in the vacant land where buildings had been compulsorily removed to create a fire break[6] to mitigate damages from the aerial bombings during the war (Nishiyama 2000).

▼ Figure 2.1. Hiroshima city (1950)

Figure 2.2. The northeastern part of Nagoya city (1953) ▲

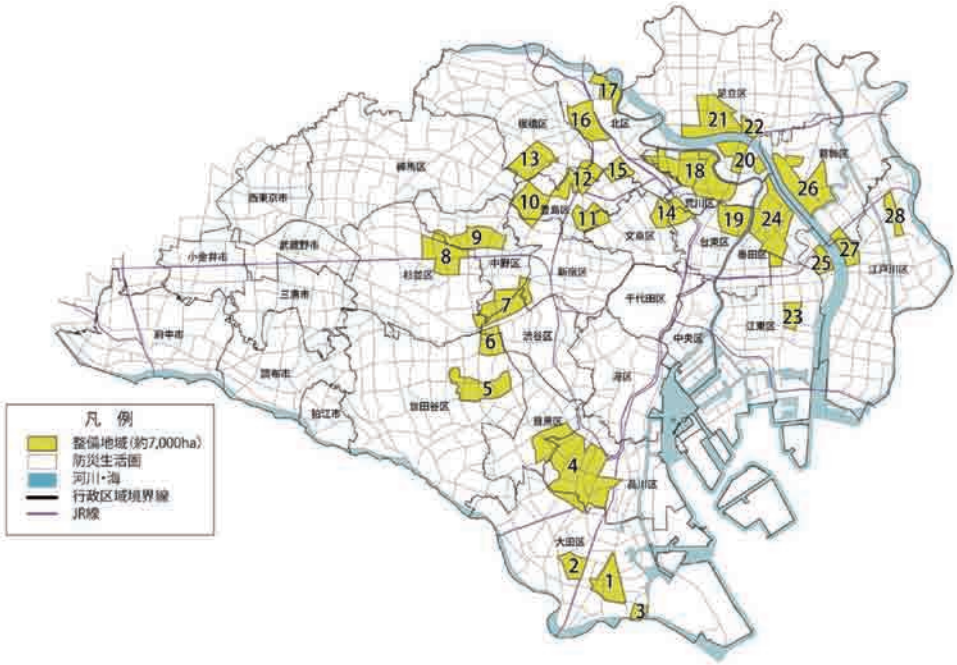
However, the postwar reconstruction projects did not progress smoothly. Extreme inflation occurred in the chaotic aftermath of the war, adversely impacting the central and local governments' financial health. Along with monetary tightening as instructed by the so-called financial advisory group from the US in 1949[7], revisions were made to the postwar reconstruction projects. In particular, the land readjustment area planned for Tokyo, the largest war-damaged city in Japan, was revised several times and reduced to 4,958 hectares, or one quarter of its original plan of 20,130 hectares. Eventually, the project was completed for 1,274 hectares, which only accounted for 6.3% of the total planned project area, and the location was limited to the areas in front of the Yamanote railway line stations. Since the projects in provincial cities progressed ahead of those in Tokyo, the downsizing of the projects was avoided. On the other hand, the capital of Japan, Tokyo, was subject to a drastic downsizing. Table 2.1 presents a list of the postwar reconstruction plans in major cities and the outcomes. It shows poor project results in Tokyo.

Table 2.1. Comparison of Postwar Reconstruction in Major Cities

City Names	Planned Area (hectares)	Final Project Implemented Area (hectares)	Ratio of Actual Land Readjustment Area to Previous Planned Area (%)
Nagoya	4,407	3,452	78.3
Kobe	2,284	2,344	102.6
Yokohama	2,066	853	41.3
Osaka	6,097	2,195	36.0
23 Special Wards (former Tokyo city) (*)	20,130	1,274	6.3

(*) The data of the 23 Special Wards is modified on the author's responsibility. (Source: Nishiyama 2000).

As a result of this downsizing of postwar reconstruction projects in Tokyo, numerous small wooden houses still remain in the densely populated areas within the Yamanote railway line loop and along the outside of it, making these areas very vulnerable to disasters (see Figure 2.3).



▲ Figure 2.3. Densely populated wooden building district in Tokyo Metropolitan

The yellow areas represent the densely populated wooden building district.

Post-Disaster Reconstruction and Land Readjustment in the Latter Half of the 20th Century

While people were making efforts in post-disaster reconstruction, natural disasters hit several districts in Japan. The Fukui Earthquake that occurred in 1948 caused terrible damage, killing about 3,900 people and completely destroying about 36,000 houses. In the following year, land readjustment for 128 hectares in the Morita area commenced during the post-disaster reconstruction efforts. In addition, in 1949, Iwanai town, Hokkaido, was hit by the Toyamaru Typhoon, and due to the strong winds, 80% of the

houses in the area were burned down. Post-fire land readjustment was carried out for 137 hectares. In 1952, a fire started in Tottori city and was fanned by a strong southerly wind caused by a föhn phenomenon, affecting almost half of the citizens (20,451 affected people; 5,288 damaged houses; and 160 hectares of damaged area). However, post-disaster land readjustment for 177 hectares of the area was initiated.

While these disasters and subsequent reconstruction projects continued, in May 1954, many years' earnest wish of people concerned in land readjustment was fulfilled. The *Land Readjustment Law* was enforced as an independent law regulating project implementation methods. The 1954 law was established as a coherent land readjustment framework. The new framework evolved over a long period of time from the older ones developed to meet the needs of the times and societies provided under the former *Arable Land Readjustment Act*, the former *City Planning Act*, and the former *Special City Planning Law*. During the legislation process, considerations were paid to allow for reality-based project implementation, reflecting opinions by various people doing the actual work on the law.

The main characteristics of the law include: the introduction of the replotting plan framework; the systematization of reserve land which had previously dealt with the interpretation of the laws; the treatment of leaseholders in the same way as landowners regardless of whether they own unregistered or registered lands as democratization progressed; the establishment of the term of office, and re-election and removal of directors of the land readjustment association and members of the land readjustment council; the right of the implementing agency to directly conduct the transfer and removal of buildings; the introduction of buildings for replotting; and the designation of provisional replotting when it is necessary for construction works.

Japan, which saw a period of rapid economic growth and became a member of advanced countries, implemented infrastructure development projects, including river projects, which resulted in increased disaster preparedness. Nevertheless, the fact that the country is prone to natural disasters remains unchanged. Japan is hit by typhoons every year and also hit frequently by heavy rain, flooding and earthquakes. On January 29, 1976, a great fire occurred in Sakata city, a medium-sized provincial city situated on the coast of the Sea of Japan. The fire burned down about 1,800 houses and about 3,300 persons were affected. In the middle of the night of January 30, after the fire was put out, a decision was made on policies for conducting the "Post-Fire Reconstruction Land Readjustment Project" aiming for disaster-resilient urban development, and more specifically for the reconstruction and modernization of shopping streets, and the creation of residential environment in the fire-hit area (Nishiyama 2000). Subsequently,

the projects made significant progress and in 1979, a reconstruction ceremony was conducted. The experiences in Sakata city were also successfully applied to the reconstruction following the Great Hanshin-Awaji Earthquake in 1995.

The Great Hanshin-Awaji Earthquake as a Turning Point for Post-Disaster Reconstruction Projects

On January 15, 1995, the Great Hanshin-Awaji Earthquake (also known as the Southern Hyogo Prefecture Earthquake) with a magnitude of 7.3 occurred. The earthquake occurred directly beneath Kobe, causing damages to the Kinki area (Hyogo Prefecture in particular, and Osaka and Kyoto). The urban area of Kobe, one of the major cities in Japan, suffered significant damages. The earthquake left 6,437 people dead or missing, and 43,792 injured. A total of 460,000 households suffered damage; 104,906 houses were completely destroyed and 144,274 houses were partially destroyed. Fire following the earthquake completely destroyed 7,036 houses, partially damaged 7,574 houses, and affected 8,969 households. In addition, the earthquake and the subsequent fire caused significant damage to the infrastructure: 7,245 roads, 330 bridges, and 774 rivers were damaged and 347 landslides took place. The total amount of damage was estimated to be about JP¥ 10 trillion (Fire Defense Agency 2006).

Kobe city, the most severely damaged city, conducted post-disaster reconstruction projects, including public housing development for the sufferers and land readjustment in 13 areas (2 areas of which were implemented by land readjustment associations). In addition, as a post-disaster reconstruction project, land readjustment was conducted in Hokudan town, Awaji-shima island as well. Being designated by ordinance as a major city, Kobe city made use of land readjustment for urban development and had enough experience for that. Nevertheless, there were not enough engineers to urgently conduct large-scale post-disaster reconstruction projects. It is worth noting that the Housing and Urban Development Corporation (currently the Urban Renaissance Agency) working in new town developments through land readjustment and construction of flats and apartments, provided tremendous support to help reconstruct the city in a short period of time.

The government responded swiftly to these reconstruction movements. On February

26, a little more than a month after the earthquake, the *Act on Special Measures Concerning Disaster-Stricken Urban District Reconstruction* was enacted. This act enabled a special framework for land readjustment. For example, a joint-construction public apartment site can be designated in the project area in which land owners can get their replotted land and participate in the joint construction of the apartment if they want (articles 11 and 12). In addition, Article 15 of the act, on "the provision of houses, etc. in place of equity," provided a framework to offer a flat in an apartment instead of replotted land to the disaster-affected people who lost their houses and were left with the land as their only asset. Legally, when the replotted land is not offered, equity is paid. The new framework helped the disaster-affected people to restore their livelihood by providing them with houses built by an implementation agency in place of money. It is expected that the framework will enable the disaster-affected people to move out of a temporary house into their own house relatively soon after a disaster without financial burdens (Research Group on Urban Planning Act 2011).

Furthermore, the "land purchase" framework as stipulated in Article 8 of the act is integral to the restrictions on the construction of buildings and other activities in the disaster-affected area where a reconstruction project is being promoted, and is based on Article 56 of the *City Planning Act* on the purchase of land in the scheduled project site. This may have effects similar to those of Article 7-6 of the *Urban Renewal Act* that protects the freedom and rights of land owners who do not agree with a planned project to sell their parcels in the scheduled project site and to move out of the project site. Between the institutionalization of land readjustment in 1954 and 1995, land readjustment projects in connection with post-disaster reconstruction were conducted in 178 areas, and covered 7,660 hectares of the land in Japan (Osawa and Kishii 2005).

The Reconstruction Project for the Great East Japan Earthquake

On March 11, 2011, a big earthquake at the Pacific Coast of Japan hit the eastern part of the country. Damages from the 9.0 magnitude earthquake and subsequent tsunami, which is said to be the kind that hits once every 1,000 years, were far more devastating than those by the Great Hanshin-Awaji Earthquake. According to the National Policy Agency, official records confirmed that the earthquake and the tsunami left 18,456 people dead or missing and 400,438 houses/buildings either completely or partially destroyed as of August 8, 2014. The number of evacuees totaled more than 400,000

immediately after the disaster, and 247,233 people as of July 10, 2014. Note, however, that these figures include evacuees from around the damaged Fukushima Daiichi Nuclear Plant due to the fear of radiation contamination. The direct damage of the earthquake is estimated to be around JP¥ 16 to 25 trillion (Cabinet Office 2011). According to the estimation by the World Bank, this was the worst economic damage from a natural disaster in the world's history. It really was an unprecedented disaster.

The damage was done across the eastern part of Japan. In particular, the coasts of Iwate, Miyagi, and Fukushima were severely damaged by the tsunami. The cities and towns damaged by the earthquake and tsunami were all small and medium-sized municipalities with small populations, except for Sendai city. There was a town where the mayor and many of his staff members were killed by tsunami. There were not many municipalities that could design a post-disaster reconstruction plan and conduct a reconstruction project themselves. After the earthquake and the tsunami, the Ministry of Land, Infrastructure, Transport and Tourism conducted a "Survey on Reconstruction Methods for the Tsunami-Affected Areas" and dispatched experts and consultants specializing in urban planning to 62 municipalities to investigate the extent and severity of damages and help the affected municipalities to prepare reconstruction plans that would suit the situations in their respective cities/towns (except for the areas directly affected by the Fukushima Nuclear Power Plant) (MLIT 2012). Based on this survey, making use of experience of the unprecedented tsunami damage, a plan that included measures to improve disaster prevention functions was prepared. Several post-disaster reconstruction projects concerning urban planning are being conducted, including large-scale site preparations to move the communities from lower ground close to the sea to higher ground[8], and most of these projects are centered on land readjustment. According to the Reconstruction Agency of Japan, as of the end of June 2017, 50 areas of all the projects which completed urban planning formalities started construction works, out of which 17 projects were completed. Rehabilitation of individual infrastructures, including coastlines, sewers, roads, railways, etc. is progressing relatively smoothly. On the other hand, difficulties remain for the urban reconstruction projects.

In areas where many landowners lost their lives, confirmation on land rights in connection with reconstruction projects was difficult. In addition, the majority of small and medium-sized municipalities do not have enough engineers to start a project in the first place. Initially, many public servants were dispatched from local governments all around Japan to the affected municipalities to provide help with administrative works and reconstruction projects. Nevertheless, a land readjustment project – even a relatively short one – usually takes several years to complete. It is difficult for these dispatched staff members to support the works, including public facility planning,

construction orders, construction management and explanation to landowners, over a long period of time.

Therefore, the Urban Renaissance Agency, which employs many professional engineers, signed contract agreements with 22 affected municipalities for reconstruction using the construction management method. Approximately 400 engineers and staff members dispatched from the Urban Renaissance Agency are now supporting the projects. The construction management method is a method in which Urban Renaissance Agency signs a kind of turnkey contract for a land readjustment project with the affected municipalities, and manages the whole project by overseeing the completion of reconstruction activities by planning consultants and construction companies hired by the agency (Urban Renaissance Agency 2014). In the tsunami-affected areas, the majority of the buildings were swept away and many places look like wastelands. Based on its experience in new town developments, Urban Renaissance Agency employs a method that is not often used for the existing urban areas. The method employed is to lease all land necessary for construction works from the owners concerned at an early stage instead of using provisional replotting to implement the project, and tries to complete the project at the earliest possible time (according to interviews conducted in March 2014 at the Urban Renaissance Agency's local offices).

Closing. Japan's land readjustment is characterized by the use of a certain level of legal force, i.e. "enforcement of replotting" as an administrative measure within a framework for urban planning in conducting a project. Land readjustment associations composed mainly of landowners are given authority to take this administrative measure to provide landowners with replots which are different from the former parcels of the owners in terms of location, shape and size even if the owners do not agree to their replots provided. This authority is based on the requirement of the consent of at least two thirds of the landowners to the articles of association and the project plan (and, simultaneously, the land areas owned by them are required to exceed two thirds of the total landowners' area). On the other hand, unlike the land readjustment by association, in order to develop infrastructure in urban areas, local authorities and public institutions are granted implementation authority. They implement projects through enforcement of replotting with an agreement from committees consisting of landowners' representatives. The latter method is used for land readjustment for post-disaster reconstruction and, as explained, the legal framework and operations have been established and improved throughout nearly 100 years of experience. In the reconstruction projects following the 2011 disaster, land readjustment will contribute to realizing safer and more comfortable urban environment for communities than ever before.

Endnotes

[1] In Japan, disaster rehabilitation projects are defined as those needed due to a disaster, and to recover the disaster-affected facilities to their original states (including the construction of a facility to recover the former utilities of the disaster-affected facilities in a case where it is impossible to recover the disaster-affected facilities to their original states) (article 2, *National Government Defrayment Act for Reconstruction of Disaster-Stricken Public Facilities* of 1951). In addition, Article 3 of the mentioned act states, "In projects needed due to a disaster, where it is extremely difficult or inappropriate to recover the disaster-affected facilities to their original states, the projects that aim to build substitute facilities are regarded as 'disaster rehabilitation projects' in the application of this law." And the disaster rehabilitation principle is "to recover its original state."

[2] Zone condemnation was an expropriation method used for opening roads, through which larger areas than the actual planned road were expropriated; following the development of the area, the excessive land was sold at the increased land price and the profits were used to recover the development costs. This is a method successfully used by Georges-Eugène Haussmann, the prefect of the Seine Department, for devel- oping Paris in the second half of the 19th century. In Japan, the method was adapted in Articles 16 to 21 of the former *City Planning Act*, and there are six examples of the method being put into practice. This is also called "excess condemnation."

[3] Initially, the roads were 2.4 meters wide and the roads on which carriages ran were about 3.6 meters wide. A size of a block was 109 meters x 182 meters, which came from a standard size of farmland. Note that Tatsutaro Sasahara, who promoted housing site development by arable land readjustment in the suburbs of Nagoya during the Taisho period (1912-1926), guided innovative development projects, as exemplified by the development of 14.4 meters wide roads, an extraordinary width for the standards in those days.

[4] Land readjustment not based on the *Arable Land Readjustment Act* included projects to which the following articles were applied: Article 13 "disaster rehabilitation," Article 15 "integration of building sites," Article 17 "integration of buildings for the security or sanitation purposes," and Article 20 "projects that need judgments by the Expropriation Committee."

[5] The "former" is added to distinguish the law from the *Special City Planning Law* enacted at a later time for conducting postwar reconstruction projects. It was enacted in 1923 and abolished in 1941.

[6] Removal of existing houses was required to set a firebreak. Since the Japanese houses in those days were made of wood and were very vulnerable to fire, the houses and buildings that were likely to catch and spread fire were forcibly removed. A total of 610,000 houses were destroyed across the country (Nishiyama 2000).

[7] Mr. J. M. Dodge, financial advisor for the Supreme Commander of the Allied Powers, proposed the tight monetary policy in December 1948. The postwar reconstruction plan was reduced in budget and size by half of its initial plan.

[8] The "Project for Promoting Group Relocation for Disaster Mitigation" was planned for 333 areas, the legal process was completed for all the areas, and construction has started in 292 areas, or 88% of the planned areas as of March 2014 (MLIT 2014). The project is relatively small in scale: a relocation site is purchased for the respective disas- ter-affected communities and the site development is conducted for each community.

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Part II.

Land Readjustment: International Experiences, Case Studies and Future Possibilities

Chapter 3

International Experiences of Land Readjustment

A Brief History of Land Readjustment in the World and Case Studies

Felipe Francisco De Souza

Origins

It is not an easy task to identify the early days of land readjustment across the world. In Europe, the rural land consolidation procedures are old, and they have been used as examples on how to develop such activities in urban areas. In Nordic countries, like Finland and Sweden, it is known that there were some readjustment procedures about 1,000 years ago, mainly for agricultural land but also for housing areas (Viitanen 2000a). In fact, it is most likely that similar type of activities existed in some areas much earlier, soon after when it was not possible anymore to occupy land freely, perhaps many thousands of years ago. In those early rural proceedings, town center areas were readjusted and planned in a similar way to the like urban land readjustment procedures used today. But, of course, all activities in those times, as also later and even today, have relied on the local land ownership system, and on the land use planning and land management systems of each country.

Regardless of the names or terminologies used, the origin of land readjustment for urban development has experienced impasses concerning its authorship. The first ideas on urban land readjustment were documented, as far it is possible to find, by Otto von Guericke in 1632 for the city of Magdeburg in Germany, and by Christopher Wren in 1666 after the Great Fire of London in the United Kingdom. But these ideas could not be realized. Also, in 1842, after the Great Fire of Hamburg, a law concerning the reconstruction of the affected areas was enacted, which partially had the characteristics of land readjustment. It is suggested that land readjustment has two main roots: (i) to create new building areas by rezoning farmlands, and (ii) to rebuild areas after disasters like great fires. For the former, parcel structures must be changed to build new

construction, and existing regulations often did not fit the needs for proper building land. For the latter, land readjustment was used to reduce the density of buildings and to compensate some of the owners in new urban developed areas. Consequently, it is important to mention three well-documented experiences of land readjustment, dating back from the 18th and the 19th centuries, in three different scenarios.

The first is from the United States of America, 1791, where President George Washington and 19 landowners promoted an arrangement very similar to land readjustment to solve impasses in the development of a very large rural area into a new federal city (Doebele 1982; UNESCAP 1995). According to these arrangements the land was divided for roads, squares and city blocks for private buildings, and the government received the land for roads for free, while the plots for buildings were shared equally between the government and landowners. Then, the government sold part of its plots to provide funds for government buildings and for other public improvements.

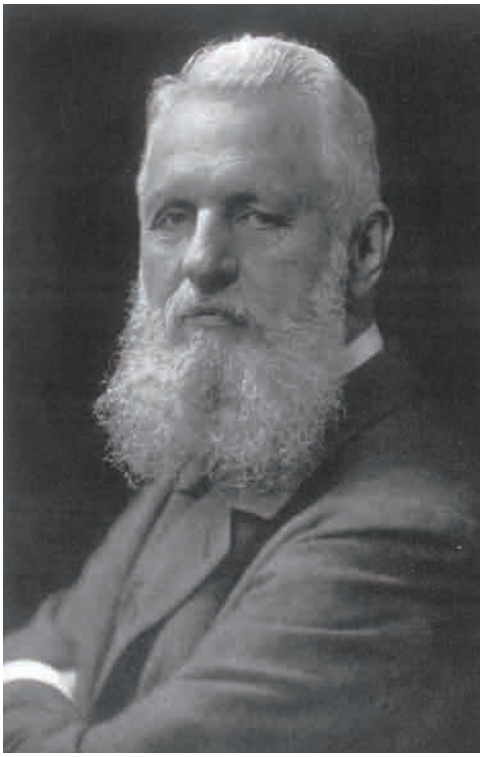
The second scenario is from Spain, 1861, during the planning and implementation process of a project named "Eixample de Barcelona," created by Ildefonso Cerda. For the implementation of this project, a mechanism was created to finance the redevelopment process, since its creator did not consider the use of expropriation, but the imposition of additional taxes for those who would benefit from the project, restricting their tendency to become wealthier individuals (García-Bellido 1995; 2002). The land readjustment mechanism proposed by Cerda was based on a compensation system, in which those who would have advantages from the project should pay its expenses. The mechanism was included in a draft law to regulate "techniques for distributing costs and benefits among individuals involved in redevelopment projects," but the government in the same year of the proposal denied the draft.

The third scenario is from Japan, 1870, where documents indicate that farmers had developed a system to improve the productivity of their lands in Kobe. Its main purpose was to observe irregular limits and readjust them to eliminate small passages and paths among lands (Nishiyama 1992). As a result, farmers started to notice that these readjustments really increased the productivity of farming and they became a popular activity in the surrounding areas. Such arable land readjustment began to modernize agriculture in Japan and the *Arable Land Readjustment Act* enacted in 1899 was based on similar practices, aiming to set the replotting framework legally, which involved transfer of ownerships and land registration.

These initiatives anticipated the formulation and approval of the first legislation related to urban land readjustment in the world. This was enacted in Mainz, Germany in 1875, but it did not work in practice because 75% of all owners had to apply for the land

readjustment process. However, afterwards, the principles of urban land readjustment spread and used in Germany in single cases to develop new building lands (e.g. Cologne in 1885), or to redevelop building lands (e.g. Hünfeld in 1888). All these cities were near to Frankfurt and Franz Adickes (1846-1915, see Figure 3.1), mayor of that city, knew of such cases and started the first voluntary agreements with landowners in 1891, to reorganize the land structure of urban properties. In 1902, after approving the "law related to the transfer of lands in Frankfurt," known as "*Lex Adickes Frankfort-am-Main*," a compulsory process of land reorganization was initiated, hindered by the heritage of old laws that created extensive and narrow lands of difficult use for development. The main idea of the process was to exchange lands between the government and the private sector, without requiring their expropriation (Müller-Jökel 2004). For the first 10 years, 14 areas were regrouped and redistributed with the consent of their owners, summing up a total of 643 plots in 375 hectares, with the reduction of 25 to 40% of these lands to build a new road system (Dawson 1916). After this process, inevitable differences of evaluation and land prices were compensated in cash. Thus, Adickes was able to upgrade the old and improper structure of Frankfurt, preparing it to the new requirements for the economy, traffic, and consequently, citizens' new demands.

After the results of this new legislation in Germany, an international dissemination of land readjustment to other countries was initiated. Japan translated the *Adickes Law* and adapted it for the approval of its *City Planning Act* of 1919 (Ishida 1986; Siman 1990). Until this approval, many land readjustment projects based on the *Arable Land Readjustment Act* of 1899 were implemented in the country, even when the objective was to reduce sprawl in urban areas. In 1923, after the Great Kanto Earthquake, which destroyed the highly populated areas of Tokyo and Yokohoma, the method and legislation were improved mainly to reconstruct the affected residential areas (Sorensen 1999).



▲ Figure 3.1. Franz Adickes, 1846-1915, mayor of Frankfurt am Main (1891)

Other countries, following Japan's example, started studying the German legal framework to develop their own laws and apply land readjustment in areas previ-

ously destroyed by natural disasters. Turkey, which had a simplified version of the mechanism, since 1930 adapted it to speed up the reconstruction process of areas affected by earthquakes, fires, floods, and in areas previously conceived for urban development projects (Turk 2005).

Colonies and occupied territories

In the United Kingdom, due to the strong British culture of taxation, property ownership and private development, the German land readjustment system was not incorporated, being rejected several times during the elaboration of urban planning laws in that country. However, British planners had an important role spreading land readjustment ideas to some British colonies during the first half of the 20th century, after Britain's first town planning legislation was passed in 1909. In 1915, the mechanism was implemented in British India during the approval of the *Bombay Town Planning Act*, and later applied at the States of Maharashtra and Gujarat (Home 1997b). In 1921, the British Mandate for Palestine included several articles about the mechanism in the local *Town Planning Ordinance*, giving permission for projects with previous requirements through land readjustment (Home 2007). In 1928, Western Australia authorized a pooling system in its *Town Planning and Development Act*, by which owners could transfer their lands to local authorities before project implementation, which would retransfer the reorganized plots back to the original owners.

Following this process of international transfer, Japan introduced land readjustment in Taiwan (Republic of China), in 1930, through the *Land Act*; and in South Korea, in 1934, through the *Colonial Urban Planning Act* (Lee 2002). At that time, Taiwan and South Korea were Japanese colonies, which made possible the propagation of land readjustment. For many Japanese planners, land readjustment implementation in the occupied territories was important because it helped to test some concepts and techniques, even though several projects were started without any public consultation or compensation to landowners (Hein 2003). In 1937, the first results could be seen in Seoul, with the implementation of the first pilot project, and the beginning of other four projects sizing 1,023 hectares (Hayashi 2000).

World War II

Prior to World War II (1939-1945), many European countries developed legal frameworks to consolidate property rights, mainly in agricultural lands, where land subdivision was irregular or had doubtful ownership, following the same process that the

United Kingdom had been through a century before. These actions had no great progress since landowners could easily appeal against land consolidation decisions, preventing implementation. After World War II, unlike what had previously occurred, the mechanism became more important due to the demand for food and the consequent need to intensify agricultural productivity in the reconstruction process of several countries. Countries such as the Netherlands, France, Belgium, Austria, and Finland – all affected by the war – started rural land readjustment projects according to different procedures, influenced by their cultures, traditions and laws.

In Germany, during the rise of the Third Reich in 1937, an act approved land readjustment for extensive agricultural usage, but it became nationally popular during the reconstruction of some cities from 1940. After that, the *Federal States Reconstruction Law* (1948-1952) was the one that effectively consolidated the use of the mechanism in urban areas, aiming for the country's reconstruction, after being destroyed by the Allied Forces under the lead of the United States of America.

In Japan, a *Special City Planning Law*, enacted in 1946, was responsible for establishing land readjustment for the country's reconstruction after the war. Most Japanese cities were destroyed by air attacks, and more than 100 implemented land readjustment policies to further the country's reconstruction and reorganization process. In 1954, the national *Land Readjustment Law* was enacted.

From 1950s to 1960s

During the 1950s and 1960s, countries like South Korea, Spain, Taiwan, Germany and Israel updated the mechanism according to their postwar context. In South Korea, after the end of the civil war in 1953, the mechanism was used to provide basic infrastructure, such as roads and residential sites. During the postwar rapid urbanization process, big scale projects – between 300 and 400 hectares – were implemented in the suburbs of urban centers (Hayashi 2000). In Spain, the principles of cooperation and compensation among all owners in urban projects became mandatory as established by the *Land Law* in 1956. From that, every square meter transformed shall balance costs with benefits, according to the premise designed by Ildefonso Cerda almost 100 years earlier (García-Belido 1995; 2002). In Taiwan, the urban land readjustment was applied as an experiment in 1958 and approved as a national policy four years later. In the city of Kaohsiung, yet without a law that would officially establish the mechanism, approximately 80% of the lands were reorganized through land readjustment (Hayashi 2000).

In Germany, land readjustment was one of the main mechanisms used for the develop-

ment and approval of new construction according to the *Federal Building Code* of 1960, targeting projects for wide residential areas and for the redevelopment of urban centers (Müller-Jökel 2004). The country had a higher population density than before World War II, and fast economic development and a good traffic infrastructure allowed a lot of people to have a single-family house in the outer urban fringe of cities. A lot of new building areas were needed and, therefore, land readjustment was an easy way to develop such areas so that farmers could have a high income by selling land for building. In addition, a simplified procedure was also introduced to easily solve issues, called "boundary regulation."

In the State of Israel, created on the last day of the British Mandate for Palestine, new articles concerning land readjustment were added to the *Planning and Building Law* of 1965. According to the law, the mechanism could be used to join or divide lands inserted in consorted projects, with or without the consent of owners (Home 2007). In France, land readjustment was legally adopted in the *Spatial Planning Law* of 1967, with different types of Urban Land Associations (*Associations Foncières Urbaines*) for land readjustment, voluntary and obligatory, according to the *Code de l'Urbanisme*. The process was tested in France from the 1940s to rebuild urban areas damaged by World War II (Gohier 1990; Viitanen 2000a).

1970s: Method emphasized by the World Bank and Japan

During the 1970s, the World Bank stated that programs to reduce poverty in developing countries through the improvement of housing conditions and the provision of basic infrastructure services were a priority. The main impediments to solving these problems were found in: (i) the rapid process of migration from the countryside to the city; (ii) the fragmented conditions of agricultural and urban lands, making it difficult to develop infrastructure; and (iii) the lack of mechanisms to intervene in private ownership and to capture the benefits created by public investment.

In 1974, the economist Orville Grimes and professor William Doebele were assigned to investigate mechanisms that could contribute to solve the problems pointed out by the Bank. Their studies identified three alternatives adopted in countries with different realities, according to the following explanation:

> "The first was the well-known land banking system that had produced high-quality urban growth in Sweden at a relatively low public cost. The second was the institution known as *valorizaciones*, a sophisticated form of special assessment taxation that had transformed Bogotá, Colombia – particularly its major thorough-

> fares – at modest public expense. The third assignment was to report on the system of land readjustment that had great success in the rebuilding of urban Japan after the massive aerial bombings of World War II and in the recovery from Korean War devastation in South Korea." (Hong and Needham 2007, ix)

Professor William Doebele was from Harvard University, and at that time, the World Bank's consultant, visited South Korea and checked the success of land readjustment after the country's destruction. The initiative of the professor was responsible for the focus given to the instrument, which at that time was relatively unknown and unstudied. The possibility of implementing projects, including the development of fragmented lands, with the construction of housing that could be self-financing, or that in some way could reduce the burden of the government expenses, seemed to be the most effective method for application in developing countries.

The World Bank's interest resulted in a conference that changed the visibility of the mechanism: the "First Land Consolidation Conference," in Taiwan, 1979. The English term "land readjustment" was emphasized in this event. At the beginning, the name of the technique was "land consolidation," but during the presentation of a wide range of projects, it seemed to the specialists that the terminology "land readjustment" was more appropriate as it refers to a process of readjustment, reorganization and rearrangement of lands rather than being only a consolidation process of title deeds. The conference was sponsored by the Lincoln Institute of Land Policy (Cambridge, Massachusetts, USA) and by the Training Center of Land Reforms (Taoyuan, Taiwan), under the auspices of the World Bank (Hayashi 2000). However, after the conference, the World Bank reduced its interest in promoting the mechanism, as the procedures appeared to be very complicated, involving social transformation and enactment of legislation, in both practice and planning processes, and in initial financing conditions in countries with so many institutional problems.

Japan gained importance, exactly after the Taiwanese conference, in disseminating the land readjustment concept. In 1982, Japanese experts organized the "Second International Seminar on Land Readjustment and Urban Development" to celebrate their results in applying such a mechanism. The city of Nagoya and the United Nations Center for Regional Development jointly committed to an event to disclose the end of a project involving 3,450 hectares that had been started after the destruction of almost the whole city during World War II. In 1985, the Japanese Ministry of Construction (currently the Ministry of Land, Infrastructure, Transport and Tourism) hosted a new international seminar, focused on the concept's implementation in Asian countries, which started an important process of diffusion of land readjustment in the coming years.

1980s

During the 1980s, Australia and Turkey started improvement processes of their legal frameworks and the United States of America started a process to implement land readjustment in three States, but with no success. In Western Australia, land readjustment procedures were updated in the *Town Planning and Development Act* of 1984, which established two different types of implementation plans: the resumption development plan (RDS), and the guided development plan (GDS) (Archer 1988). For the resumption development plan, local governments mainly implement the project, and landowners participate by offering their properties in exchange for financial return, without any contribution system. The conversion of the title deed is carried through the purchase and sale of new and reordered properties. For the guided development plan, the project is individually implemented in regions where private owners have large plots of lands. This plan coordinates implementation time, infrastructure expenses and the conversion of ownership differently because it results in amalgamation, returning the new and rearranged plots of land to the landowner after project implementation. In Turkey, land readjustment was introduced legally with more specific procedures through Article 18 of the *Zoning Law* of 1985, updating previous laws that referred to the mechanism, such as the *Municipal Expropriation Act* of 1934 and the *Amnesty Law* of 1983 (Turk 2005). This article gave to the local government the right to apply zoning with specific areas for land readjustment, without the prior consent of landowners.

In the United States of America, the States of California, Hawaii and Florida tried to start a process to implement land readjustment. The California State undertook significant efforts to formulate the first land readjustment law of the country, the *S.B. 442*, a land readjustment statute authorizing both public and private projects. However, due to strong opposition from the private sector and the fear of granting power to another instrument, other than the already powerful North American instrument of expropriation, known as "eminent domain," the approval process of this law was abandoned (LCIR 2003). Meanwhile, in Hawaii, the old urban structure of Honolulu needed extreme intervention, and land readjustment was studied as a way to transform the city. However, this project was not implemented, and the proposed draft law was not approved, remaining only a document covering the pilot project development process (Minerbi 2002). In Florida, the introduction of the mechanism had similar misunderstandings and fears to the ones that occurred in California, resulting in similar legal barriers (Hong and Needham 2007). The only recent successful example in this country, a curious process without any legal foundation, occurred in Dallas, Texas. There, owners of 80 hectares created a company and, with the consent of all, started a process of formation of a land bank that, after the property's reorganization, was shared in accordance with conditions stipulated in a previous agreement (Hayashi 2000).

1990s

During the 1990s, Spain improved its legal system, Sweden and Finland legally established the mechanism for its usage in urban areas, Germany allowed land readjustment in existing built-up areas without any binding land use plan, and Japan carried out some technical cooperation projects in Asian countries such as Indonesia, Malaysia, Nepal, Philippines and Thailand, and in Colombia in Latin America.

In Sweden, the *Joint Land Development Act*, approved in 1987, started being applied in 1990. From there, formal initiatives for land readjustment came from interested landowners and each one of them received an area for development and construction according to their share, through mutations and subdivisions, by adjusting the cadastral division to the new plan afterwards (Kalbro 2002). However, the procedures for urban land readjustment were not really accepted by Swedish land developers and municipalities, and very few projects were undertaken, leading to the cancellation of this legislation by 2012. In Germany, with the amendment of the *Federal Building Code* in 1993 it was permissible to use land readjustment in existing built-up areas without any binding land use plan. However, this could only be used if the development could be unambiguously determined from the character of the surrounding area. In general, it can be said that the German legislation has continually expanded the possibilities for the use of land readjustment over the past 50 years.

In Finland, the *Real Property Formation Act* of 1995 redefined the procedures of land readjustment and introduced its application to urban areas; updating the old legislation approved in 1960 that was never really put into practice. Therefore, the new legislation created legal support for the use of land readjustment only when the first "Detailed Local Land Use Plan" was prepared, and could not be used in a situation where a detailed plan would be changed (Viitanen 2000b). In Spain, in 1998, *Law Nº 6 on Land Regime and Valuations* was approved, simplifying previous rules with the purpose of offering greater autonomy to the States and municipalities to implement land readjustment projects (García-Belido 1995; 2002).

Japan and the dissemination of land readjustment to other countries

Japan, from the initial activities of the World Bank and the former Ministry of Construction, and currently though the Japan International Cooperation Agency, became the major country responsible for the dissemination of land readjustment through training courses and financial support to more than 60 countries. Despite all the difficulties, after attempts and failures, many countries started to present significant results

in adapting and implementing this instrument. It is important to observe that the knowledge exchange generated demand, and motivated an increased interest of the Japanese government in transferring it, supported by several Japanese consultant companies.

In Indonesia, the mechanism was established through the *Regulation of the Head of the National Land Agency Nº 4* of 1991. Previously, while no laws and regulations existed in Indonesia, several land readjustment projects were conducted, but after the technical cooperation with the Japan International Cooperation Agency, the technique was applied countrywide, totaling 274 areas in 27 provinces (Yoshida 2003). The main problem faced by the country was the difficulty to provide a government fund to subsidize public infrastructure in land readjustment project sites (Sitorus 2005). In Nepal, the mechanism was introduced in 1988 by the *Town Development Act*, with the goal to provide basic urban infrastructure through the contribution and participation of owners (Karki 2004). The participation of the government in strategic projects was the main reason for implementing the mechanism to spend less financial resources. The Japan International Cooperation Agency conducted focused training courses to Nepalese experts aiming to improve project technical standards and the trainees led several projects in Kathmandu and the review of the *Town Development Act* to integrate the Japanese land readjustment method into it.

In Malaysia, the government initiated attempts to approve the legal framework on land readjustment in 1999. The system, known as "resignation and alienation," was designed to allow the development within plots with multiple ownerships, joining them collectively and redistributing properties by the previous resignation and consequent alienation of the plot of land that was not intended for public purposes. The first pilot project called Puchong Malay was developed, but received no approval by the "Master Committee of the State Governor" to start its implementation (Hayashi 2000). In the Philippines, feasibility studies were developed in the cities of Quezon and Paranaque in the capital Metro Manila. During the implementation process, a strong political instability began, which made land readjustment impracticable in the country (Hayashi 2000).

In Thailand, the mechanism was introduced in 1985 in urban planning projects with the strong support of Japanese experts. In 1991, in Bangkok, the "Sixth International Seminar on Land Readjustment and Urban Development" was held; there, the concepts were nationally presented, making public the discussion about introducing the instrument in that country. In 1992, an evaluation committee was created and the first pilot project, Rama 9, was designed. Since then, several projects have been initiated, and in 2004 the *Land Readjustment Act BE 2547* was promulgated in that country.

In Colombia, land readjustment implementation contrasted with the traditional way of urbanization, conducted over the past decades, in which the responsibility for the provision of infrastructure was assumed solely by the government. The *Law Nº 9 on Urban Reform* of 1989 and the *Law Nº 388 on Urban and Territorial Development* of 1997 established the concept of the Japanese land readjustment in Colombia, and reinforced the Spanish concept of "contribution for betterments" and "*captura de plusvalia*" as introduced in 1921 by the *Law Nº 25* (Carrillo 2002; Jaramillo 2001). Colombia, unlike Spain, does not have an urbanizing agent in charge of making complete developments, nor it has the obligation to establish an owner's association in the framework of land readjustment or, at least, such obligation is not clear enough, which is why the concept is not developed. Also, due to some legal problems, such as no regulatory decree to establish operating rules for the Colombian "*reajuste de tierras*," the instrument is still under development, and its implementation process relies on "land-to-land" and the "land-to-floor" conversion systems.

2000s onwards

Since 2000, the dissemination process of urban land readjustment has experienced different realities, from countries where the private ownership of land did not exist, such as Vietnam and China, to countries where private ownership is guaranteed by its Constitution, like Bhutan, Brazil and the Netherlands. In China, after 14 years of impasse, to make possible the guarantee to private property, the National Congress passed law measures that will enable the implementation of land readjustment in the country, named *State Measures of Compensation for Housing Relocation and Resettlement in Urban Areas*. From 2001, urban redevelopment processes have legal support and may scale up due to the rapid economic growth estimated for the years to come (Li and Li 2007).

In Bhutan, the concept of land pooling was first introduced in 1998 during the revision of the "Thimphu Urban Development Plan" (1986-2000), with the support of the United Nations Human Settlements Programme (UN-Habitat). However, the concept was not put into practice until 2002 while preparing the urban development plan for Rangjung, Tashigang. Since then, several projects are in progress, and in 2009 the *Land Pooling Rules* of the Kingdom of Bhutan were adopted.

In Vietnam, a country where there are concessions to use land for a certain period, partnership projects between the government and the "Cities Association of Vietnam" have led to four small projects in the provinces of Hai Duong, Quang Nam and Long An. Although the experiences were successful, the term land readjustment is unavailable in the national legislation, and there is no support for community initiatives in the

existing laws. The World Bank is currently supporting a "new" pilot project to substantiate a possible national legislation.

In Brazil, the dissemination process began through a technical cooperation with the Japan International Cooperation Agency in 2005, and two books were published since then: "Land Readjustment and Joint Urban Operations" (Montandon and Souza 2007) and "Urban Planning Methods: Land Readjustment and Urban Redevelopment Projects" (Souza 2009), which contributed to spread the knowledge to several States and municipalities countrywide. As a first result of this cooperation, during the review process of the "São Paulo Municipal Master Plan" (2002-2012), articles were incorporated into the amendment to introduce land readjustment. The draft law with these amendments was never approved though, and similar articles were enacted at the newly approved São Paulo master plan for 2025. Besides São Paulo, other municipalities like Curitiba and Belo Horizonte started to explore the concepts related to land readjustment as a means of facilitating strategic urban intervention. Curitiba started a pilot project supported by the Japan International Cooperation Agency in 2012, and its implementation is still ongoing.

In the Netherlands, the Minister of Planning has presented a new *Land Law*, which will include regulations for urban land readjustment, but only on voluntary basis. This draft law, presented back in July 2016, is now open for consultation and will go to the Parliament later this year. It is expected that the new law will be effective from 2018.

Case studies: International implementation of land readjustment

The following pages will present 19 different international experiences related to land readjustment (see Table 3.1 and Figure 3.2 for a complete list of urban land readjustment in the world). Several specialists have contributed, aiming to explain the history of the implementation method, its legal origin, objectives, purposes, and organizational processes and results, and to identify the conflicts and impasses faced throughout its implementation. These case studies range from basic functions of land readjustment to the most complex processes, and are used to provide a better understanding of the fundamental contributions of the instrument to different systems of governance and urban planning. International readers seeking to implement – or improve – land readjustment within their own contexts can learn from experiences of others around the world and develop an appreciation of the major challenges, advantages and disadvantages of the process. The presentation of such cases is a statement that there is path for land readjustment in different contexts and realities.

Table 3.1. International Experience Related to Urban Land Readjustment

Country	Legal Origin, Related Legislation and/or the Ultimately Enacted Law	(Practice Origin) Year of Legislation	Terminology or Similar Technique
USA	Some authors argue that President George Washington used a similar approach to assemble land needed to build the capital of the United States of America.	(1791)	Land Assembly
Germany	Introduced in Mainz, but widely recognized at the "Lex Adickes," a law concerning the apportionment of land in Frankfurt, then promulgated by the "Federal Building Code."	(1871), 1902, 1960, 1986, 1998, 2004	Baulandumlegung
India	Introduced by the "Bombay Town Planning Act," and promoted by the "Maharashtra Regional and Town Planning Act," and by the "Gujarat Town Planning and Urban Development Act."	1915, 1966, 1976	Town Planning Scheme, Town Development Scheme, Land Pooling
Japan	Introduced by the "Arable Land Readjustment Act," adapted in the former "City Planning Law," and promoted by the "Land Readjustment Law."	(1870), 1899, 1919, 1954	土地区画整理 (*tochi kukaku seiri*)
Western Australia	Introduced by the "Town Planning and Development Act," and updated by the "Town Planning and Development Act."	1928, 1984	Land Pooling
Turkey	First experiences based on the "Regulation of Roads and Buildings," and the "Law Nº 1,663" of Ankara, but formally introduced through Article 18 of the enacted "Zoning Law."	(1864), 1930, 1985	Arazi Düzenlemesi
Taiwan	Introduced by the "Land Act," the "Equalization of Land Rights Act," the "Urban Land Readjustment Regulation," the "Farmland Readjustment Act," and then through the "Rural Community Land Readjustment Act."	1930, 1943, 1979, 1980, 2000	土地重劃 (*tǔdì zhòng huà*) 市地重劃 (*shì dì zhòng huà*)
Austria	Introduced by the "Building Code of the City of Vienna," and promoted by the "Spatial Planning Laws" of Lower Austria, Styria, Tyrol and Vorarlberg States.	1930, 1960s onwards	Baulandumlegung
South Korea	Introduced by the "Colonial Urban Planning Act" (조선시가지계획령), then promoted by the "Land Readjustment Act" already abolished, and now used under the "Urban Development Act" (도시개발법).	1934, 1966, 2000	토지구획정리 (*tojiguhoegjeongli*)
Palestine/ Israel	Introduced by the "Town Planning Ordinance" (when the British ruled Palestine), and promoted by the "Israel Planning and Building Law."	1936, 1965	Halukah Hadasha, Repartzellazia
Spain	Introduced by the "Land Law" (*Ley del Suelo de España*), and promulgated through "Law Nº 6" (*Ley sobre Régimen del Suelo y Valorizaciones*).	(1861), 1956, 1998	Reparcelación
Finland	Introduced by the "Real Property Formation in Urban Areas Act Nº 101," then reintroduced by the "Real Property Formation Act Nº 554."	1960, 1995	Kaavauusjako, Rakennusmaan Järjestely
France	Introduced by the "Spatial Planning Law."	(1940), 1967	Remembrement Urbain
Switzerland	Introduced by the "Federal Spatial Planning Law."	1979	Landumlegung, Remembrement, Ricomposizione Particellare

▲ Figure 3.2. Urban land readjustment implementation across the world


Finland | 1960, 1995
Kaavauusjako, Rakennusmaan Järjestely
ia | 1930
ndumlegung
| 1979
ng
Turkey | (1864) 1930
Arazi Düzenlemesi
Israel | 1936
Halukah Hadasha
Afghanistan | (2012)
دی ځمکو مجدد تنظیم
Nepal | (1975) 1988
जग्गा एकीकरण
China | 2001
土地整理
Mongolia | (2012) 2015
Газрыг дахин зохион байгуулах
South Korea | 1934
토지구획정리
Japan | (1870) 1919
土地区画整理
Bhutan | (2000) 2007
ས་ཆ་བདེ་གཞིག
Taiwan | 1930
市地重劃
India | 1915
Town Planning Scheme | Land Pooling
Vietnam | (2011)
Tái Điều Chỉnh Đất
Thailand | (1985) 2004
การจัดรูปที่ดินเพื่อพัฒนาพื้นที่
Philippines | (1980)
Land Readjustment
Indonesia | 1985
Konsolidasi Tanah
ngola | (2006)
eajustamento de Terra
Australia | 1928
Land Pooling
LEGEND:
Countries with National/State Legislation Enacted
Country's Name | (Year of the First Experience) Year of the Legal's Origin
Name Given to Urban Land Readjustment
Countries without National/State Legislation Enacted
Country's Name | (Year of the First Experience)
Name Given to Urban Land Readjustment

Greece	Introduced by the "Law for Residential Areas" (land readjustment zones).	1979	Αστικού Αναδασμού (*astikoú anadasmoú*)
Philippines	Metro Manila Commission conducted a feasibility study, but that was suspended due to the political instability in the country.	(1980)	Land Readjustment
Indonesia	Promoted by the "Circular of the Minister of Home Affairs Nº 590/5648," then through the "Regulation of the Head of National Land Agency Nº 4," and mentioned in other acts, like the "Act of Housing and Settlement Nº 1."	1985, 1991, 2011	Konsolidasi Tanah
Sweden	Introduced by the "Joint Land Development Act" (*Lag 1987:11 om exploateringssamverkan*) already abolished.	1987, cancelled in 2012	Exploateringssamverkan
Nepal	Introduced by the "Town Development Act."	(1975), 1988	Land Pooling, जग्गा एकीकरण (*jaggā ēkīkaraṇa*)
Colombia	Introduced by "Law Nº 9 on Urban Reform" (article 77), and promulgated by the "Law Nº 388 on Urban and Territorial Development."	1989, 1997	Reajuste de Tierras
China	Introduced partially through the "State Measures of Compensation for Housing Relocation and Resettlement in the Urban Areas."	2001	土地整理 (*tǔdì zhěnglǐ*)
Thailand	Introduced by the "Land Readjustment Act, B.E. 2547."	(1985), 2004	การจัดรูปที่ดินเพื่อพัฒนาพื้นที่ (*kār cạd rūp thīdin pheūx phạt'hnā phūmthī*)
Angola	Two pilot projects already implemented, and no legislation enacted.	(2006)	Reajustamento de Terra
Bhutan	Introduced by the "Thromde Act" and by the "Land Act," and fully detailed in "Land Pooling Rules" of the Kingdom of Bhutan.	(2000), 2007, 2009	Land Pooling, སྒོ་ཆ་བདེ་གཞིས། (*sachha dezhip*)
Vietnam	Six pilot projects for housing implemented, and no legislation enacted.	(2011)	Tái Điều Chỉnh Đất
Argentina	The Province of Buenos Aires introduced "Law Nº 14,449 on the Fair Access to the Habitat" (articles 89, 90 and 92).	2012	Reajuste de Tierras
Brazil	Two books published, and one pilot project has been conducted based on the enacted municipal master plan of Curitiba.	(2007, 2009), (2012)	Reajuste de Terrenos, Reparcelamento do Solo
Afghanistan	Preliminary studies and implementation under consideration. Nowadays, there is a capacity building program for municipal staff.	(2012)	دي ځمکو مجدد تنظيم (*de zmeko mojajad tanzim*)
Mongolia	Introduced by the "Urban (Cities and Settlements) Redevelopment Law" (*Хот, суурин газрыг дахин хөгжүүлэх тухай хууль*).	(2012), 2015	Газрыг дахин зохион байгуулах (*gazryg dakhin zokhion baiguulakh*)

Note: This chart does not include countries or experiences utilizing exclusively land readjustment for rural/agricultural land consolidation/readjustment purposes. That is the reason why some countries were not included, for instance, like the Netherlands (*ruilverkaveling*), and Estonia (*maakorraldusseadus*).
(Source: Felipe Francisco De Souza).

Land Development and Land Readjustment Possibilities in Afghanistan

Habib Ahmad Javid

Since 2001, the urban population of Afghanistan has grown rapidly, and its current urbanization is taking place at an even faster rate. There is an actual demand for massive public programs to start new development projects, or to expand or to develop new Afghan cities, and most of these development projects involve the acquisition of land. Historically the land acquisition method used by the government was compulsory purchase – or expropriation – but nowadays governments at the local or at the central level do not have enough financial resources to expropriate the large amount of land that is necessary to meet the demand for development of and investment in infrastructure. Besides that, there is a criticism on the exercise of expropriation by the government because it generates severe loss for the people presently living and obtaining a livelihood from the occupied lands. People usually get relocated, especially the urban poor, to remote areas with limited access to jobs and public services. Expropriation in Afghanistan, therefore, implies social resistance and a financial burden on municipalities to compensate landowners, making it a difficult land development method to use. Given the lack of equitable and efficient land development policies, land markets are becoming blockages for any development process, exacerbating urban problems and the living environment quality.

In Afghanistan, the possible implementation of land readjustment would provide some benefits. First, it can be used to address problems caused by rapid urbanization in the capital city of Kabul, and in other big Afghan cities like Kandahar, Herat, Jalalabad, Mazar and Ghazni. The rapid urbanization brought problems like limited provision of planned areas and urban facilities, and informal settlements in the fringe areas. As the government of Afghanistan does not have enough financial resources to acquire all the necessary land for the demand for development, land readjustment can be used as a mechanism to plan growth and to promote new and necessary facilities at low project costs. Second, the urban planning structure of the country lacks community participation in plan making and urban development. Most of the governmental institutions involved in urban planning are carrying out planning activities without the involvement and consensus of the public. The method can be used to promote an active and cooperative involvement from community members and leaders within the project area supported by the government or any private implementation agency. And third, in Afghanistan land transfers go through a very complicated system, and there are too many laws and too many institutions dealing with it. The base for all land related laws

is *Islamic Law*, and ownership of the land can be acquired through inheritance, purchase, government land allocation, or transfer of ownership. Any process to acquire ownership of fully surveyed land for urban development must also proceed through the municipality. In this sense, the land readjustment method can be used to facilitate and clarify land ownership and tenure-related issues.

Recently, a survey was conducted around the Dehsabez area, where a new city is going to be developed, on possible use of the land readjustment method. Aiming to understand the general perception of landowners about the method, first an explanation was made followed by individual and group interviews. From this survey it was apparent that most landowners understand the main benefits of land readjustment. Also, the answers indicated that a potential increase in the land value motivated landowners of large plots in a possible joint effort to promote the method, but for small landowners there was a major concern related to the remaining size of their land parcels after land contributions for public facilities. Thus, the goal to be achieved when attempting to implement land readjustment is an environment where the majority of the landowners have reached agreement.

From the analysis of various literatures, it has been clarified that landowners are the most important stakeholders in land readjustment and their participation in the initiation and implementation process is one of the key principles for successfulness. Therefore, most efforts should be put on convincing them to cooperatively carry out the method. In order to do that, the implementing agency should draw the interest of landowners into the project by helping them to understand how land readjustment works and let them know how it will benefit their current and future land values and necessary urban services. Landowners will be convinced when they realize how they will benefit even if affected for some period of time. Their existing community will be highly improved by exercising land readjustment, so all efforts will pay off.

Land readjustment was very successful during the period of rapid urbanization and economic growth of countries like Japan and South Korea. Currently, Afghanistan is going through an era of rapid population growth, high urbanization trend and an improved economy, so exercising land readjustment for urban development may bring successful results. In the future, we expect that the government will offer exchange of land rights "from land to land" and "from land to apartment," respectively. And, by doing so, that the government will be capable of undertaking the rehabilitation of informal settlements and land parcels regularization for poor families through land readjustment.

Participatory and Inclusive Land Readjustment in Huambo, Angola

Allan Cain, Beat Weber and Moises Festo

After a protracted civil war, Angola has been reconstructing its social and physical infrastructure and developing new policies and legislation to address the chronic poverty that many families live in. Four decades of war were characterized by forced removals, resettlement, and massive internal displacement of rural and urban populations. Urban expansion became uncontrolled, and informal land transactions flourished with few legal tools and little financial and human resources to manage land properly. Land has emerged as a critical point of potential conflicts, and a recent research has demonstrated that, after the civil war, thriving land markets have come to exist in Angola; however, they are largely unregulated, and informal real estate transactions are the norm and are considered legitimate (Development Workshop 2005; 2012). Most settlement and housing-plot acquisition has been through this informal land market, and only a small percentage of urban residents have acquired full legal title to the land they occupy. Lack of tenure security in the form of "title" seriously undermines the wellbeing of poor families, and puts at risk their principal assets if expropriated. This is because only titleholders are eligible to receive compensation when land is expropriated for public development projects. The poor are thus at risk of losing their land and housing, even if purchased and occupied in good faith after demolitions and relocations.

In the Huambo municipality, the local administration had made provision for the distribution of land for self-help housing for those on a housing waiting list. The provincial government, which was struggling with the response to the high number of requests for housing sites, invited Development Workshop to coordinate the implementation of two participatory urban planning projects. Development Workshop suggested that a modified land readjustment or land-sharing model was appropriated to the context of Angola's current urban crisis. As a result, two projects were implemented during a three-year period (2006-2008) when important decentralization reforms were underway through the creation of municipal administrations that were assigned new powers for managing land. These two projects, illustrating Angola's first-ever experience of land readjustment, one successful and the other not, provided lessons on how this approach can be adapted for future public land and settlement policies.

The first project demonstrated how the land readjustment model could reduce land conflicts by regularizing tenure status, thus incorporating an informal settlement into

the formally planned urban part of the city (see Table 3.2 and Figures 3.3-3.4 for Sassonde and Camussamba project). It showed how market mechanisms created land value that benefitted former occupants, new owner-builders, and the State, thereby providing the incentive to these parties to work together. It also demonstrated the crucial role of social mobilization by Development Workshop, and the need for government buy-in to secure the success of the project. The process of building social inclusiveness involved convincing land occupants to participate in the project and proved to be onerous and time-consuming. Existing land-occupiers, whose land would be affected in the readjustment process, were registered and their land boundaries mapped using hand-held geoprocessing equipment. A compensation process was developed which foresaw that each land-occupier would receive plots in the newly urbanized area in accordance with the size of the land he or she lost, as a form of land readjustment. The overall distribution was crucial in this case: 30% of the land was reserved for infrastructure, including roads; 35% for redistribution to original local land occupants; and 35% for sale with the objective of covering basic infrastructure costs.

Under the auspices of the provincial government, all owners of the redistributed parcels (including previous land occupants and new residents) were issued with "provisional tenure licenses" (*licença de arrematação*), and given two-year renewable leases before having the right to apply for a full land title. The project sold the remaining 35% of the plots to private individuals and families who had registered themselves on the government's housing waiting list. With the funds acquired from the sale of land parcels, investments were made in layout planning, clearing roadways, and installing boreholes for drinking water. Without doubt, one important factor contributing to the relatively successful completion of the pilot project was the vibrant land market that facilitated the immediate sale of the land parcels for the creation of the infrastructure fund. The leading agency and one member of the management group jointly managed the infrastructure fund. It proved that such arrangements could be made without a legal or institutional framework for this purpose.

Huambo's first land readjustment project contributed to create a socially diverse neighborhood (*bairro*), with a population consisting of different income groups, ranging from the poor to the middle class. No conflict was noted between social classes or ethnic groups who occupied the *bairro*. The inclusion of the poor was achieved through a compensation process with the allocation of redeveloped land parcels rather than a monetary compensation. The project was perceived to be successful by all participants in the process, as evidenced by the families who acquired secure land tenure and who financially benefited from the increased value of their land and income gained from the sale of the plots created through the process of readjustment. The sub-division and registry of plots by the government was a primary factor that unlocked land value.

This land redevelopment increased market value that benefitted former occupants, new owner-builders, financial intermediaries, and the State.

After the success of the pilot project the Huambo municipal administration asked Development Workshop to implement a second project. The same overall approach was used, initiating a process of registering and mapping of the developed, informal area and implementing a readjustment scheme at the periphery of the peri-urban area. The second case, however, demonstrated that the project did not generate sufficient resources to sustain itself, because it lost the essential ingredient of financial control and the opportunity to take advantage of the booming land market to create value. It was launched shortly after the publication of the new decentralization law in 2007. However, the municipal administration failed to take up opportunities that the new law had opened up. The decentralization law gave municipalities the responsibility to manage land under 1,000 square meters, at a domestic/housing scale, and gave them the rights to levy fees for local services and collect fees. A shortcoming of the decentralization law obliged all income raised locally by the municipal administrations from taxes and fees to revert to the central government's account. The only local investment funds made available to municipalities were allocated through their annual budgets. Municipal authorities therefore had no incentive to create surplus income from local sources. Locally generated income was not left for them to manage locally. Instead of selling land plots to create an infrastructure development fund, the municipal administration distributed the parcels for free to individuals who were on the municipality's long waiting list for land for housing. Without cost-recovery, there were no funds to invest in basic infrastructure.

It is recommended that a major effort be invested in the capacity building of municipalities in managing land and in fiscal responsibilities that they must now assume. Municipalities must also be given the possibility to generate their own financial resources through transaction fees and taxes. Income from the regularization of land tenure can be one of the ways that municipalities can sustain themselves in the future, at least until all informal land has been converted, after which time new forms of value capture will need to be devised. The fact that urban development projects can be both self-financing and create secure tenure rights for informal land occupants is probably the most powerful argument for replicating the pilot projects. The economic aspect has obvious appeal to government institutions. Given budget constraints under which many municipal administrations operate, this provides a valid and interesting approach to manage urban expansion and improve conditions of slums.

While the authors are strong proponents of Angola's administrative decentralization program, they conclude that the devolution of land-management responsibilities to a

newly appointed municipal administration that did not have sufficient financial autonomy to capture and deploy income from the increased value of land they developed, led to the failure of the second pilot project. It became evident that a major effort must be invested in the building of the capacity of municipalities to manage land and the other responsibilities that they must now assume, such as the supply of basic services including water and sanitation. Municipalities must be given the possibility to generate and retain their own sources of revenue through transaction fees and taxes. Income from the regularization of land tenure may be one of the ways that municipalities can sustain themselves in the future.

The two Huambo land readjustment case studies demonstrated that *de facto* recognition of the good faith occupation rights of existing land owners-occupiers is important for the functioning of an inclusive land market. The recognition of occupants' rights allows them to benefit economically, along with all the other actors in the market at the time of legalization and regularization of tenure through a process of participatory land readjustment. However, the current land legislation will need to be revised to accommodate the principle of occupation in good faith. Bylaws and regulations will need to define the proofs that can be used to validate this occupation and the procedures that will be used to register these claims. Once these rights are defined legally, mechanisms will also need to be established to adjudicate conflicting claims. The strengthening of municipal Courts to deal with local land claims will be essential.

The experience shows that despite a rather challenging environment, land readjustment in Angola has the potential to become an important tool for urban planning (Cain 2010; Cain, Weber, and Festo 2013). It shows that, while there is still no legal framework for land readjustment and a very limited culture of participation in urban planning processes, growing land markets and the cooperation between land occupants and public and private investors can make land readjustment a viable option for local governments. If land readjustment is to be an effective tool for urban development in Angola, the lessons from these case studies need to be understood by urban policy makers and facilitating legislation enacted, allowing land value capture and its reinvestment by municipalities. The capacity of municipalities to plan and manage such projects on a much larger scale must be built. Land readjustment provides a win-win mechanism for all involved parties to regularize peri-urban settlements, providing sustainable infrastructure and access to services, while at the same time strengthening the rights of tenure and protection of assets of the poor. If municipal fiscal rules were to be reformed, land readjustment could also provide local government with an opportunity to capture some of the added land value as cities grow.

Table 3.2. The Sassonde and Camussamba Land Readjustment Project in Huambo, Angola

Name of the project:		Sassonde and Camussamba Land Readjustment Project
Location of the project:		Huambo, Angola
Name of the implementation agency:		Development Workshop Angola
Project period:		2006-2008
Implementation of the project period:		2006-2008
Area of the project:		60 hectares
Rights holders:	Nº of landowners:	62 originally, 597 at end of the project.
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	30%
	Decrease for reserved land:	35%
	Total ratio of decrease:	65%
Implementation plan, stages:		Project completed in 2008.
Total built-up area of the project:		42 hectares
Density involved before and after the project:		Before the project: 7 inhabitants/hectare. After the project: 100 inhabitants/ hectare.
Reserved land and additional built area:		Approximately 20 hectares.
Land evaluation:		Approximately USD 1,000/ hectare before the project. Land price after: USD 13,300/ hectare. Land price today: USD 186,700/ hectare.
Real estate market evaluation:		No real estate market evaluation implemented.
Benefits to the local government:		Training for local government staff. Demonstration of a model to address urban development. USD 80,000 in infrastructure funded.
Benefits to the landowners (and/or leaseholders):		Full compensation & legal regularization of land holdings.
Benefits to the investors:		Promotion of effective and sustainable land readjustment model for the Angolan context.
Principal and eventual conflicts (site/landowners):		No conflicts found.
Finance of the project:		-
Total cost of the project:		Around USD 200,000.
Features of the project:		1. Participatory urban planning project to stem informal growth at the urban periphery and to provide access to legal land. 2. Emphasis of government and civil society organization and institutional partnership. 3. Land readjustment allowing full compensation and creation of an infrastructure fund. 4. Principle of value capture from land markets using land tenure regularization. 5. Effective mitigation of any land related conflicts.

▼ Figure 3.3. Sassonde and Camussamba land readjustment pilot project (2007)

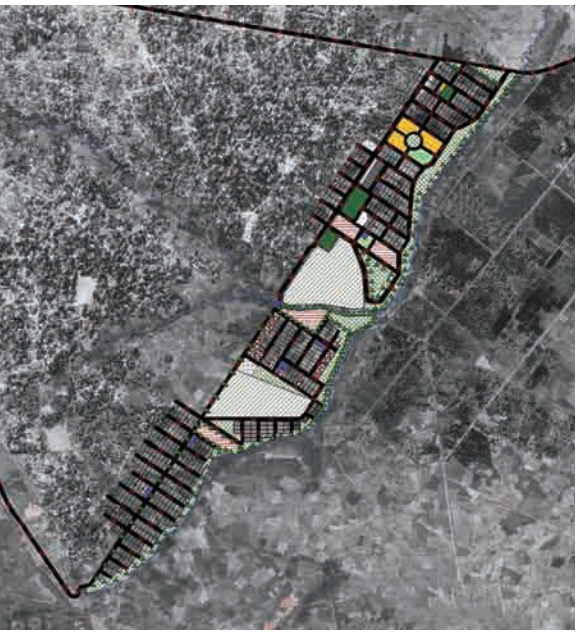


Figure 3.4. Official occupation licenses distributed to new landowners (2007) ▲

Land Readjustment, an Urban Planning Tool in Bhutan

Tashi Wangmo

Bhutan is a small country located in the Himalayas. It has a rich but ecologically fragile environment with a very difficult terrain, in which just a very small land percentage is used for agriculture and human settlements. Despite the country's rapid urbanization, most of its population, about 70% of 635,000, lives in rural areas (Population and Housing Census of Bhutan 2005). The Bhutanese society, therefore, is still very agricultural with strong social and cultural values, and religion often plays a central role in people's daily lives. The Bhutanese had always learnt to live and work with nature, often as per the tenets of religious texts, and the socio-cultural belief system has not only helped Bhutan to sustain its strong cultural traditions and community values but also helped to protect its natural environment (MoWHS 2008). It is famously recognized that Bhutan adopted and pursued the development philosophy of "Gross National Happiness" (GNH).

Prior to 2000, all urban development plans were prepared on private land acquired by the government (Wangmo 2011). This planning process became increasingly difficult and unpopular due to opposition from landowners, loss of land titles and the requirement of high compensation costs. By 1998, during the revision of the "Thimphu Urban Development Plan" (1986-2000), with the support of UN-Habitat, the idea of land pooling/readjustment was first introduced. According to Meghraj Adhikari, urban specialist working at the Department of Human Settlement, Ministry of Works and Human Settlement, the first pilot project prepared with land readjustment was in Changzamtok, Thimphu. Such pilot project, unfortunately, remains unimplemented, but later the concept gained wider public acceptance and was used in other towns across the country.

The successful utilization of land readjustment can be attributed to the soundness of the concept and, after almost a decade, many projects were implemented with the adoption of the *Land Pooling Rules* of the Kingdom of Bhutan (2009). Until 2009, the concept was practiced without legal support. There are many reasons for the land readjustment recognition and acceptance as a planning tool in Bhutan (Wangmo 2011):

a. Preservation of the interests of original landowners: in the past, Bhutanese planners used a land acquisition method that displaced original landowners to redistribute land to new owners. This brought resistance from stakeholders and delayed the management of urban growth in many cases. With the introduction of land readjustment, the original landowners retain the title for majority of their lands and disruption in the existing community is avoided;

b. An incentive-based approach for urban management: with land readjustment, landowners contribute with a percentage of their land to the development, but in return they receive more: the plot shape and configuration becomes more appropriate for urban uses; the creation of infrastructure, public facilities, and services is possible; and the efficiency of urban plots is boosted, thus increasing the land value;

c. A participatory approach: unlike the conventional planning approach, land readjustment requires all stakeholders to participate in the planning process. Landowners' opinions form an important part of the planning process starting from inception to the implementation of the plan;

d. Environment protection and the conservation of heritage structure: it is impossible for the government to finance alone the management of environmentally sensitive areas and the conservation of heritage structures. Planning through land readjustment may designate precincts, such as environmental precincts and heritage pre-

cincts, through contribution of land where development can be restricted thus enabling protection and conservation.

The land readjustment technique was first implemented in Rangjung, Trashigang district, in 2002, under the Bhutan Urban Development Project 1 (BUDP 1), and funded by the World Bank (see Table 3.3 and Figures 3.5-3.7 for Rangjung project). Rangjung is a small service town located 17 kilometers from Trashigang town, and it serves six "*gewogs*" (blocks), namely Shongphu, Radhi, Phongmey, Bidung, Merak and Sakten. The Rangjung project has an area of 31.5 acres; its land is relatively flat and is predominantly vacant with a few houses along the existing road that housed shops and residential units. It has 74 registered landowners with the plot sizes averaging 41 decimals, or 1,659 square meters (MoWHS 2002). Since the concept of land readjustment was new, the planning team started the planning process with public consultation, held on August 30, 2002. The concept was explained in local language by drawing simple maps to all stakeholders, like the head and officials from the district administration, and the landowners. The planning team worked at the project site for easy clarification and queries from the stakeholders and the planning process was not limited to public consultations. In addition, the project area was divided into 5 units and workshops were carried out in each unit separately for smaller audiences (MoWHS 2002). The intention was to involve all the stakeholders in the planning process enabling the planners to clearly impart the concept of land readjustment as well as planning principles. This also provided an opportunity to stakeholders to voice their opinions and to express their desires on future needs and priorities for the town. The final public consultation was held on September 14, 2002 with all the stakeholders. The project was finally accepted by approximately 93% of the landowners (69 out of 74 landowners) with 35% of contribution ratio, which was a consensus of more than two thirds of total landowners and the contribution was higher than the allowable ratio of 30% prescribed in the *Land Pooling Rules*.

However, even though the concept of land readjustment has gained wider public acceptance and has been used in towns across the country, it is not free of challenges. Some of the challenges during the preparation of the subdivision plan and implementation of the technique are as follows (Drukpa 2012; Wangmo 2011):

a. Contribution ratio: the restriction of contribution ratio to 30% by the *Land Pooling Rules*, to protect the land holding sizes, poses limitation on the amount of land for quality infrastructure, particularly in the hilly terrain of Bhutan. It is a challenge for planners to design an efficient layout plan on steep slopes;

b. Landowners with access to infrastructure: the contribution ratio is the same for all

landowners in land readjustment projects, irrespective of the plot location. This has been observed to cause problems for landowners who already had access to infrastructure and services before the project. These landowners generally oppose land readjustment. The *Land Pooling Rules*, however, have a provision for the calculation of different contribution ratios, which has not yet been implemented due to the lack of technical capabilities;

c. Landowners' support of the scheme: the *Land Pooling Rules* ask for the agreement of two thirds of the landowners to initiate a land readjustment project. This has been observed as a problem as an adequate number of landowners do not show up for the meetings. Many of them live in other areas, they often do not value the meetings, and their prime motive could be speculation;

d. Legal support to the *Land Pooling Rules* (2009): the 2009 Rules do not have direct legal effect. Land readjustment is mentioned in the *Land Act* (2007) as one of the mandatory planning techniques, but the law does not detail on how to carry it on. This is posing serious challenges to planners, particularly when landowners take land issues within the project area to the Court;

e. Infrastructure financing: landowners agreed to contribute with a land percentage of land for infrastructure, but do not agree to contribute to share the cost of providing infrastructure. Since the land contribution ratio is limited to 30%, the scheme does not generate adequate reserved plots for auctioning to infrastructure financing. The government, therefore, still needs to finance the cost for infrastructure development, which is the main cause of delay for the implementation of several projects;

f. Awareness of land readjustment: landowners generally understand land contribution as being a contribution to the government. As mentioned before, prior to the usage of land readjustment, land acquisition was the main means of obtaining land for development. It was observed that landowners still fear that the government is taking their lands and displacing them for the purposes of development. This is one of the main reasons for the unwillingness to contribute even 30% of their land; and

g. Traditional landholding patterns and the culture of individual household: the contradiction between the minimum plot sizes in rural and urban areas (10 decimals, or 404.6 square meters in rural areas, and 13 decimals, or 527 square meters in urban areas) also poses as a challenge for planners. Plots sized less than 13 decimals result from consolidation during the subdivision plan, and this may bring

conflict with landowners because of the strong culture of individual and traditional landholding patterns.

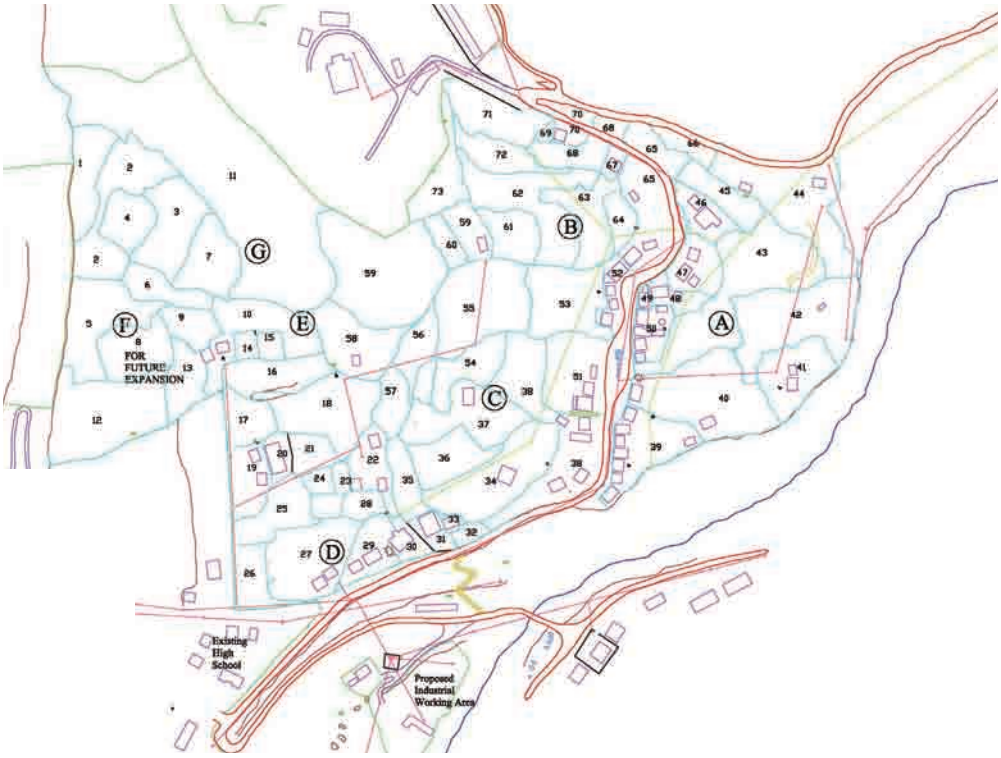
Finally, Bhutan is a small and mountainous developing country constrained with both land and financial resources. Its challenges are compounded by the rapid rate of urbanization and the increasing demand for urban infrastructure and services. On top of this, Bhutan's goal of providing an enabling environment for happiness calls for a balanced approach to urban planning. Despite the cumbersome and time-consuming process, planners are using land readjustment wherever possible because landowners are not rendered landless and government needs not to compensate for infrastructure development through land acquisition. When most are concerned with cost-benefit analysis and maximum utilization of resources, which in most up-coming towns is land, land readjustment can provide a way forward by enabling productive development of urban centres while also ensuring that the development is economically, environmentally, socially and culturally sustainable. Despite the insufficient skills and lack of adequate know-how, as none of landowners and even urban planners were formally trained before undertaking projects, land readjustment is the most accepted and popular planning tool used in Bhutan for human settlement planning and development nowadays.

Table 3.3. The Rangjung Land Readjustment Project in Trashigang, Bhutan

Name of the project:		Rangjung Land Readjustment Project
Location of the project:		Trashigang Dzongkhag, Kingdom of Bhutan
Name of the implementation agency:		Ministry of Works and Human Settlement of the Kingdom of Bhutan, with support by the World Bank.
Project period:		2000-2002
Implementation of the project period:		2002
Area of the project:		12.74 hectares (31.5 acres)
Rights holders:	Nº of landowners:	74
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	35%
	Decrease for reserved land:	0%
	Total ratio of decrease:	35%
Implementation plan, stages:		August 2002: planning process started with public consultation; the plan was explained to all stakeholders. September 2002: final public consultation, with 93% of consensus (69 out of 74 landowners accepted the plan).
Total built-up area of the project:		The project area was predominantly vacant with few houses along an existing road, which housed shops and residential units.
Density involved before and after the project:		No information.
Reserved land and additional built area:		No reserve land approach.
Land evaluation:		No information.

Real estate market evaluation:	No information.
Benefits to the local government:	With land contribution, government creates enough infrastructure, public facilities and services.
Benefits to the landowners (and/or leaseholders):	Original landowners retain title over the majority of their lands and disruption to the existing community is avoided.
Benefits to the investors:	-
Principal and eventual conflicts (site/landowners):	The project was accepted by approximately 93% of the landowners (69 out of 74 landowners accepted), although the contribution ratio of 35% is higher than the allowable ratio of 30% prescribed in the *Land Pooling Rules* (2009).
Finance of the project:	Fully financed by the government.
Total cost of the project:	No information.
Features of the project:	The planning process was not limited to public consultations, the project area was divided into 5 units and workshops were carried out for each unit separately for smaller audiences. This also provided an opportunity for the stakeholders to voice their opinions and to express their desire of future needs and priorities of the town.

▼ Figure 3.5. Rangjung area after the land readjustment project (2014)



▲ Figure 3.6. Original cadastral map before the land readjustment implementation (2000)

▼ Figure 3.7. Subdivision map after the land readjustment implementation (2002)

Land Readjustment and its Planning Perspectives for Belo Horizonte, Brazil

Lívia Monteiro, Tiago Esteves Gonçalves Da Costa, Thiago Medeiros De Castro Silva and Leonardo Amaral Castro

Belo Horizonte is going through a period of significant review of its most important norms for municipal planning. The *draft law Nº 1,749* of 2015 is a proposal authored by the Executive for approval by the municipal city council, and updates the master plan of Belo Horizonte, the main territorial planning law of the municipality. The proposed changes are the result of a deep recognition of the territory developed during the consolidation of the "Regional Master Plans," and of a set of guidelines approved in a public forum for shared discussions named the "4th Municipal Conference on Urban Policy."

The "Regional Master Plans" have collected enough information to allow a general reform of the Belo Horizonte urban legislation. The review of the forms of land subdivision, occupation and use proposed by the municipality that increase the possibility of the operationalization of the urban policy instruments established by the municipal master plan (as amended) occurred through the *Law Nº 9,959* of 2010. The urban policy instruments included in the municipal regulations follow the premises of the Brazilian *Federal Law Nº 10,257* of 2001, known as the "Statute of the City," that regulates Articles 182 and 183 of the National Constitution (promulgated in 1988), in addition to the establishment of general guidelines for urban policies to be carried by Brazilian municipalities. The Federal Constitution and the Statute of the City progressively confirmed: (i) municipal autonomy; (ii) the guidelines for the treatment of urban issues; and (iii) the concepts and assumptions for the development of systems for municipal planning and management. The federal norms present, however, some generic devices that do not have any direct application to the ordering of urban space. It is the responsibility of municipal governments to dovetail the instruments for urban policy in specific regulations with the purpose of their application based on national laws.

Land readjustment will be incorporated into the Belo Horizonte legislation during the review process as a mechanism to be applied under another instrument called "urban operation." In this sense, land readjustment will be conceptualized in the master plan of Belo Horizonte as an alternative to direct urban expansion as practiced in countries like Spain and Colombia. The research on Spanish urban policy mechanisms (Monteiro 2014) started mainly from studies on urban intervention models developed in Barcelona. The capital of Catalonia has the "Metropolitan General Plan" (PGM) approved in

1976 as a device that establishes general guidelines for the organization of the urban fabric of Barcelona and its metropolitan area. The "Special Plans for Interior Reform" in Barcelona were studied as examples demonstrating the "organicity" between planning scales, starting from the PGM scale and culminating in the block scale, which allocates "action unities" where "*reparcelació*" (reparcelization) takes place. The *reparcelació* is a mechanism by which there is a reformulation of the existing parceling into a more regular one, in which there is the improvement of the road system, the infrastructure and the collective space, with shared responsibilities between the landowners and investors, who receive benefits proportional to their obligations in the project.

The Colombian legislation also presents a hierarchy of plans for territorial planning based on *Law Nº 388* of 1997. The Colombian "Partial Plans" are part of the "Territorial Management Plan" (POT) – mandatory for municipalities depending on their size and configuration – as a higher-level development instrument that includes "action unities" in which new patterns of urban design, occupancy and land use can be proposed. Within action unities, land readjustment projects take place, under the influence of international models, mainly, from the Japanese "*kukaku seiri*" practice and from the Spanish initiatives. The international planning experiences researched converge to the concern about the formation of a complex intervention system in the urban space by means of consorted operations. The examples demonstrate, on a regional and local scale, intermediate and non-conclusive plans. They are general approximations for the municipalities or metropolitan regions, which still require complementary actions and instruments for the implementation of urban development guidelines. Following such understanding, the so-called urban operations in Belo Horizonte will require that a mechanism enabling intervention using land readjustment be developed to reorganize the necessary land patterns.

The master plan of Belo Horizonte, since 2010, foresees two types of urban operations: simplified urban operations and consorted urban operations. The use of each instrument depends on its goals, on the extent of its area, and on the positive and negative influence they might have on citizens' lives. On the one hand, the simplified urban operation is a set of interventions and measures coordinated by the Executive with the objective of achieving the neighborhood's betterment, through local urban transformation, social improvements and environmental valuation. It has a more localized structuring profile, with smaller effects on the urban grids and can be proposed by the municipal administration or by any interested party. On the other hand, the consorted urban operation is a set of interventions and measures coordinated by the Executive, with the participation of owners, residents, permanent users and private investors, with the objective of achieving structural urban transformation, social improvements and greater environmental valuation, with more perceptive effects in the urban network.

The decision made by the city planning authority to link the usage of land readjustment into urban operations is fundamentally justified by the legal guarantees necessary to carry out such operations, and by the obligation to carry on such operations with public participation. Urban operations, whether simplified or consorted, can be only instituted by law and generally have specific regulations for land subdivision, and occupation and use, as well as building regulations and a special building code. The rules may be more lenient or more restrictive than those contained in the municipal master plan and may reflect more effective territorial planning needs to address deficiencies and potentialities of a specific urban area. This regulation of operations involves special financing and management mechanisms for the formation of partnerships between public and private entities, aiming at achieving control of the territory they cover.

The planning of urban operations should be based on a notion of an appropriate relationship of the neighborhood and the proposed projects, plans and policies concerning multiple disciplines that balance city functions, i.e. environment, heritage, mobility, accessibility, sanitation, and housing, among others. The spatial changes must overcome the dissociation between the design of public spaces and the design of private spaces (components in serious need of integration). The consolidation of a complex urban plan based on urban operations also increases the condition of anticipating the effects of the transformation generated in the urban structure, allowing human and financial resources to reach decidedly participatory goals. The plan for each operation, drawn up in accordance with the conclusions from economic and financial feasibility studies, include the design of the construction stock to be made available by the government, and the conditions for land use, urban design and the definition of priorities, among the other conceptions that conclude the elaboration of scenarios and objectives. The interventions must be linked to an execution plan that seeks economic viability and self-financing for spatial transformations, and the operations shall be managed as a tool to recover the real estate added value constituted after legal changes and urban intervention.

The consorted urban operation "*Antônio Carlos-Pedro* I Corridor and the East-West Hub" (OUC-ACLO) was developed by the Belo Horizonte municipality, which foresaw the usage of land readjustment on private properties. Such operation involves an area of 30.4 square kilometers and was defined by the 2010 master plan review. The perimeter of the operation covers areas around the public transportation system along the center-north direction – served by the bus rapid transit system – and the east-west direction – where a single municipal subway line was implemented. The main objective of this operation was to promote a better utilization of the installed infrastructure associated with urban restructuring in the immediate surroundings along the priority axes of public transportation. This restructure is expected to increase the living envi-

ronment quality of the area, following the compact city concept, and to encourage (i) real estate typologies for mixed land use, (ii) the improvement of public spaces, (iii) social diversity, (iv) the promotion of non-motorized means of transport, and (v) the expansion of green areas, among other measures.

The area covered by OUC-ACLO is quite heterogeneous and it was subdivided into 12 areas organized according to specific plans. Both management and special plans provide detailed parameters and design standards, following guidelines defined in the specific OUC-ACLO law, and aimed at deliberation and consultation by the local management groups in the operation. The perimeter definition guarantees a greater unity to urban planning and design, and to provide (i) better services to the population, (ii) conflict resolution, (iii) public spaces and urban design, (iv) economic diversity, and (v) inclusive alternatives aiming common financing, predominantly generated through the valuation of properties that it includes. Aiming to achieve such goals, the OUC-ACLO has a pioneering disposition; the possibility of practicing land readjustment as a complementary phase, as noted in the following excerpt:

> "OUC-ACLO will include land reorganization, on which real estate registry may be subject to unification or pooling for subsequent replotting, associated to urban requalification projects. This tool, complementary to consorted urban operations, shall be included in the new *Land Use Law* and city master plan, and has equivalent basis to the Colombian land readjustment scheme." (Interim Report of the OUC-ACLO 2016)

To apply land readjustment processes within the OUC-ACLO area, real estate properties may be subject to unification for later re-parceling, associated to the implementation of urban qualification projects. The article that establishes land readjustment in the *draft law Nº 1,749* of 2015, predicts that its usage will depend on:

a. The definition of a minimum percentage for adhesion of the affected landowners, considering their number, the amount of real estate or their lands' extension;

b. The definition of specific implementation and management mechanisms;

c. The definition of financing schemes; and

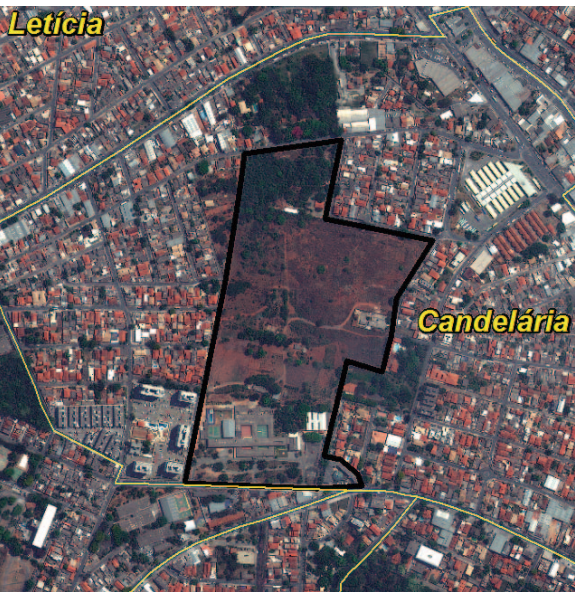
d. The measurement of the contribution to be equitably demanded from all the participants, which shall be proportional to their real estate values or to the financing they made available for the implementation of improvements and the urban benefits they receive.

In 2016, under the Japan International Cooperation Agency's training follow-up, a pilot area for land readjustment inside OUC-ACLO was selected. The landowner is a non-profit association, which owns approximately 18 hectares of an undeveloped and undivided land parcel, located in the Candelária district (see Figure 3.8). The landowner attempted to start a new development through parceling, and the "Parceling Commission" had arbitrated that the landowner should transfer to the municipality 15% of the total area, 5% of which would be designated for the creation of public spaces and 10% for urban and community facilities. As a preliminary action, the "Parceling Commission" also indicated the necessity to build three roads of 15 meters and one road of 7.5 meters wide. However, the landowner did not possess the economic resources required for such costly intervention, which led the urban planning secretariat to propose a different financing scheme for the process, namely through land readjustment.

The undeveloped area represents a major barrier in the neighborhood, since the massive undivided parcel interrupts the existing road system. The design proposal establishes a new proposed road network (shown in red, see Figure 3.9). This design seeks to solve the barrier characteristics of the undivided area, establishing the missing road links between the streets of the current network, thus providing better overall mobility. The layout aims to provide better and unrestricted access to the Venda Nova terminal station, enhancing the area's access to public transportation and enabling development with a lesser focus on private vehicles. Proposed pedestrian footpaths are shown as dotted red lines (see Figure 3.9). The proposal also establishes a public park and an environmental protection area. Other smaller parks, squares and green areas will be appointed in the future.

Besides the main area, some other plots/landowners might be incorporated into the project area. The neighborhoods around the main area have an overwhelmingly residential use, with some sparse mixed-use facilities, most of them located in the main avenues to the northeast. It is relevant to note the lack of vacant plots in the immediate vicinity of the area, which could denote an increased potential demand. Both measured built floor-area ratio and building height are considered very low. Most of the neighboring area is composed of low-rise single-family dwellings and low-rise mixed-use buildings, with some sparse high-rise developments. According to data from the property transfer tax, the average value of land in the region immediately to the east and south of the main area is significantly higher than that to the west. Apparently, the undeveloped and undivided area acts like a buffer zone, effectively establishing a lesser-valued area. This could arise from the barrier aspect of the land parcel, which creates a road system discontinuity and harms the accessibility of the area. Land readjustment shall be used to provide proper balance to the neighborhood.

▼ Figure 3.8. Candelária area before the land readjustment project



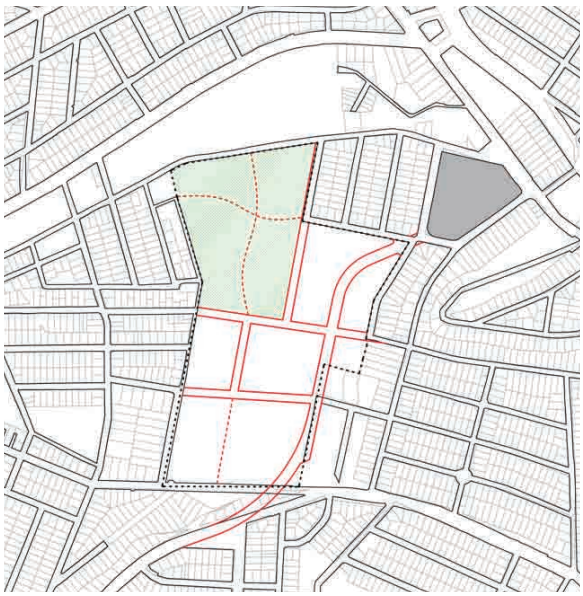


Figure 3.9. Land readjustment project proposal for Candelária ▲

Land Readjustment Within the Context of Partial Plans in Colombia

María Cristina Rojas Eberhard

In 1989 *Law Nº 9* was enacted in Colombia. This law, on urban reform, contained instruments for management and land use planning, conferring to the State the protagonist role as city builder. During the law development process, the Japan International Cooperation Agency's participation was particularly reflected in the incorporation of instruments such as land readjustment and urban redevelopment. This law defined land readjustment as a mechanism to "encompass several land plots to, as consequence, subdivide them more adequately, providing basic infrastructure, such as roads, parks, water supply network, electricity and telecommunication networks" (article 77, *Law Nº 9* of 1989), in areas without proper urbanization and real estate connectivity, designated for undeveloped areas, renewal, renovation or densification.

In this context, it is important to clarify that, unlike Japan and other countries, in Colombia there is no specific law on land readjustment, and both development and imple-

mentation of land readjustment projects occur using other instruments and legal frameworks. When *Law Nº 388* was enacted, in 1997, several instruments were made available for urban development, among them, cooperation among stakeholders (article 47, *Law Nº 388* of 1997), the partial plan, the urban action units (*unidades de actuación urbanística*), and the equitable share of costs and benefits, which were mainly adapted from the *Spanish Land Law*.

The "Partial Plan" is an urban planning tool used in the decision-making process, in consideration of what the "Territorial Management Plan" (POT) had previously stated in a more generic way, to extend some city districts, aiming for a "cascade" planning model, from the intermediate scale of buildings to the city as a whole. Within Partial Plans, the government can implement and develop "Urban Action Units" (*Unidad de Actuación Urbanística*) as "[...] the area consisting of one or more property buildings, explicitly defined by the legally enacted Territorial Management Plan (POT) as a planning unit, aiming to promote the rational use of land, to ensure the compliance of planning regulations, and to facilitate the provision with costs to their property owners of infrastructure, such as for transportation, public utilities and collective facilities through the equitable share of costs and benefits" (article 39, *Law Nº 388* of 1997).

Whenever the development of a Partial Plan, or an Urban Action Unit, "[...] requires a new property definition for a better configuration of the land parcels that they constitute, or when it is required to ensure a fair distribution of costs and benefits, the execution of an Urban Action Unit will take place through the mechanisms of land readjustment or integration" (article 45, *Law Nº 388* of 1997). Operationally, these instruments are intended to overcome the "construction plot-by-plot" (*predio-a-predio*) development model to structure urban projects (see Figures 3.10-3.12). According to Eberhard and Díaz (2010):

> "In this sense, on the one hand, it is possible to make proper decisions on territorial planning, defining the conditions, sizes, infrastructure networks, land use and regulating the conditions for the physical transformation. On the other hand, these are tools for land management, which allows to set conditions to: (i) the control of land speculative process; (ii) the definition of rules for the participation of the original landowners in the real estate business; (iii) the coordination and articulation between the different actors involved in the urban development process; and (iv) the establishment of mechanisms for land management, such as land readjustment and the distribution of costs and benefits."

▼ Figure 3.10. Comparison of development forms: typical land plots' subdivision

▼ Figure 3.11. Option A: "construction plot-by-plot" development model

▼ Figure 3.12. Option B: urban development model through a Partial Plan

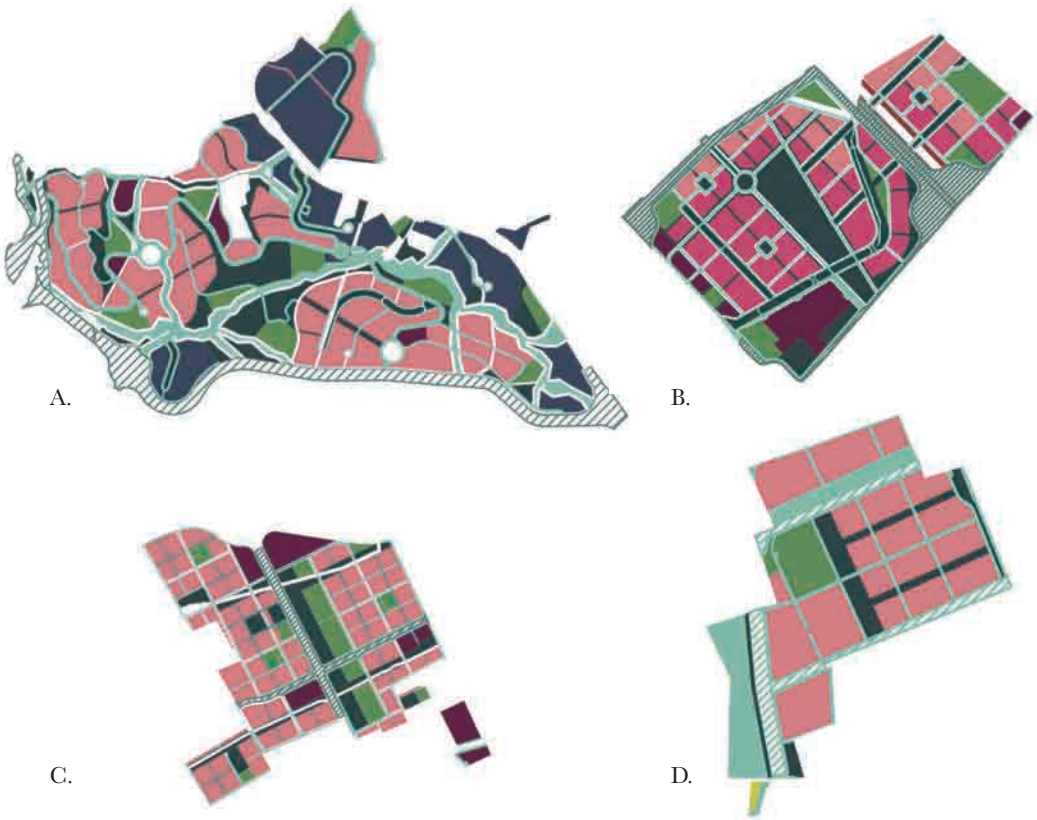
Furthermore, the "distribution of costs and benefits" is a tool that allows assigning, among participants and/or stakeholders directly involved, the proportional buildable costs and benefits delivered through the Partial Plan. Thus, it is intended to confront the economic problem known as the "free-rider" (people who benefit from a good without contributing to its financing), forcing those property-owners to share proportionally the costs and the benefits of the project. The national government has set some criteria to establish the obligations to develop land through Partial Plans: undeveloped areas larger than 10 hectares in case of land that has not been developed previously and, in the case of land for urban renovation, the decision being made under the Territorial Management Plan (POT) in consideration of *Decree Law Nº 2,181* of 2006 and *Decree Law Nº 4,300* of 2007, among others; using their criteria to establish the share of costs and benefits in these Partial Plans.

Since the laws establishing the general conditions of land use planning are part of the administrative decentralization guidance in the country, municipalities are responsible for spatial planning, and their councils, and in some cases directly the mayors, are responsible for the approval of municipal territorial and spatial plans. Thus, there are general rules for the formulation of Partial Plans, but some peculiarities in the adoption of this instrument and more precise regulations on the equal share of costs and benefits, contained under the Territorial Management Plan (POT) of each municipality. At the municipal level, the planning office revises the Partial Plans proposal and its consistency with the Territorial Management Plan (POT), granting approval through mayoral decree. These decrees establish the scope of the Partial Plans, norms and rules to guide uses, buildability, urban projects, obligations for the construction of social housing (*vivienda de interés prioritaria*), exactions or contributions in land, infrastructure or cash required to build water and sewerage networks, roads, adequacy of public space, and social derived costs with the community, among others. Within the procedures for Partial Plans, participatory processes with the community are contemplated and this involves several public entities during the project's review and a demand for infrastructure and environmental conditions transparency.

Partial Plans can be formulated by the private, public or mixed entities. In most cases, when the leadership belongs to the public sector, it usually buys properties rather than offering relocation within the project itself, with few exceptions. The latter could generate moves for the prevention of citizens living in those areas. This could be due to political urgency to show results within an administrative time (four years). The private-led projects tend to provide a wider range of possibilities for negotiation, including the relocation of the original owners in the same project area, or to deliver a newly built structure resulting from the development project. It is important to clarify that, in Colombia, only a very small percentage of the land is owned by the State and there is a

lack of the required land for infrastructure, buildings for public services and for parks and plazas. In other words, urban land in Colombia is mostly privately owned.

As mentioned before, the Partial Plans are used in two land types: land to be developed or land that have not been urbanized or used for urban renewal previously. Partial Plans are primarily used in land located in areas designated for urban expansion or large areas within a city that have not been urbanized. Therefore, a large number of people do not reside or work on these types of land, generally, and a possible temporary or permanent relocation of people is not a major topic of discussion. However, since these are properties without infrastructure, the costs of construction necessary to support new urban uses become a major issue within the planning office. In general, Partial Plans must set apart between 25 and 40% of the original land for public facilities, including streets, schools, parks or environmental conservation areas (as shown in different Partial Plans in Bogotá, see Figure 3.13).



▲ Figure 3.13 (A-D). Some Partial Plans of Bogotá (Tres Quebradas, La Felicidad, Ciudad El Porvenir, Campo Verde)

Partial Plans for urban renewal are located on land identified as a potential area that maintains permanent construction; some degraded, deteriorated or abandoned central areas. Also, construction incorporating use changes that were not made for these purposes, or areas with a greater density potential and, therefore, the potential of an increase in property value. These Partial Plans must be considered carefully since it is necessary to ensure a balance between not reducing the quality of life of actual residents and the need to provide areas for more efficient and compact city growth. In urban renewal projects, the development potential is more uncertain and depends on several variables.

The location of these concession spaces, which configures the private ownership and, therefore, the project's urban design, come from the developers of the Partial Plan that must comply with the guidelines established by the planning office, such as: location for parks and roads connecting already developed zones with some others. Developers can also propose land uses after market research, without contradicting the Territorial Management Plan (POT), and so can the planning office, if necessary. Also, the definition of the maximum buildable area (FAR) is regulated in the Partial Plan, and this represents the benefits that the city allows to the property landowner and, therefore, he/she must help to cover the costs of the necessary infrastructure (the required public infrastructure to transform land, which recover and capture the increase of land value in a self-financing way).

It is worth mentioning that in the Partial Plan framework there exists a norm requiring that between 20 to 25% of the land in private ownership must be designated for social housing, and the equitable share of costs and benefits. Landowners are compelled to set aside part of the land or pay in cash for this obligation. Once adopted, the Partial Plans, the property-owners inside the Partial Plan, or the Urban Action Unit, must obtain only one license for urbanization (article 4, *Decree Law Nº 1,469* of 2010), to ensure consistency of the urban project in its private and public aspects.

In the international literature, there are two considerations on land readjustment (Doebele 2002):

a. Despite the attempts to standardize and define the process for land readjustment, its implementation is determined by the concepts of property, acceptability of State control in land development, and other cultural factors that are unique to each context; and

b. That it is possible to identify two types of land readjustment: the first focuses on the primary objective of reconfiguration of property shapes for a more efficient use of land; and the second is oriented towards recovering the land values increments

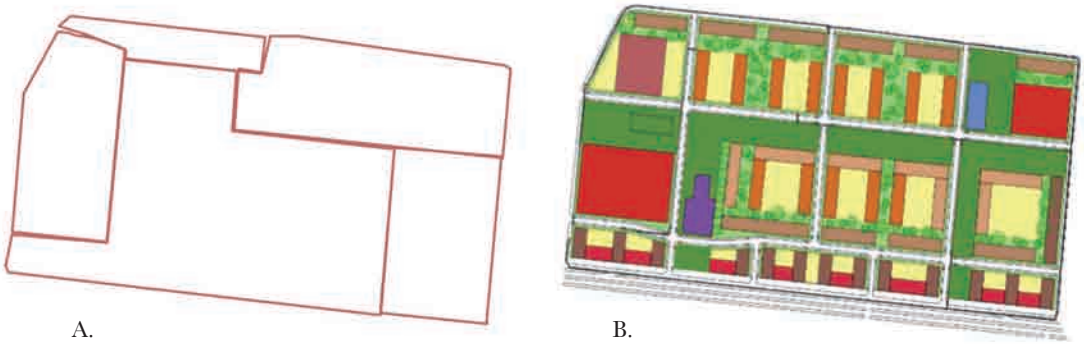
generated by public investments and urban norms, such as changes on land uses and densities.

In this sense, one could say that land readjustment in Colombia has had a different approach, as follows:

a. First generation: urban projects that consist of more than one plot and have more than one property owner, whose area has a single urban design that implies coherence between urban design, properties and management of the project implementation. In this case, although the project is only one, each property owner obtains a license for urbanization and both the design and the distribution of costs and benefits ensure equity between owners and the coherence in public and private spaces. In this generation, it is less likely that reserve land will be defined to obtain resources to leverage the infrastructure. Most Partial Plans in Colombia belong to this generation (see Figure 3.14);

b. Second generation: urban projects that consist of more than one property and have more than one property owner, whose area has a single urban design, but whose management is entitled by a trust. The trust has a mandate to carry out the urban development managing rights ownership, funding and carrying out all the construction, sales and refunds and, in most cases, distributing the profits from the real estate business. In projects known as "second generation," the sale of reserve land is used to obtain resources to leverage the infrastructure.

▼ Figure 3.14 (A-B). Comparison between the land structure before and after the Partial Plan of Simesa



A. B.

As indicated in the conceptual part of this publication, usually the initiative of implementing land readjustment comes from a public or private entity, which is responsible for managing property rights, obtaining financing and carrying out all construction, refunds and sales floor operations. But, in the case of Colombia, it is not compulsory to implement a management entity. The legal requirements for a license for urbanization and constructions in different stages are conditional on the rules established in the approved Partial Plan. For this reason, some property owners attend to the configuration of a trust, which are commercial agreements whose property owners provide their land and participate with a percentage of their land value, resulting from the benefits of the real estate business. These agreements have shown that the fiduciary management fund is an entity that has the legal, technical and political credibility that allow land readjustment to be used in a process of "second generation," associating all property owners, without depending on the particular conditions facing each property owner in the development of the project.

Urban Land Readjustment in Finland

Kauko Viitanen

In Finland, urban development is based on democratically approved plans. However, it is said that Finnish municipalities have a planning monopoly and have also many effective and strong methods to influence the development when needed, e.g. expropriation (compulsory purchase) and development agreements. This means that land readjustment is only one tool in a big municipal toolbox available for a plan's implementation and the production of land for settlement (Viitanen et al. 2003).

The Finnish urban land readjustment procedure (*rakennusmaan järjestely*) is legislated by the *Real Property Formation Act* (Nº 554 of 1995). It is provided for use only when the first "Detailed Local Land Use Plan" is prepared for the area, and cannot be used in a situation where a detailed plan will be changed. The procedure begins when the "National Land Surveying Office" (a State authority) receives an application from a landowner or from a municipality. The application must be made before the municipal detailed local land use plan becomes legally binding. After the detailed plan is approved, a readjustment committee comprising of a cadastral surveyor and two lay persons determines if the legal provisions are met and decides on the readjustment area. Their decision is publicly displayed and those objecting to it can appeal to the Land Court. After the decision is validated, the readjustment committee first confirms the apportionment basis in accordance with the real property values existing before the detailed

local plan was prepared and then produces the readjustment plan. Public areas are partitioned and transferred to the municipality, and the municipality is required to compensate for those areas that exceed the free transfer obligation (normally 20% of the area).

Compensation is assessed and decided by the committee. The remaining areas (sites) are shared between the participants according to the participatory shares. Any differences are compensated. The parties have the right to agree on the form of compensation. Both the municipality and landowners cover procedure costs. Appeals against the final results of the procedure may be made to the Land Court. After validation, the readjustment is registered in the real property register and compensations are paid. The procedure does not include the construction of infrastructure.

There are different ways to construct the urban land readjustment procedure and connect it to the land use planning. At its simplest, the urban land readjustment procedure only implements the existing plan without the processes themselves having any point in common. Planning and the urban land readjustment procedure can even be integrated into one process to obtain synergistic benefits, better participation, cost and time-saving, and improved plans. This will, however, produce difficulties in the organization of the functions and in the cooperation between the various processes. The Finnish urban land readjustment can mainly be classified as a readjustment for plan implementation where the profit will be shared between the landowners. The former Finnish urban land readjustment (*kaavauusjako*) was mainly a procedure for exchange of land without profit sharing.

The strengths of the Finnish urban land readjustment procedure thus lie in its well-defined structure and organization, but it also has its weaknesses. Although the aim of the procedure is to achieve better-detailed local plans, planners often do not know in practice if the readjustment procedure can be carried out, due to the extensive legal provisions. Therefore, the readjustment procedure may not, in fact, always function as a planning instrument. A further aim of the procedure is the equal treatment of landowners. However, if the readjusted area includes both built-up sites and unbuilt pieces of land (raw land), the procedure and the basis for apportionment results in the owners of the built-up properties getting the bulk of new sites. Under normal circumstances, this cannot be considered equitable. The right of minor owners to their own building sites, the apportionment of the unbuilt areas (e.g. agricultural land), the determination of certain compensations, and the procedure of cost divisions may create further problems. Indeed, there is evidence that for the first 20 years during which the *Real Property Formation Act* has been operational not one single urban land readjustment procedure has taken place. This may be due in part to the fact that the procedure has not been

incorporated into the *Land Use Planning and Building Act*, and thus planners have little experience of its potential benefits. Further, as the other means to implement a plan are working well enough from the municipal point of view, a more complicated readjustment procedure is not seen as necessary. It seems, therefore, that the existing regulations are ineffective in meeting the needs of urban land readjustment, and further improvements are urgently required.

A study (Viitanen 2000a) revealed several weaknesses in the Finnish urban land readjustment procedure and the need for further development that will require amendments to the legislation. Failure to take such measures will place in jeopardy the future use of the procedure. In addition to these general requirements, it is also essential to tackle the problems at the starting phase (pre-process), especially in connection with local planning, and also to develop the content and the structure of the proceedings themselves. By law, the urban land readjustment procedure has two goals: sharing out building rights, and adapting the boundaries of properties to the sites designated in the detailed plan. The requirements and the structure of the proceedings, however, make it impossible to attain only one of these goals. Both must be implemented although this may not always be practical or realistic. Thus, the present rules may lead to a situation where the benefits of the procedure will be outweighed by needless costs and the consequence could be that the procedure will not be used. Changing the situation is not difficult and regulations should be developed to permit the attainment of only one of these goals.

The urban land readjustment procedure, which ensures the fair treatment of landowners, is intended primarily as a planning instrument, in order that planners can produce better plans. However, many of the provisions of urban land readjustment are enshrined in law, which makes it impossible for planners to know whether the procedure can be implemented. Plans cannot normally be prepared without the planner taking into account the issue of fairness. To encourage its use, the urban land readjustment procedure should either begin by adhering to a local land use plan or the plan should be prepared conditionally, with validation only guaranteed if the procedure is carried out within a specified period. Initiating the procedure during the planning stage, especially in determining its implementation potential, may also establish a working solution, providing there is increased cooperation between the various authorities and that no substantial extra costs and delays are incurred during the development process. For example, the economic preconditions for implementing the procedure could be specified in advance: an unprofitable procedure should not actually be undertaken. The efficiency aspect should always be borne in mind. If there was better integration between the proceedings and the planning process (especially when aiming at sharing out building rights), the complicated prerequisites of the law could then be simplified. Vol-

untary agreement between parties about implementation or an alteration to the plan by the municipality before the readjustment procedure commences should be sufficient to prohibit the use of the procedure. Correspondingly, there should be better clarification and definition of the readjusted area on plan or during the planning process.

The formal proceedings, which follow the decision to carry out the readjustment, also need further development, in particular the basis used for apportionment, the transference of sites, and the determination of compensation and costs. Under the existing laws, owners of built real estate receive a considerably larger share of the partitioned area compared with those who own unbuilt land with expectation value. This is because the apportionment basis is dependent on the real properties value and built properties are also given a participatory share. Although in practice, the statutes lead to unfairness in some cases, the law will not permit the matter to be settled otherwise, even though the participants may have reached agreement. In addition, when the value of a participating property is negative, for example, due to contamination, value-based partition principles cannot be logically applied. The partition principles and/or the statutes on the inclusion of the built properties should therefore be reconsidered. An appropriate alternative would be an area-based apportionment principle with, if necessary, a grading value on development potential. Real properties, built in accordance with the detailed plan (and with granted building permits) would be included in the designation of building rights only if they brought developable land to the project (as was the case in the Swedish land readjustment proceedings). Further, the apportionment principle should not be seen as an absolute solution. It should be regarded primarily as a method for restoring fairness and should be flexibly handled to limit costs.

The owners of small land areas are in an exceptionally favorable position in Finland: it would seem that every willing landowner is entitled to a building site as the number of sites appears to equal the number of participants. Although such a situation might often favor the social structure of the area, it will lessen the willingness of professional developers and large landowners to participate in the procedure, and thus reduce its effectiveness. It would therefore seem expedient to amend the law so that an individual right to his or her share of a building site cannot be reduced by more than a specified amount (e.g. 20%) without consent, except in situations where the share is insufficient even as one building site. Such a small share should be expropriated, as it is possible to do today in some other proceeding types (about private coercive purchase see Nuuja et al. 2008). The regulations concerning buildings and facilities seem ambiguous in respect of compensation, especially when it is the public sector that is responsible for making these payments. The regulations need to be clarified, so that regardless of the way in which any area is transferred to the public sector, the compensation laws for both buildings and facilities are neutral compared to the other (optional) proceedings.

By altering the way in which compensation is allocated for areas initially transferred to the municipality, a better cash flow situation would be achieved if payments were made jointly to the participants to defray the costs they incur during implementation of the procedure. The privileged position of the municipalities as a result of the *Real Property Formation Act* should be surrendered as there can be no justification for its survival and nothing similar can be found in any of the other countries studied. Indeed, the current circumstances only tend to weaken the credibility of the municipality as a partner in the procedure.

To improve the functionality and adaptability of the Finnish urban land readjustment procedure it should be composed of a number of elements, so that only the element required, or a combination of elements would be used in any particular situation. The opportunities for the participants to make agreements on, for example, the measures to be taken and the methods of implementation should obviously be increased. The most important single fact in the present legislation concerning the land readjustment is that there are no regulations and tools in the land readjustment procedure by which the landowners in the area could make a planning agreement with the municipality. Since the amendment of the *Land Use and Building Act* in 2003, the use of planning agreements has been the most important tool for municipalities with landowners and developers. With these agreements the landowners will pay the cost of the infrastructure for the development area. The maximum payment is 60% of the value increase due to the new detailed plan or change of a plan.

The Finnish urban land readjustment procedure might, for example, be composed of the following elements, and the first one would be the basis for those that followed (see Figure 3.15):

a. The provisions and the basic characteristics of the urban land readjustment procedure;

b. An adaptation of the real property structure to the detailed plan;

c. Sharing out the building rights and the plan encumbrance, e.g. protection arrangements;

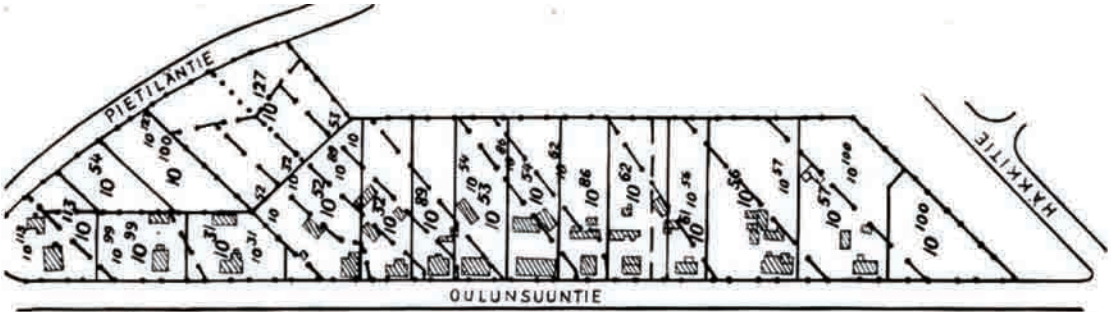
d. Compensation and compulsory purchase proceedings for plan implementation;

e. Procedure for implementing joint facilities, e.g. adaptable use of joint property units and easements;

f. Establishment of a landowner organization for land readjustment projects; and

g. The possibility for landowners' organizations to make binding agreements, e.g. planning agreement with the municipality.

By amending the statutes and proceedings, the use of the urban land readjustment procedure might become a familiar activity when developing the urban structure in areas with fragmented ownership in Finland.



▲ Figure 3.15. Example of an urban land readjustment area in Finland (1962)

The Land Readjustment System in Germany

Hans Joachim Linke

Municipalities in Germany are required to prepare urban land use plans for sustainable urban development as soon as, and to the extent to which, they are required. Urban land use plans are comprised of the preparatory land use plan and the legally binding land use plan. The procedure for urban land use planning is defined in the *Federal Building Code* (*Baugesetzbuch, BauGB*), amended and promulgated on September 23, 2004, and last amended on November 2017. The following explanations describe part of this code (and the content of certain sections of it).

If, because of the required size and shape of plots under the new legally binding land use plan, existing plots are deemed unusable, a procedure is necessary to adapt the existing structure of the plots to the new demand. Examples include sites formerly used for agricultural or other purposes different to the new planned use (e.g. a brown-field site). In these circumstances, land ownership should be altered by the exchanging

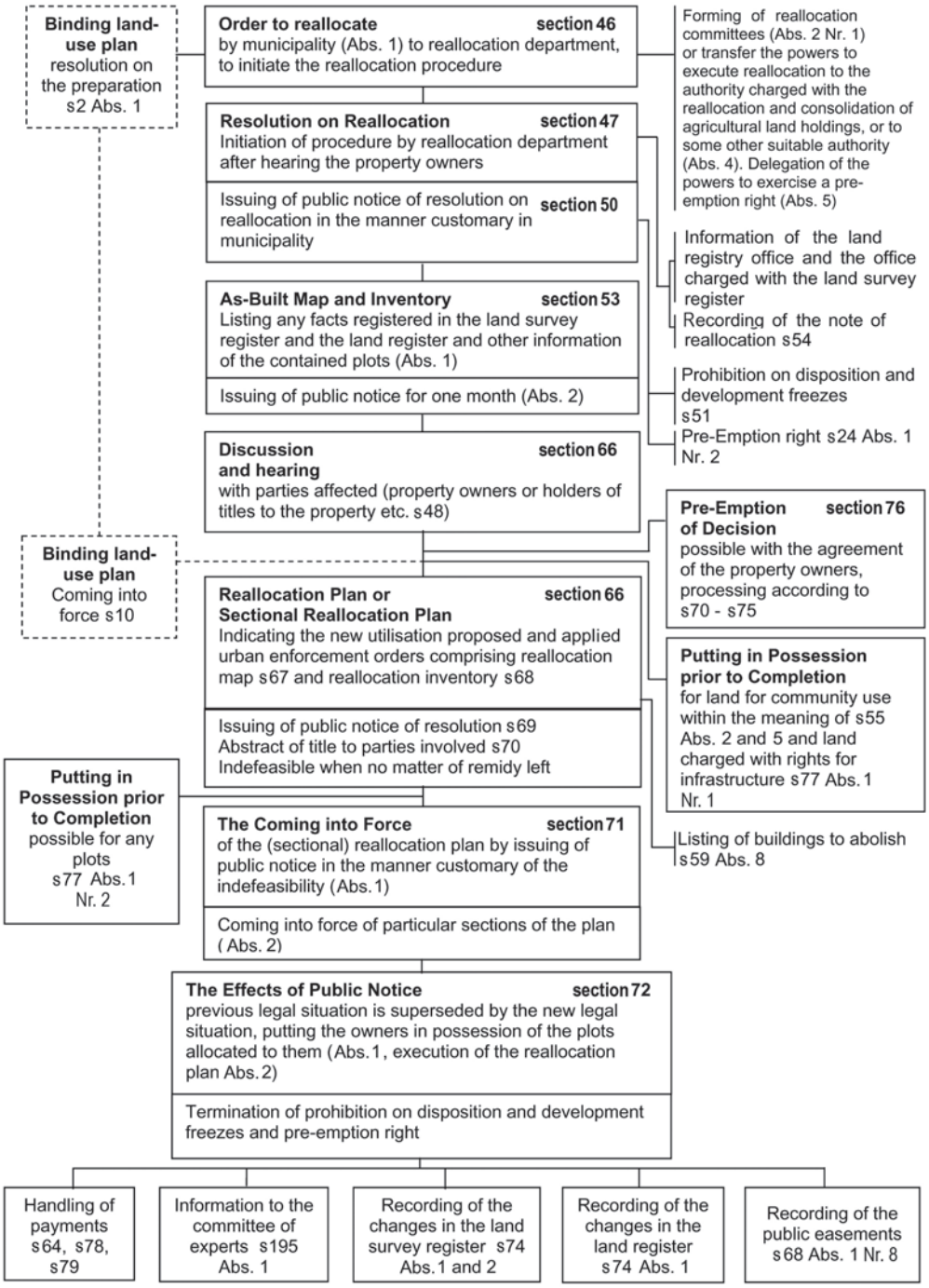
of parcels of land rather than by expropriating them. The owner can then decide whether to use or to sell the new plot. The land for public usage is given to the municipality. However, the costs of land development must be financed by the landowner as the land will have a higher value once it has been developed.

The purpose of land readjustment (also called reallocation, land pooling, plot reconstitution, or reorganization of land holdings) is to reorganize both developed and undeveloped land for the improvement of local public infrastructure, to create road access, and to open up new and specific areas for development in such a manner as to create plots suitable in terms of location, shape, or size for building development, or for other uses (BauGB s.45). Municipalities must order and execute land readjustment within their jurisdiction as soon as this is required for the implementation of the binding land use plan for reasons of intended urban development within built-up areas.

On the one hand, land readjustment can be realized in areas covered by a legally binding land use plan within the meaning of Section 30 of the BauGB. In such cases, the implementation procedure (commencing the land readjustment) can be initiated prior to the preparation of the binding land use plan (BauGB s.47). Even so, the land use plan must have come into effect prior to the decision to prepare a land readjustment project (BauGB s.66 (1)). On the other hand, land readjustment can be realized within built-up areas according to Section 34 of the BauGB if sufficient criteria for the reorganization of the plots can be deduced from the characteristic features of its immediate environment or from a non-qualified binding land use plan within the meaning of Section 30(3) of the BauGB. In the preparation of land use plans, attention must be paid to the requirements of reallocation. To an extent reconcilable with its purpose, any land use plan must allocate the charges of the land readjustment (for example, appropriation of land required for local public infrastructure) among the affected property owners (see Figure 3.16).

The municipality then orders the land readjustment (BauGB s.46), determining whether the land use plan requires the reallocation of land holdings, and the land readjustment department must adopt the reallocation before its initiation (BauGB s.47). This administrative act is a precondition for land readjustment, and is the basis for action by the land readjustment department. The costs of this administrative act are passed on to the owners of the plots within the land readjustment area. The landowners must therefore be heard before the resolution is adopted. The resolution on land readjustment must designate the land readjustment area in terms of a name and its boundary. Furthermore, any plot contained within the project area for land readjustment must be listed. The area (BauGB s.52) may consist of spaces with individual plots and any plots that impair the process of land readjustment may be excluded from reallocation eitherin part or in their entirety (BauGB s.52(2)). The area must consist of not less than two plots occupied by different owners.

▼ Figure 3.16. The land readjustment system procedure in Germany



Public notice of the land readjustment resolution shall include a call for registration at the land readjustment department within one month of notice being given. Attention must be paid to any rights not evident in the land register that may cause a delay to rights holders entitled to participate in the reallocation procedure and to the consequences of the terms of expiration; in particular, whether the rights holder is bound to accept the foregoing negotiations and designations as determined by the land readjustment department. Contemporaneously with the resolution on reallocation, a prohibition on the disposition of land and a development freeze both come into effect; this fact must be included in the public notice. Thus, according to Section 51(1), the making of dispositions over a plot, the subdivision of a plot, the erection of physical structures, as well as any change that represents an increase in the value of the property are subject to the provisions relating to building permission. Permission may only be refused in cases where there are grounds for the assumption that proceeding with the development project would prohibit or seriously impair the implementation of the land readjustment project (BauGB s.51(3)). Furthermore, the municipality is entitled to exercise their right of pre-emption according to Section 24(1 and 2).

The reallocation of a plot of land must be recorded in the land register. The land readjustment department, therefore, is required to inform the land registry office and the office in charge of the land survey register of the initiation of the project. For a period of one month, the municipality must publicly display the as-built map and the inventory of the plots affected by the reallocation. The map must provide a comprehensive and applicable overview of the true and legal relationships that form the basis of the rearrangement. As a minimum, the map should depict the current position and shape of the plots and the buildings that are in place, and should identify the owners. For each plot, the inventory shall at the very least, state who the registered owners are, any charges and restrictions that are registered, and the description given in the land register. Additionally, the size and use of the plots as indicated in the land survey register, with street names and house numbers, should be stated (BauGB s.53).

As per Section 48 of the BauGB, "the parties involved" in the proceedings refers to those who are the holders of a title in the land register with properties located within the land readjustment area. In particular, the term refers to the owners of properties, the municipality, public agencies, or agencies in charge of supplying local public infrastructure. If a party is not represented, the guardianship Court shall, at the request of the land readjustment department, appoint a representative who is both versed in law and technically competent to act on their behalf (BauGB s.207). To expedite the proceedings, those rights holders who are affected may, according to Section 76, empower the land readjustment department to regulate ownership and possession relationships in respect of individual plots and other rights, with the agreement of the rights holders prior to the

final adoption of the land readjustment project (BauGB ss.66 and 70).

Land within the land readjustment area adds up to a re-allocation mass. The spaces within the area set aside for local thoroughfares and roads are initially excluded from the reallocation mass and allotted to the municipality, or to any other agency in charge of providing local public infrastructure; additionally, public green spaces, spaces for protection against harmful environmental conditions and for purification, and for overflow basins for rainwater are also initially excluded where these spaces are intended primarily to serve the requirements of residents with the land readjustment area (BauGB s.55). Other spaces to be excluded from the start include those designated for impact counterbalance measures required by nature and landscape as a consequence of building up the mentioned local thoroughfares and infrastructure.

The remaining mass constitutes the redistribution mass. Calculation of the share of the redistribution mass due to each property owner involved, is based on either the relative size or the relative value of the former plots prior to land readjustment. There are two possibilities for redistribution: according to value (BauGB s.57) or according to size (BauGB s.58). The appropriate criterion to be applied to the redistribution is decided unanimously by the land readjustment department after due weighting and consideration has been given to the interests of the parties involved (BauGB s.56). Where redistribution is conducted by value, the land readjustment department must proceed on the basis of the current market value of the plots prior to reallocation. Consideration is to be given to changes in value resulting from land readjustment.

Any difference between the value of the plots contributed and allocated shall be adjusted by financial restitution. Where redistribution is based on size, an area of such dimensions as to compensate for any gains resulting from reallocation shall be deducted from each of the plots included in the redistribution mass. The area deducted shall not exceed 30% of the plot contribution, where that plot has not previously been serviced by local public infrastructure, and shall not exceed 10% if it has previously been serviced. The land readjustment department may levy an appropriate financial charge, either in part or in whole, as replacement for the deduction. If the advantages exceed the area deducted, monetary compensation must be provided.

In accordance with the purposes of land readjustment, and to the extent that it is possible, property owners are to be allocated a plot within the redistribution mass plots that is of comparable size, or is in a similar location to their original plot (BauGB s.59). Where it is not possible to allocate plots within the framework of the binding land use plan or any other building regulations, a financial settlement must be concluded. Property owners may be given money or plots located outside of the land readjustment area as settlement

in the case that it is not possible for them to be offered developable plots within the area, or where this is deemed necessary on other grounds in order to realize the aims and purposes of the binding land use plan (BauGB s.59). Any owner who refuses to accept settlement in the form of a plot located outside of the land readjustment area or the establishment of joint ownership of a plot, then granting rights similar to real property rights or any other real rights, may be offered financial settlement. Although these options would permit the avoidance of financial settlements for a larger number of the parties concerned, these settlements should be compatible with the binding land use plan.

In respect of rights attached to the old plots and the legal relationships affecting these plots, which are not withdrawn, the allocated plots supplant the old plots (BauGB s.63). In the context of the allocation, the land readjustment department may apply building orders (BauGB s.176), planting orders (BauGB s.178), or modernization and refurbishment orders (BauGB s.177). A financial settlement must be reached in respect of any physical structures, planting, and other constructions (BauGB s.60). The obligations of the owners or tenants regarding payments under a building lease are deemed contributions and encumber the plot or the lease as a public charge (BauGB s.64(3)).

The land readjustment project must indicate the new use to which each plot will be put. The land readjustment department, following discussions with the property owners and the reaching of a resolution, must prepare the project. The land readjustment project comprises the reallocation map (that includes the new plot boundaries with designations and public spaces) and the reallocation inventory. The inventory lists textual designations as well as the list of areas and values, and is brought up for correction of the land survey register and the land register. Until such time as the registers have been corrected, the reallocation map and inventory serve as the official inventory of the plots as defined in Section 2 of the *Land Registration Code* (GBO). The new legal situation provided in the land readjustment project takes effect with the issuing of a public notice (BauGB s.72). Procedural costs and those material costs not covered by contributions are to be borne by the municipality (BauGB s.78).

Empirically speaking, preparing a built-up area may be sped up if the rights of the property owners and those of the land readjustment department are combined, i.e. the pre-emption of the decision by the department according to Section 76 of the BauGB. Land readjustment provides for the economical creation of built-up areas because the land required for roads and other spaces for community use change into the hands of the municipality through the issuing of a public notice of the land readjustment project. Therefore, the municipality does not bear any of the costs of purchase and interest. The recoupment charges for local public infrastructure shall be spread between the plots serviced by this infrastructure and the municipality, which means benefits for both

sides. For property developers and construction companies, land readjustment areas are an efficient field of activity. Acting with reasonable care they can calculate quite accurately and avoid unprofitable investments (see Table 3.4 and Figures 3.17-3.20 for Bornheim-Hemmerich project).

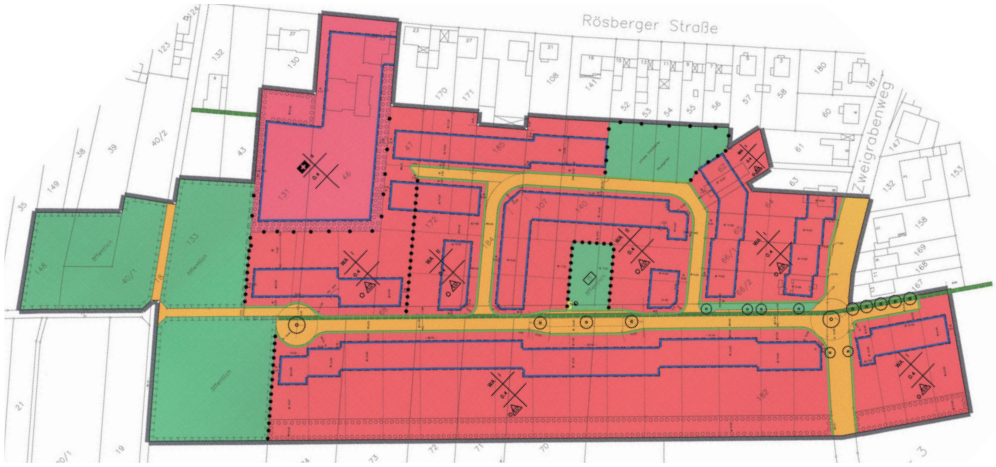
Table 3.4. Bornheim-Hemmerich Land Readjustment Project in Bornheim, Germany

Name of the project:		Umlegung Bornheim-Hemmerich Hm 01
Location of the project:		Bornheim city, North Rhine-Westphalia, Germany
Name of the implementation agency:		Municipality of Bornheim, Land Readjustment Department
Project period:		1998-2000
Implementation of the project period:		No information.
Area of the project:		6.7 hectares
Rights holders:	Nº of landowners:	32 (39 plots before the project).
	Nº of leaseholders:	8
Land evaluation, contribution ratio:	Decrease for public facilities:	22%
	Decrease for reserved land:	0%
	Total ratio of decrease:	22%
Implementation plan, stages:		December 1998: order to reallocate. January 1999: resolution on land readjustment. March 1999: land valuation. January 2000: discussion and hearing of the landowners. September 2000: land readjustment project.
Total built-up area of the project:		Building coverage: 40% of the plot. Floor-area ratio: maximum 80% of the plot.
Density involved before and after the project:		85 plots after the project.
Reserved land and additional built area:		-
Land evaluation:		Land price before the project: € 95 / m^2. Land price after the project: € 155 / m^2.
Real estate market evaluation:		Arable and agrarian land before the project.
Benefits to the local government:		Developed land to the amount of € 1.1 million. Enlargement of the urban area.
Benefits to the landowners (and/or leaseholders):		Developed land in comparison with undeveloped land; no fees for surveying, administration charges and changes in the land register; and exemption from land transfer tax.
Benefits to the investors:		-
Principal and eventual conflicts (site/landowners):		No information.
Finance of the project:		Not necessary.
Total cost of the project:		Procedural costs and those material costs not covered by contributions are to be borne by the municipality.
Features of the project:		Construction of local public infrastructure and streets.

▲ Figure 3.17. As-built map of original cadastral before implementation of land readjustment (1998)

▼ Figure 3.18. Bornheim-Hemmerich area after the land readjustment project (2000)

▼ Figure 3.19. Bornheim-Hemmerich area binding land use plan (2000)



▲ Figure 3.20. Aerial image after the land readjustment implementation (2007)

Land Readjustment in India

Jacob Manohar Abraham Peter and Harpal Dave

Land readjustment is known by several regional terms in India, such as land pooling, town planning schemes, and town development schemes. The concept of land readjustment itself was introduced by the British during the Colonial period. In the 1930s, British planners transferred the German idea of land readjustment to India; this scheme was then widely implemented in the State of Bombay, which was divided into the States of Maharashtra and Gujarat after India gained independence from Britain in 1947. The *Bombay Town Planning Act* was introduced by the British in 1915 and then replaced in 1954 by a "new" *Bombay Town Planning Act*. Pursuant to the 1915 act, local authorities were enabled to prepare town planning schemes to develop parts of the municipality. Accordingly, they were required to first prepare a development plan for the whole of the municipal urban area, and then town planning schemes were prepared to develop and implement the development plan.

In 1960, Bombay State was split into Maharashtra and Gujarat States. Following that, each State passed its own town planning act: the *Maharashtra Regional and Town Planning Act* of 1966, and the *Gujarat Town Planning and Urban Development Act* of 1976. The *Bombay Town Planning Act* of 1954 was transformed into the *Maharashtra Regional and Town Planning Act* of *1966*. Chapter 5 of this act was exclusively devoted to town plan-

ning schemes, which were envisaged as a mechanism for implementing development plans, with provisions for "laying out" and "re-laying out" parcels of land. The act was a mechanism for undertaking the renewal of core urban areas as well as for the development of new areas in the State of Maharashtra.

In India, land is a matter for the States, and only the State government has the power to legislate on this subject. However, more than half of the Indian States are yet to initiate any practice on land pooling. The method usually applied for urban development is land acquisition by the State, but given the increasing densities and high prices of urban land, acquisition is becoming a difficult proposition across the country. Additionally, land acquisition presents a number of disadvantages due to the delays and litigation that are very much part of a democratic system. That being said, the States of Maharashtra and Gujarat were pioneers in the use of land readjustment for urban development, however, from the 1980s Maharashtra stopped regularly implementing town planning schemes because they were time consuming and contentious. Factors such as the high cost of land, the unavailability of virgin land, and the size and processes of town planning schemes, have made the system dysfunctional in the State of Maharashtra. In recent years, States like Madhya Pradesh, Chhattisgarh, Orissa, and Andhra Pradesh have been following the town planning scheme model of Gujarat and Maharashtra, and have implemented this through their own independent State town planning laws. The model has been used for urban expansion, creation of public infrastructure, and mobilizing public finance through land banking; it has been widely accepted by citizens in general.

Ahmedabad, in Gujarat State, has land readjustment projects throughout the city. On the outskirts, town planning schemes have been effectively used as a tool for increasing the supply of serviced urban land. In fact, since it was first used around 1915, almost all of Ahmedabad has been developed using the land readjustment instrument. Since then, the "Ahmedabad Municipal Corporation" has prepared approximately 100 projects and the "Ahmedabad Urban Development Authority" has developed 105 projects. Another 200 town planning schemes are envisaged for the future. Such a long history of implementation has made the process acceptable to the people and there have been continuous improvements in the contents of the proposals over the years.

Town planning schemes have generated a significant level of revenue for the government, however, revenue was not generated through the collection of betterment charges, as is commonly assumed, but rather through the sale of reserve land. This is why the legislative amendment that allowed land banking has been so important to the financial viability of town planning schemes. The revenue from the sale of land obtained through the amendment has become an important source of income for implementing

agencies. For example, between 2003 and 2004, and 2008 and 2009, 29% of the Ahmedabad Urban Development Authority's revenue came from land sales. In 2006, 65% of its revenue came from land sales. In April 2006, the development authority auctioned off 20 plots of land to large real estate firms for 172 crore (USD 38 million). Ahmedabad Urban Development Authority has used this money to finance large infrastructure projects, mostly roads, water, sanitation, and drainage. A recent development plan stated that as a result of implanting 24 town planning schemes, the development authority has created a land bank worth 500 crore, or more than USD 100 million. Town planning schemes have been praised for providing land for low-income housing. Between 2004 and 2009, the Ahmedabad Urban Development Authority built more than 11,000 houses for the poor on land obtained through the instrument.

Efforts such as town planning schemes are seen as examples of a new market-friendly approach. For example, town planning schemes are often portrayed as being very different from conventional city planning, which has been discredited not only in India, but also worldwide. Town planning schemes allow local governments to auction land and charge betterment fees and they do not require large subsidies. Moreover, these schemes have the appearance of being a more transparent and accountable means of land management than conventional city planning, which relies on decisions made by a nexus of bureaucrats and local politicians. The idea of open land auctions is in contrast to bureaucratically managed land acquisition and allocation. The fact that town planning schemes allow for an increase in the amount of development that can occur on a formerly open piece of land, reinforces its image as a market-friendly approach. In India, the town planning scheme is a unique feature of land development at the micro level of planning. Using a 100 hectares project as an example, town planning schemes can be explained as follows:

a. An unplanned area is taken up for land readjustment;

b. The entire area is considered as one single unit for the purpose of land readjustment;

c. While planning this area, about 40% of the land will be required for road network and other public activities – like schools, hospitals, parks, playgrounds, and markets – and the remaining 60% of the land will be available in the form of developed plots;

d. 40% of the land required for physical and social infrastructure will be made available from a proportionate deduction of land from all the landowners;

e. The remaining 60% of the land will be reconstituted into 100 plots to be allocated to the original landowners;

f. In this process, for example, a landowner with 10 hectares (original plot) of land will lose 4 hectares (40%) of his land for public purposes and will receive 6 hectares (60%) of his land as a reconstituted developed plot (final plot);

g. All landowners will receive a reconstituted plot (final plot) from this process;

h. No landowner will be deprived of his land under this system of planning;

i. Landowners are entitled to receive compensation for the land contributed for public purpose as per market value on the date of the declaration of the intention to prepare the town planning scheme; and

j. Landowners will benefit in terms of land value from physical and social infrastructure development; therefore, the development authority – as an incremental contribution – shall recover 50% of the appreciation of the land value.

Issues related to land pooling in India can be listed as follows:

a. Not all Indian States are using and getting the advantage of land readjustment;

b. The considerable diversity within the country does not allow for the implementation of a "one size fits all" model;

c. In States that have practiced land readjustment, it has mostly been used for greenfield development (in other words, for planned expansions but not for the redevelopment of existing areas, as seen in countries like Japan);

d. Land readjustment in Gujarat, Madhya Pradesh, and Chhattisgarh has remained quite basic in its focus and approach, aiming only to organize and replot land parcels. Innovative urban planning and urban design with a focus on environmental sustainability was not attempted;

e. In cases where land parcels have already been developed, only limited readjustment can be attempted. If these developments are unauthorized, this can sometimes lead to new problems or aggravate existing ones; and

f. There is no final understanding on the amount of land that should be deducted as part of reserve land. This generally differs from case to case and the development authority has the final word.

Despite being an old idea that has languished for decades, land readjustment as a method for urban development has recently captured the imagination of urban planners in India. Although the land readjustment method was conceived in a very different historical era, it can be adapted for the present economic and ideological context of India in order to find suitable solutions to certain land issues. Land readjustment is regarded as an effective development method because it does not involve land purchase and has the possibility to be self-financing. As it is a new approach for most cities in India, it needs some rearrangement in order to ensure projects are implemented successfully.

The Application of Land Consolidation in Indonesia

Andri Supriatna

Also known as land pooling, land readjustment has become an important tool for urban development around the world. Like other countries such as Japan, South Korea, Taiwan, Germany, and Australia, Indonesia has chosen to employ the technique (Schnidman 1998). Known as land consolidation, the Indonesian government, under the Ministry of Agrarian and Spatial Planning (the former National Land Agency, BPN), has promoted land pooling as a spatial planning tool. Indonesia was the first Southeast Asian country to adopt land consolidation (Archer 1992), with the Renon District Project in Denpasar, Bali Province, being its first project (Yoshida 2003). Conducted from 1981, the project covered 77.3 hectares and 261 plots, and at present, the district is a complex of local government offices.

Since the introduction of the *Regulation of the Head of National Land Agency N° 4* on land consolidation (1991), the technique has been implemented in 31 provinces across Indonesia. In this regulation, land consolidation is defined as a "land policy for land tenure and land use restructuring in accordance to the spatial plan as well as on land provision for infrastructure and public facilities development with active participation of community to preserve environment and natural resources." In sum, there are four basic elements in this definition: the first, "restructuring land tenure and land use," means the readjustment of the existing land rights, possession, or ownership, for the purpose of land registration, so as to achieve the optimal use of the land. The second, "binding to spatial plan," means that land consolidation as a spatial planning tool must fit the existing land use to the new designated one according to a national/regional/

detailed plan. The third, "land provision for public interest development," means that instead of utilizing land acquisition tools, land consolidation can provide land for public infrastructure and services through land contribution by the community. Lastly, the fourth, "active participation of community in development," means that public participation is the key element in implementing land consolidation projects, as community consent is necessary for initiatives to be successful. Indonesian land consolidation thus promotes the principle of "From community, By community, and For community."

Land consolidation in Indonesia is mainly funded from national, regional, or local budgets, or through the self-finance mechanisms of community initiatives. The latter is paid in advance and is allocated in the annual budgeting system of the local land office. Such mechanisms mostly occur in provinces such as Bali Province, where land consolidation is known to be particularly beneficial for the community (see Table 3.5 and Figures 3.21-3.23 for Ubung Tukad Mati project). After funding has been decided, the main steps for land consolidation in Indonesia are usually:

a. The establishment of an implementing agency: according to the *Regulation of the Head of National Land Agency Nº 4* on land consolidation (1991), the executor of land consolidation is the national land agency supported by the related institutions. The implementing agency consists of: (i) the controlling team, based at the province level and established by decree of the governor. The controlling team is made up of the governor as the main controller, the head of the regional land office as the chairman, the head of the regional development planning board as the vice chairman, and other related local officers; (ii) the coordinating team, based at the regency/municipal level and established by way of a regent/mayoral decree, comprising the mayor as the chairman, the head of the municipal or regency land office as vice chairman, and other local supporting officers; and (iii) the task forces, established through a regent/mayoral decree, and consisting of local land agency officials supported by district and village heads. While the controlling team has the responsibility for providing guidance, carrying out evaluations, problem solving, and undertaking relevant activities related to the project, the coordinating team has the responsibility to provide directions related to the spatial planning design, to determine the location of land consolidation, and to regulate the use of cost-equivalent land. The task force also acts as an operational executor for the previously mentioned teams;

b. The site selection: site selection is preceded by map analysis, the overlay of spatial attributes data, and the selection of potential sites. Both physical and non-physical aspects are taken into consideration. The physical aspects encompass conformity to the spatial plan, proximity to certain activities, land tenure status, existing public

facilities, and the slope of the land, while the non-physical aspects include the socio-economical aspects of the society, society's interest in better living conditions, the development of regional or local infrastructure, and sectorial program plans. Site selection may also derive from the community or local government initiatives;

c. The consent of rights holders: land consolidation in Indonesia is participatory in nature. The *Regulation of the Head of National Land Agency N° 4* on land consolidation (1991) explicitly requires agreement by at least 85% of rights holders, which covers at least 85% of the area of the project. As a first step to gaining the consent of rights holders and attracting their interest and participation, sketches of the block and the parcels plan, also covering infrastructure and facilities, must be provided;

d. The decision on the location, and subject and object identification: when consensus is achieved, the mayor or regent seals the decision on the location. Next, the identification of subject and object encompassing peripheral, detailed, topographic, and land use surveys is carried out, in addition to the measurement and mapping of land, and an inventory of rights holders. Surveys, measurement, and mapping are conducted to delineate the affected parcels of land, including the outer boundaries, as well as to depict the existing parcels before land consolidation. The detailed mapping is then publicized as an opportunity for any possible objections to be raised;

e. The block and site plan: also known as the parcel map after the land consolidation, the block and site plans include land allocated to the former rights holders, infrastructure, and cost-equivalent land. Additionally, such plans include the details of new parcels (their shape, area, and location), and the contributed land is allocated based on existing land use for socio-economic facilities. The plan is publicized as an opportunity for any possible objections to be raised;

f. The conversion of land rights: the waiving of land rights is defined in law as a way for the government to obtain authority for readjusting parcels and to redistribute the remaining land to former rights holders. Each land has diverse land conversion or land right grants depending on the subject or the holder of each land. For instance, for the land allocated for infrastructure, the subject or the right is given to the local authorities; but, the rights attached to cost-equivalent land are initially transferred to the community and transferred at a later stage to a third or interested party on the basis of an agreement for purchase. If the party is a private enterprise, the right to build is granted, instead of the right of ownership. With regard to State land, the right that is granted is the right of ownership, with the obligation to pay the same taxes as for new land and property ownership. In Bahasa, this tax is called "*Biaya Perolehan Hak atas Tanah dan Bangunan*" (BPHTB), and all State lands granted

to individuals and levied as the result of new titled property rights in first land registration are subject to this tax; and

g. Delivery of land title to the holders of land rights: confirmation of the land consolidation object is considered as the follow on from a land rights waiver. The object to be consolidated is stipulated by the head of the BPN regional office and the replotting, also known as staking-out, is then carried out according to the site plan. Finally, land consolidation implementation concludes with the delivery of land title to the holder of the land rights.

By 2015, implementation of land consolidation covered 1,010 sites and almost 208,814 rights holders, and encompassed a total area of approximately 174,496 hectares and 242,507 parcels. Land consolidation also promoted the contribution of over 20,761 hectares of land for public development and, in several provinces such as Central and East Java, Bali, and South Kalimantan, it has been prominent not only as a spatial planning tool but also as a land registration program benefiting both community and local governments. However, from the time of its stipulation back in 1991, *Regulation Nº 4* has been perceived as inadequate for binding local government to land consolidation projects, especially in the phase of infrastructure construction that is the responsibility of local governments. Moreover, there are several details that have not been properly regulated, like the criteria for selecting project sites.

In this sense, the implementation of land consolidation in Indonesia remains "conventional": projects take place in unbuilt-up areas where there is an absence of housing. Over the years, a number of acts have been passed that deal with technique, for example, the *Act of Housing and Settlement Nº 1* (2011), the *Act of Condominium Nº 20* (2011), and the *Act of Land Acquisition for Public Development Nº 2* (2012). These state that land consolidation is a way of managing land for development. Additionally, the *Act of Housing and Resettlement* (2011), for instance, explicitly states that one of the ways to acquire land for housing is through land consolidation (articles 106 to 113). Urban development in Indonesia, however, has been characterized by the conversion of agricultural land in the urban periphery (Firman 2004), and an application of the technique in densely populated areas for housing exists only in discourse (Agrawal 1999). The regulatory challenge relies on the use of land consolidation to provide land for multi-story buildings or condominiums; and, for this reason, the BPN regulation is currently under revision.

Despite the long journey that the application of land consolidation across Indonesia has taken, there are a number of unresolved obstacles that hinder its success. As stated earlier, the technique in Indonesia is, by nature, participatory; thus, community engagement in the project is crucial. The role of local government also contributes to the

delivery of basic infrastructure and services. Both community and local government underpin the success of land readjustment. One of the major issues is unconstructed infrastructure following a project. This may be the result of a lack of coordination or lack of commitment from local authorities. Infrastructure construction is not one of the steps in land consolidation, but is instead considered to be part of post-project implementation. Given such issues, revision of the regulation must be undertaken so as to bind local authorities to the implementation of a project. An additional issue is that project sites should be in line with the regional or local development plans. In this sense, the technique can replace land acquisition and the delivery of infrastructure construction can be realized. Given this issue, the construction of infrastructure during land consolidation appears to rely on local authorities, however, a discourse related to the involvement of third parties, such as investors, was presented during the review of the regulation.

Table 3.5. Ubung Tukad Mati Land Readjustment Project in Denpasar, Indonesia

Name of the project:		Ubung Tukad Mati Land Consolidation Project
Location of the project:		Desa Pemecutan Kaja, Denpasar, Indonesia
Name of the implementation agency:		National Land Agency of Indonesia (BPN-RI)
Project period:		1990-1991
Implementation of the project period:		1992-1995
Area of the project:		200 hectares
Rights holders:	Nº of landowners:	847 (1,239 plots)
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	20% (40 hectares)
	Decrease for reserved land:	-
	Total ratio of decrease:	20% (40 hectares)
Implementation plan, stages:		No information.
Total built-up area of the project:		Before the project (1990): 4.64 hectares (21 buildings). After the project (2000): 71 hectares (321 buildings).
Density involved before and after the project:		No information.
Reserved land and additional built area:		-
Land evaluation:		Before the project (1990): Rp. 20,000/m^2. After the project (2000): Rp. 500,000/m^2.
Real estate market evaluation:		No information.
Benefits to the local government:		Provision of road infrastructure.
Benefits to the landowners (and/or leaseholders):		Accessible and marketable new plots.
Benefits to the investors:		-
Principal and eventual conflicts (site/landowners):		Limited budget for road construction.
Finance of the project:		Kabupaten Badung (Badung Regency)
Total cost of the project:		Rp. 118,600,000
Features of the project:		Land acquisition for the construction of a road towards the cargo terminal.

▼ Figure 3.21. Cadastral land parcel distribution before the land readjustment project (1994)

Figure 3.22. Cadastral land parcel distribution after the land readjustment project (1995) ▲

▼ Figure 3.23. Subak Ubung area after the land readjustment project (2012)

Community participation and understanding in also an issue. Among other land programs in Indonesia, some communities view land consolidation as a lengthy and tedious process. These conditions discourage community participation in project as they expect marketable serviced plots without land reduction. In other communities, land consolidation is more prominent; the ring-road developments in Bali and Riau Provinces are examples of this. Land consolidation has not yet been employed in Jakarta, Indonesia's capital city. Thus, a proposal for a potential application to upgrade "*kampung*" neighborhoods as well as the provision of land for development across the Jakarta region would be a challenge to the implementation of the technique (Supriatna and Van Der Molen 2014). In the future, land consolidation is expected to play a more significant role in national, regional, and local development. Considering the costs and social tension that land expropriation brings about, land consolidation is indeed an alternative approach to creating public interest in the framework of timely development and to solve urban issues in urban areas, notably, in city centers where haphazard development exists.

The Issue of Land Reparcelization as Part of Land Readjustment in Israel

Rassem Khamaisi

Land readjustment in Israel is a sensitive issue. This is particularly the case between the State and its Arab Palestinian citizens. Conflicts over land control between the State, the owners, the renters, and the developers have a direct impact on land readjustment implementation. Today, about 93% of the land in Israel is in the public domain and is either the property of the State, the "Jewish National Fund", or the "Development Authority." The "Israel Land Administration" (ILA) is the government agency responsible for managing this land that comprises 1,950 hectares (or 19,508,000 dunams). "Ownership" of real estate in Israel usually means leasing rights from the ILA for 49 or 98 years. However, some of this land is the subject of conflict between the State and the Arab indigenes, particularly in the southern part of the country in the Negev region. Nowadays, a public committee is working on possible arrangements to settle conflicts over land issues, which includes the usage of the "reparcelization tool."

The legal framework of land management in Israel is based on six cornerstones, including the *Israel Lands Law* (1960), and the *Planning and Building Law* (1965). According to this framework, the "Israel Land Council" determines the ILA's policy and the council's chair

is formed by the Vice Prime Minister, and the Minister for the Economy (previously known as the Minister of Industry, Trade, and Labor). The council is made up of twenty two members: twelve representing government ministries and ten representing the "Jewish National Fund." The government appoints the general director for the ILA. The functions of the "Israel Land Administration" (ILA) include: protecting and supervising State lands, to make State land available for public use, to guarantee that national land is used in accordance with Israeli laws, and to initiate planning and development (including relocation of existing occupants). The ILA has various formal and professional committees who suggest different land policies and tools, and discuss land conflicts and disputes.

Israel's Arabs – 20% of the country or 7 million people – have been marginalized both politically and economically as a result of prevalent unemployment, underemployment, and high poverty rates. The bulk of the Arab population lives in the urban sectors along the edges of the Central Coastal Plain and Jerusalem, or in peripheral areas within small traditional villages and towns. Positioned on the periphery, Arabs usually face constraints on territorial expansion and have limited mobility. The violent Israeli Arab riots of October 2000 were a stark reminder of the neglect of an entire sector of Israeli society for the previous 52 years. The government and the Israeli public were shocked when the riots promoted awareness on the extension of inequality, disparities on income, and a breakdown of communication between Israeli Arabs and Jews. These are vulnerabilities within Israeli society that have the potential to prevent society from developing towards a strong and stable future.

During the Oslo Accords, a set of agreements between the government of Israel and the Palestine Liberation Organization (1993 and 1995) regarding the issues facing the Israeli Arab community were excluded from consideration as being internal Israeli matters. As part of the now aborted peace process, the Israeli government began to examine the underlying issues relating to the Palestinians but put the needs of the Israeli Arab community aside. Since October 2000 and the breakdown of the Oslo process, the needs of Israeli Arab citizens have moved more to the forefront of governmental discussions. However, interaction between Jewish and Arab Israeli communities has greatly decreased and the narratives of both communities have strengthened: on one side, the Jewish community feels a demographic threat and the potential for a fifth column within Israel; on the other side, the Arab community feels under siege, lacking the land and the capacity for its development they see when looking at their neighboring Jewish communities. The barriers to achieving equality within a Jewish State come from a fundamental lack of mutual trust and understanding, and a lack of dialogue. The health of the Israeli society is dependent on closing these socio-economic and ideological gaps between Arabs and Jews, and integrating the Arab population as a full and equal partner in the Israeli economy and society.

As previously mentioned, 93% of the land in Israel is classified as government or publicly owned lands; some of this land was confiscated from Arab landowners during Israel's first decade as a State. Within the jurisdiction of the Arab communities, approximately 6% of land is privately owned, while within the boundaries of the approved jurisdictions around 8% is privately owned. The land market among Arab citizens within such localities is limited, which creates barriers to the development of infrastructure and public facilities. Most of the existing private land parceling in Arab communities dates back to the period of the British Mandate, and this structure has become a major barrier for development, especially when compared to the current planning standards and paradigms which they see in neighboring Jewish communities. Other barriers are:

a. The process of inheritance: Arab families are large and their tradition has been to divide the land informally among their children, without formal registration or parceling. Today, three to four generations have passed, with continued informal sub-divisions and confusion on where the individual parcels are actually located. Without records there are escalating disputes within families and extended families. Additionally, no portion of the original plots was allocated for public needs such as roads, schools, and open spaces.

b. The Israeli government assumed ownership rights over abandoned lands: Arab landowners left their villages after the 1948 War, and the Israeli government assumed ownership of the land. In addition, some of the Arab landowners had their land confiscated for various reasons, or they decided to sell their land to the ILA. This led to the government sharing the rights of parcels of land within Arab communities without any formal land division between private landowners and the government. Such situations promote disputes amongst private landowners and between private landowners and the government when it comes to development. In the last decade, Arab communities have requested public facilities on the government-owned land portions, however, the ILA has insisted that lands for public use should be shared equally between private landowners and the government, leading to an impasse.

While the need for development is uppermost on the Israeli Arab agenda, due to the problems listed, about one third of the land within these localities is not available for development. New statutory plans for the localities often include new territories for expansion beyond the current locality boundaries. As a way of exploring the possibilities for addressing the conflicts around parceling issues, land readjustment projects were proposed within three of the Arab communities in Israel.

The first community, Dir Hana, is located in the middle of the Galilee. Its population

consists of 11% Christians and the rest are Muslims. In 1997, the Ministry of Interior and the ILA initiated the area's master plan and by 2000 the master plan developed into a statutory plan. The plan added about 60 hectares (or 600 dunams) for development, with the land being partially owned by the State and partially by different families. The dispute between the largest two families, Hussein and Khateb, had a direct impact on the planning content and on the land allocated for roads and public facilities, such as schools and green areas. As the head of the local council belongs to the Hussein family, several landowners, mainly from the Khateb family, were afraid to accept any approach for reparcelization. A plot was set among the rural traditional community of Dir Hana; given the background of family disputes, this plot created a situation where the community distrusted the local council and the planning system. To solve this problem, planners and the local council created a land readjustment model to convince landowners and the community to be part of the project, amplifying the dialogue, and creating transparency and equality in the planning process.

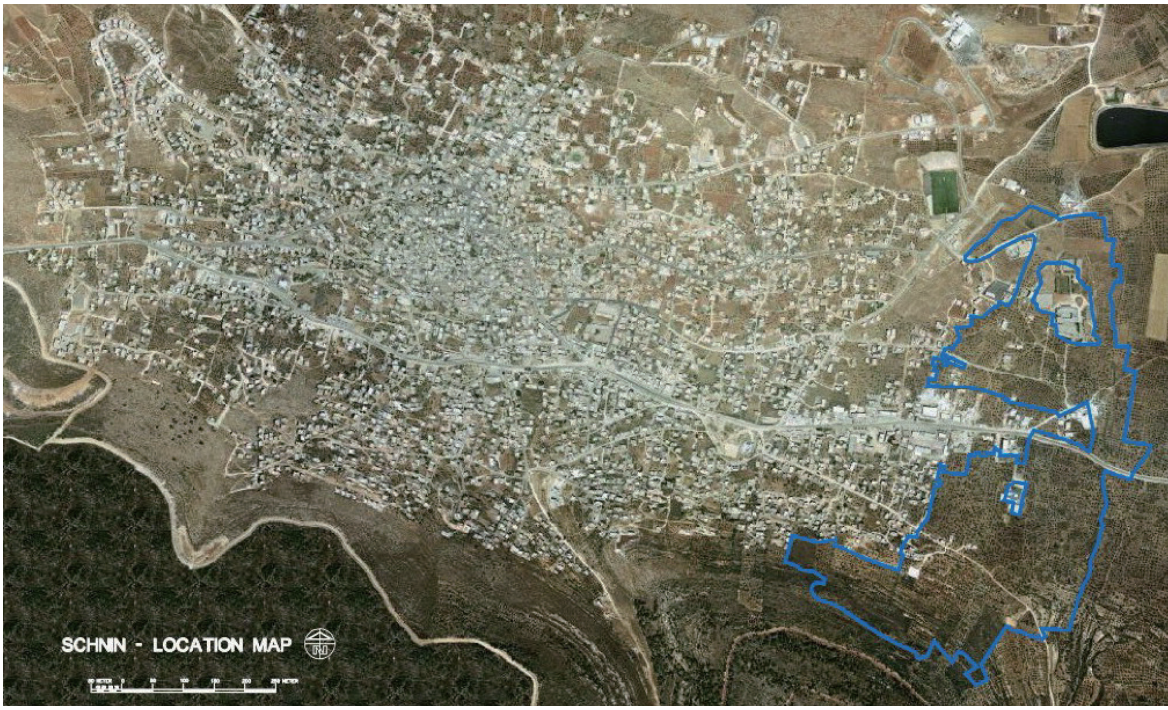
The second project, a Druze community named Haunch Jat, emerged in 1992. Also located in upper Galilee, the community is made up of two villages. The Ministry of Interior prepared a master plan for the villages between 2002 to 2006. This plan mainly proposed to allocate land for roads and publics facilities. As has been shown recently, without land readjustment such a plan is not feasible. A community representative therefore tried to refuse the approach, while planners and local communities wanted to implement it. The third project is called Birel al Maksour, a Bedouin Arab community project implemented by the government with the aim of concentrating the Bedouin Arabs into one area, and confiscating some of their land. In 2006, the Ministry of the Interior initiated a detailed plan based on land readjustment to be implemented in an area of 30 hectares (or 300 dunams) that was owned by both individuals and by the State. The private owners refused to accept land allocation for public facilities coming from their lands, and requested that the allocation come from State land. The Israeli State attitude was to allocate land for public facilities shared equally between the private and the State land, and the rest of the State land was allocated for social housing.

These projects give a real picture of the issues of land reparcelization in Israel. The readjustment works with barriers and obstacles in the Jewish sector, while in the Arab sector it is affected from outside ethno-national conflicts and internal socio-cultural aspects. Conflict management techniques must include public dialogue and mediation, especially in situations where private landowners are in disputes amongst themselves. From these case studies, it is expected that the model will be developed and applied in disputes throughout the Arab localities (see Table 3.6 and Figures 3.24-3.26 for Schnin Arab Town project).

Table 3.6. Schnin Arab Town Land Readjustment in Schnin, Israel

Name of the project:		Land Readjustment Project in Schnin
Location of the project:		Schnin town, Galilee region, Israel
Name of the implementation agency:		Municipality of Schnin and the Local Planning and Building Committee, Arch. Desmont Kaplan.
Project period:		2001-2006
Implementation of the project period:		10 years
Area of the project:		546.56 hectares
Rights holders:	Nº of landowners:	700
	Nº of leaseholders:	700
Land evaluation, contribution ratio:	Decrease for public facilities:	33%
	Decrease for reserved land:	-
	Total ratio of decrease:	33%
Implementation plan, stages:		2001 to 2003: application of the zoning details on land, re-surveying, checking all cadastral records including land shares, announcement to rights holders, and calculation of public contributions. 2003 to 2006: reallocation of new land parcels, re-distribution of old cadastral parcels, implementation of public areas, and distribution of new land titles (final registration still ongoing).
Total built-up area of the project:		400,000 m^2
Density involved before and after the project:		Before: about 3 inhabitants/hectare. After: planned 70 inhabitants/hectare.
Reserved land and additional built area:		No reserve land approach.
Land evaluation:		Before the project: INS 20 /m^2. After the project: INS 60 /m^2. A total increase of 300% of the land price after the project. The land price increased as a result of the project beginning and the authorization of the zoning plan.
Real estate market evaluation:		Increase of 600% on the buildings price after the project.
Benefits to the local government:		Increase in public areas of 33%. New roads and streets were opened.
Benefits to the landowners (and/or leaseholders):		Land values increased very rapidly, social services were brought to the project area, the cadaster was renewed, and the conflicts were minimized.
Benefits to the investors:		Building enterprise, long-term profit, and new investments.
Principal and eventual conflicts (site/landowners):		The distribution balance of land value before the project differed from the distribution balance after the project. Problems with the standard building size after the project.
Finance of the project:		Fully financed by the government.
Total cost of the project:		USD 120,000
Features of the project:		The project resulted in new registration of new parcels according to the new reparcelization, and implemented housing development based on self-help housing.

▼ Figure 3.24. Schnin area before the project and its locationm in Schnin town (2001)



▼ Figure 3.25. Schnin area before the project and the cadastral land parcel distribution (2001)

Figure 3.26. Zoning land use plan after the project in Schnin town (2006) ▼

Land Readjustment in Mongolia

Ganbat Bayartuvshin

Mongolia, located in central Asia and bordered by Russia and China, has a total area of 1,534,115 square kilometers and a population of around 3 million people (National Statistical Office of Mongolia 2015). The political situation of the country changed significantly during the late 1980s and early 1990s as Mongolia transformed from a socialist into a democratic society; this was then followed by the establishment of political parties. According to its Democratic Constitution, adopted in 1992, Mongolians enjoy the right to move freely within the country. As a result, the number of people migrating from rural areas to the capital city, Ulaanbaatar, increased significantly. The migrants began to concentrate themselves into the Ger areas, which rapidly expanded and accelerated the negative impacts and problems. "Ger" means home in Mongolian and refers to the round, felt tents that have been part of the traditional Mongolian nomadic lifestyle for centuries. Currently, the Ger area covers 21,832 hectares or 78.8% of the total of 27,680 hectares in the capital city's urban area, and more than 68% of the total population of Ulaanbaatar city lives there.

The traditional Gers are sustainable structures very well adapted for a nomadic society, but when they are located in high-density, unplanned, informal settlements they create many issues. These informal urban areas lack sanitation, adequate vehicular access, and other basic services. The traditional use of wood and coal for heating contributes to the heavy air pollution, especially during the winter season. In sum, residents of the Ger area have suffered from health problems caused by air and soil pollution due to the lack of infrastructure and of a central heating system. According to an air pollution survey from the "Atomic Energy Commission" of the National University of Mongolia (2004-2007), "about 50% of air pollution is caused by soil dust, while 35% is caused by coal dust, respectively." In recent years, this figure has increased by 50% and the Ulaanbaatar city council is working on improving the Ger area by providing housing for citizens in the form of modern standard apartments. The Ger area redevelopment projects have been carried out in 24 areas in Ulaanbaatar, and, in addition, land readjustment projects have been developed in mid-rise and suburban areas.

One feature of the Ger area is its plot size. The average area of a plot is 470 square meters, upon which any number of houses may exist. Approximately 80% of the Ger residents had their plots privatized; therefore, it is necessary to develop land readjustment projects suitable for the upgraded Mongolian condition. In this sense, an implementation agency named "Housing Project of Ger Area," a State-owned enterprise, was as-

signed with the task of organizing the land readjustment projects in 2013. A "Nine Steps Procedure for the Land Readjustment Project" was developed with the aim of reflecting the opinions of landowners: (i) Landowners can make a request to be involved in the land readjustment project; (ii) A survey is conducted in an area where requests were received from more than 50% of the total landowners who want to be involved in the land readjustment project; (iii) Consultation and discussion about the boundary of the project area is conducted with the "Master Plan Agency," who must approve the land readjustment project area; (iv) A temporary council of landowners in the land readjustment project area is established; (v) Explanatory meetings and trainings are conducted with the landowners; (vi) The draft plan and concept maps are introduced to the landowners; (vii) Consultation of the draft implementation plan is conducted with the relevant authorities, which aims to reach an agreement and build consensus; (viii) The replotting design and the financial plan are developed; and (ix) The final plan is submitted for the approval of the city council representatives of Ulaanbaatar.

The "Housing Project of Ger Area" then published a handbook on the "Nine Steps-Procedure for the Land Readjustment Project" in order to spread the knowledge among Mongolian residents. Additionally, the implementing body conducted surveys to determine the demand and willingness of landowners since 2013. According to these surveys, involving a total of 36,338 residents as of the end of 2014, about 70% expressed their willingness to build a private house on their privatized land and to connect it to the central heating and engineering lines.

Ger area land readjustment projects are thus a comparatively new activity in Mongolia. The implementation of the first project started on 9 hectares of the Songino Khairkhan district, 30th Khoroo (2013-2016). This project was the first project with 168 land rights holders, and was fully financed from the State budget to make a model project. However, the government will no longer pay all of the project costs."Housing Project of Ger Area" is therefore planning to implement further land readjustment projects through sales of the reserve land contributed by all the landowners in 6 areas of Ulaanbaatar. To transfer the land or real estate ownership rights in these 6 project areas, 2 methods have been planned: the exchange of land for land or the exchange of land for apartment units. In a few cases, the land purchase method can be used, but the land ownership rights conversion activities have to be carried out in conformity with the *City Redevelopment Law* (2015).

According to the technical handbook "Project Implementing Method" (2013), published by the "Mongolian Urban Growth Capacity Upgrading Project" team:

> "The implementing body of the project will develop the procedure for rights con-

> version that reflects the right evaluation method for the project, its evaluation points, the calculation order, the special evaluation plan for plots that are too small, or specific plots, etc. The implementing body will develop the rights conversion plan according to this procedure. Land readjustment project implementing body needs to organize questionnaires and negotiation meetings with land rights holders in order to develop the land rights conversion plan." (Mongolian Urban Growth Capacity Upgrading Project Team 2013)

According to this procedure, project managers of the "Housing Project of Ger Area" must provide questionnaires to the project area landowners to develop the plan for land rights conversion. For instance, the manager of the Khan Uul District Land Readjustment Project conducted a questionnaire with 189 landowners (out of total of 220). As a result, 67 landowners preferred to exchange land with land, while 122 preferred to exchange land with apartment units. One benefit of using questionnaires is the possibility to determine the contribution ratio of each plot with the participation of landowners. To negotiate with landowners, the implementing agency shall offer a market assessment of the land, real estate, and advanced estimation of the land through consideration of the project evaluation ratio made by the Ger area. Ulaanbaatar city does not have standards for a land estimation ratio that meets modern requirements; thus, the land contribution ratio can be created in this way.

Finally, as a result of parliamentary elections, many agencies and organizations were restructured. The Ulaanbaatar city's "Housing Project of Ger Area" and the "Ger Area Development Department," both of which were implementing land readjustment projects, and the Ger-to-apartment projects, merged into a new department named "the Ger Area Infrastructure Department." Now, the "Ger Area Infrastructure Department of Ulaanbaatar City" will provide government support and the private sector will act as the implementing agency for land readjustment projects (see Table 3.7 and Figures 3.27-3.28 for Narlag Buyant Ukhaa project). Lastly, there are some challenges for the implementation of land readjustment projects in the Ulaanbaatar city Ger areas, as follows:

a. Land readjustment projects are going to be implemented in suburban areas with low population density; therefore, measures must be taken to attract the private sector into these activities and to solve investment profitably issues; and

b. Ulaanbaatar city does not have standards for land estimation ratios that meet modern requirements, however, many organizations such as the Japan International Cooperation Agency (JICA) and the Mongolian University of Life Sciences have been conducting research in this area. There is a significant need for technical and methodological assistance to develop standards for land evaluation in Mongolia.

Table 3.7. Narlag Buyant Ukhaa Land Readjustment in Ulaanbaatar, Mongolia

Name of the project:		Narlag Buyant Ukhaa Land Readjustment Project (Нарлаг Буянт Ухаа ГДЗБ төсөл)
Location of the project:		9th Khoroo, Khan Uul district, Ulaanbaatar city, Mongolia
Name of the implementation agency:		Narlag Buyant Ukhaa Co. Ltd., and the Ger Area Infrastructure Agency of Ulaanbaatar
Project period:		2013-2019
Implementation of the project period:		2017-2019
Area of the project:		21 hectares
Rights holders:	N° of landowners:	221
	N° of leaseholders:	50
Land evaluation, contribution ratio:	Decrease for public facilities:	10-15%
	Decrease for reserved land:	30-35%
	Total ratio of decrease:	40-50%
Implementation plan, stages:		Now at the project preparation stage and planning to begin implementation from March 2017.
Total built-up area of the project:		Building coverage area: 32,900 m^2 (3.29 hectares).
Density involved before and after the project:		Before the project: 1,577 residents (75 residents/hectare). After the project: 6,320 residents (300 residents/hectare).
Reserved land and additional built area:		10.3 hectares, including green areas.
Land evaluation:		Land price before the project: tögrög 20,000 /m^2 (10 USD/m^2). Land price after the project: tögrög 100,000 /m^2 (50 USD/m^2).
Real estate market evaluation:		Building price before the project: tögrög 50,000,000 (USD 25,000). Building price after the project: tögrög 120,000,000 (USD 60,000).
Benefits to the local government:		Water line construction costs will be less because the project site is within proximity of the central water line. Khan Uul district density will decrease.
Benefits to the landowners (and/or leaseholders):		A comfortable living environment with water and sewage supply, and a heating system. Land value will increase.
Benefits to the investors:		After the implementation of this project, investors will have the chance to implement another project on 20 hectares of the Ger area beside this land readjustment project area.
Principal and eventual conflicts (site/landowners):		No information.
Finance of the project:		75.8% from private sectors and 24.2% from subsidies.
Total cost of the project:		tögrög 89 billion (USD 45 million)
Features of the project:		The west side of project area is near to the Tuul river basin, so owners can enjoy natural beauty and a good view. The project area is only 1.5 kilometers from Chingis Khaan international airport.

▼ Figure 3.27. Narlag Buyant Ukhaa land readjustment project (2017)

▼ Figure 3.28. Narlag Buyant Ukhaa land readjustment project (2017)

Land Readjustment in Nepal

Kirti Kusum Joshi and Sunil Babu Shrestha

Nepal is one of the least urbanized but most rapidly urbanizing countries in the world. Between 2001 and 2011, the urban population of Nepal increased at an annual average rate of 3.38% to reach 4.5 million inhabitants, accounting for 17% of the national population. With new municipalities added in 2014, the adjusted level of urbanization now stands at close to 40%. With ever-increasing rural-to-urban migration and conversion of villages to towns and towns to cities, the rapid pace of urbanization in Nepal is expected to continue. Urban growth in Nepal, however, has mostly been unplanned and uncoordinated, characterized by haphazard construction of buildings and inadequate and sub-standard provision of urban services. It is a common practice to construct buildings even where basic urban infrastructures are non-existent or severely lacking. Moreover, most of the residential plots are of irregular shape, size, and orientation, making it difficult to provide infrastructural services effectively and efficiently.

Faced with the need to guide urban development so as to provide proper land for housing, to reduce haphazard land subdivision, and to provide quality urban infrastructure and services, the government of Nepal enacted the *Town Development Act* of 1988 (amended twice in 1991, and again in 1992 and 1997). This act authorized "Town Development Committees" (TDCs) to undertake three forms of land development: guided land development (GLD), site-and-services, and land pooling. The GLD projects were initiated in 1988 to improve existing infrastructure through the reorganization of road networks in and around the project areas. The site-and-services scheme was introduced in the late 1970s with a much wider scope than the GLD projects. In a site-and-services project, the government would acquire primarily cheaper vacant plots through eminent domain or would make available public land, and would then develop the acquired land by adding the necessary infrastructure services. The site-and-services schemes soon became unpopular, as original landowners would be displaced from their land. Moreover, land acquisition became increasingly difficult because of the rising prices. Against this backdrop, the concept of land pooling made headway and, beginning in late 1980s, several land pooling projects got underway. Presently, land pooling is the only form of land readjustment carried out by the central or local governments.

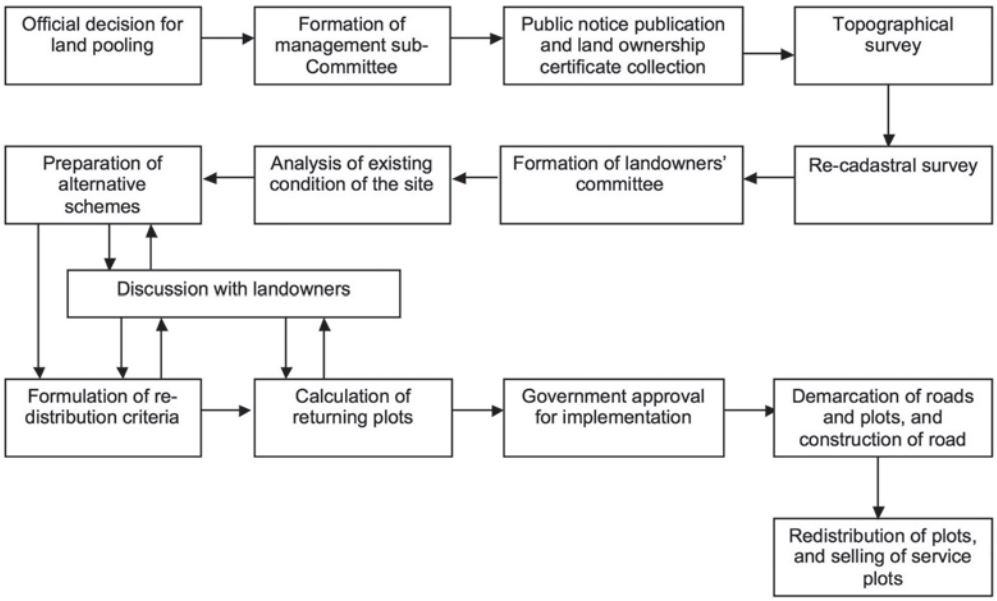
In land pooling projects, individual plots are combined into one large estate. A new road layout is planned, and the estate is subdivided rationally. Landowners contribute a certain portion of land for open spaces, roads, and reserved plots. New road layouts

– often planned in a gridiron pattern – facilitate the provision of other infrastructure such as piped drinking water, drainage, and electricity along the right-of-way and, as a result, the price of each plot increases significantly. Despite losing some portion of their plots, the original landowners are compensated by an increase in the land price. Moreover, the project costs are covered by the sale of reserved plots, thus making land pooling project self-financing. The main objective of land pooling projects is to promote planned urban development and to provide land required for the development of human settlements through environmentally sound planning processes and through partnerships between landowners, the private sector, central and local government, and community organizations for managing land resources.

Clause 12.1.2 of the *Town Development Act* (1988) states that land pooling can be carried out in any part of the town planning area with the agreement of a minimum of 75% of the landowners (KKBS 2000). The same act empowered TDCs formed in different district headquarters, urban centers, and emerging towns, to initiate land pooling projects. The land pooling projects are, in general, implemented by "Town Planning Implementation Committees" (TPICs) formed under the *Town Planning Projects Implementation Act* of 1973 (later replaced by the *Town Development Act* of 1988). The government urban planning agency – the Department of Urban Development and Building Construction – provides regular management control in the land pooling projects whereas TDCs, project management sub-committees – chaired by the mayor or by the chairperson of the "District Development Committee"(DDC) – and users committee provide regulator control. Moreover, the *Local Self-Governance Act* (1999) has empowered municipalities to undertake urban development in areas under their jurisdiction, thereby authorizing municipalities to assume the responsibilities performed by the TPICs. The Nayabazar Land Pooling Project, for instance, was implemented by Kathmandu Metropolitan City (KMC). However, municipalities in Nepal have not become institutionally strong enough to completely replace TDCs or TPICs as envisioned by the *Local Self-Governance Act* of 1999.

The land readjustment technique was introduced in Nepal in 1975 with the initiation of the Chipledhunga Land Pooling Project (13.5 hectares) in Pokhara, a popular tourist destination (Acharya 1988). However, it took more than a decade to launch the country's first official land pooling project named the Gongabu Land Pooling Project (14.3 hectares), which was initiated in 1988 as a pilot project. Since then, several land pooling projects have been launched nationwide – mostly in the Kathmandu Valley. By 2000, a total of 12 land pooling projects had been completed in the Kathmandu Valley, covering 246.76 hectares of land (Joshi and Sangachhen 2000). The basic framework of Nepalese land pooling can be understood as follows (see Figure 3.29):

▼ Figure 3.29. Simplified flow-chart of land pooling projects in Nepal



a. Land title holding: in Nepal, the land ownership certificate ensures the absolute holding of a land title. Although the government can acquire land through eminent domain, such a move has turned out to be difficult and unpopular. In the case of land pooling projects, the landowners surrender their land titles temporarily to the project, but they later regain the absolute holding of the land title although the size and location of the returned plots differs from the original plots. Verification of the location and size of the plots is done through cadastral maps and on-site surveys;

b. Land value evaluation: it is difficult to pre-determine the land price of each and every plot in a land pooling project. Moreover, once the news of the proposed project is spread, price speculation begins, providing a false picture of land prices. In a land pooling project, access to the existing road, along with the width and type of such road, is generally taken as an indicator of land value. After the project closure, the reserved plots are sold by tender after a minimum price has been set. In general, plots that have wider road access sell at a higher price. The minimum price of the reserved plots is fixed on the basis of project costs and the prevailing land prices;

c. Facility development: facilities provided through land pooling projects include roads, drinking water, sewerage systems, and electricity. Provision of other amen-

ities, such as open spaces, or community or religious centers, varies according to the project. The users committee looks after the management and maintenance of such public facilities;

d. Financial resources: although land pooling projects are self-financing, financial resources are required to initiate the project and to cover administrative and construction costs until the reserved plots are sold. In general, the TDC (or the municipality) concerned provides a revolving fund from which the land pooling project takes a loan that is paid back through the sale of the reserved plots; and

e. Contribution ratio: there is no specific rule regarding the contribution ratio that applies to all land pooling projects. In general, the contribution ratio for open spaces and reserved plots is generally uniform for all plots whereas the contribution ratio for roads depends on the existing access and width of the planned roads adjacent to the plots. While plots without road access are required to contribute more, plots that cannot contribute land because of existing houses or the land size being smaller than the minimum required, must contribute the cash equivalent.

After the official decision to launch a land pooling project, a management sub-committee, headed by the mayor or a DDC chairperson, is constituted with representatives from the landowners and the central government. A public notice is issued and land ownership certificates are collected. Consultants are hired to prepare the topographical map of the project area, while re-cadastral surveying is generally carried out by the Department of Survey under the government of Nepal. Existing site conditions are analyzed with the involvement of the landowners committee. Alternate land pooling schemes are then discussed, and the final scheme is prepared. After the landowners committee has approved the re-plotted map of the project area, the land contribution ratio is determined and approved through collection of signatures from all landowners.

Following this, fieldwork including the demarcation of roads and plots begins. Re-checking and re-corrections through surveys are carried out in parallel prior to the transfer of the re-plotted land. Any dispute and confusion that arises with the landowners, is solved on-site through mutual discussion in the presence of all parties concerned. Upon approval from the government through the TDC (or the municipality), the project is implemented beginning with the demarcation of roads, then followed by redistribution of plots and the selling of reserved plots. In the process of land pooling, landowners surrender their original land in exchange for another plot after subdivision. The plots returned to the original landowners are located as near to their original plots as possible.

As mentioned earlier, the country's first official land pooling project was the Gongabu

Project. During a meeting held in December 1988 at the "Kathmandu Valley Town Development Committee" (KVTDC) (now restructured as the "Kathmandu Valley Development Authority"), it was decided that a project should be run in the vicinity of the central bus terminal in Gongabu, Kathmandu Metropolitan City (KMC) where building construction was taking place rapidly and haphazardly. An area of 14.3 hectares was chosen for the project; after excluding the already built-up area and a hillock, the project area was bordered by the Kathmandu Ring Road in the north, other urban roads in the east and west, and a river in the south. The project, completed in 1995, supplied a total of approximately 11 hectares of residential plots in addition to 0.7 hectares of public open space, 5.9 kilometers of road networks, and 10.3 kilometers of sewerage networks at an estimated cost of NRs. 69.8 million (approximately USD 1.24 million at the November 1995 price).

The project implementing agency, the "Kathmandu Valley Town Development Planning Implementation Committee" (KVTDPIC), was responsible for the preparation of all necessary planning and design activities, and it received policy guidelines from KVTDC and the land management sub-committee as well as from the users committee. The land management sub-committee, chaired by the mayor of KMC and comprised of representatives from all stakeholders, was responsible for the formulation of the relevant project policies. Likewise, the landowners committee, chaired by the chairperson of KMC Ward 29, was comprised of the representatives of landowners and tenants. The erstwhile Ministry of Housing and Physical Planning and the erstwhile Department of Housing and Urban Development under the Ministry, provided regular management control to the project. It should be noted that several agencies have undergone institutional restructuring and are now known by different names.

During the initiation of the Gongabu Land Pooling Project, the *Town Development Act* of 1988 required only a simple majority among the landowners to initiate a land pooling project. The minimum criterion would later be changed to three fourths for newer land pooling projects. On the basis of the cadastral map of the project area, which was updated by the Department of Survey under the government of Nepal, the standard plot size of 9 meters x 14 meters and a minimum plot area of 128 square meters were adopted for the readjustment of plots. The hierarchy of roads in the project area comprised of a network of 4, 6 and 8 meter roads. The 8 meter wide trunk road linked the project area with the existing roads in the north and the west. Roads with a width of 6 meters were laid to the left and right of the 8 meter road and linked the trunk road with the existing road in the east. Finally, 4 meter wide roads branched off from the 6 meter wide roads.

A constant contribution ratio of 5% was adopted for the deduction of land from each plot for public open spaces and amenities, and another 5% was set aside for reserved

or service plots. Central land lying under the high-tension line was used for public parks as it was not suitable to be used for permanent constructions. Similarly, separate plots were allocated for public use, including community buildings, car parking, and playgrounds However, because of the emphasis given to minimizing the shifting of plots, large open spaces could not be provided. Deduction of plots for road networks varied from 4 to 36% depending on the type and width of the existing road adjacent to the plots and the width of the planned road. Water was supplied to the project area through a deep boring well and municipal supply lines, with some financial assistance provided by the government agency concerned. Likewise, electricity was provided by the electricity line agency although it had no earlier plan to do so. A portion of the land under the high-tension lines was used as the site of a sub-station.

There were a number of legal problems relating to the redistribution of plots. The existing law on land administration and land registration prohibited transfer of ownership from one person to another after the re-plotting of land. To solve this, the government was requested to acquire all lands for the purpose of providing compensation to the owners by distributing the developed plots. For landowners who would receive less than the minimum standard plot area of 128 square meters, additional land was provided from the reserved plots after payment of a cash equivalent. All landowners were given permanent landownership certificates and all the reserved plots were sold.

As mentioned previously, to ensure the total investment cost of the project was recovered, 5% of the land was deducted from each plot for the reserved or service plots which were sold through auction; the revenue from the sale of these plots was used to pay back the loan taken from the revolving fund of the KVTDC. The minimum price of a plot was decided on the basis of recommendations from the ward office and the office of land registration, field surveys, and the project costs. The minimum price of a plot of land ranged from NRs. 4,519 to 6,483 per square meter, depending on the width of the adjacent road. The reserved plots were sold for an average price of NRs. 6,916 per square meter. Approximately 11 hectares of land in the project area was allocated for residential purposes. Taking an average household size of 5.3 people and a standard plot size of 128 square meters, and assuming that 1.5 families live in one house (as houses are partially used for renting), the total population capacity of the project area was estimated to be about 6,800 people.

In conclusion, land pooling schemes have successfully replaced the unpopular method of land acquisition through eminent domain. As the first official land pooling project, the Gongabu Land Pooling Project was a milestone in the history of land readjustment in Nepal (see Table 3.8 and Figures 3.30-3.32 for Gongabu project). Most importantly, the project was successful at spreading the concept of land pooling amongst the public. De-

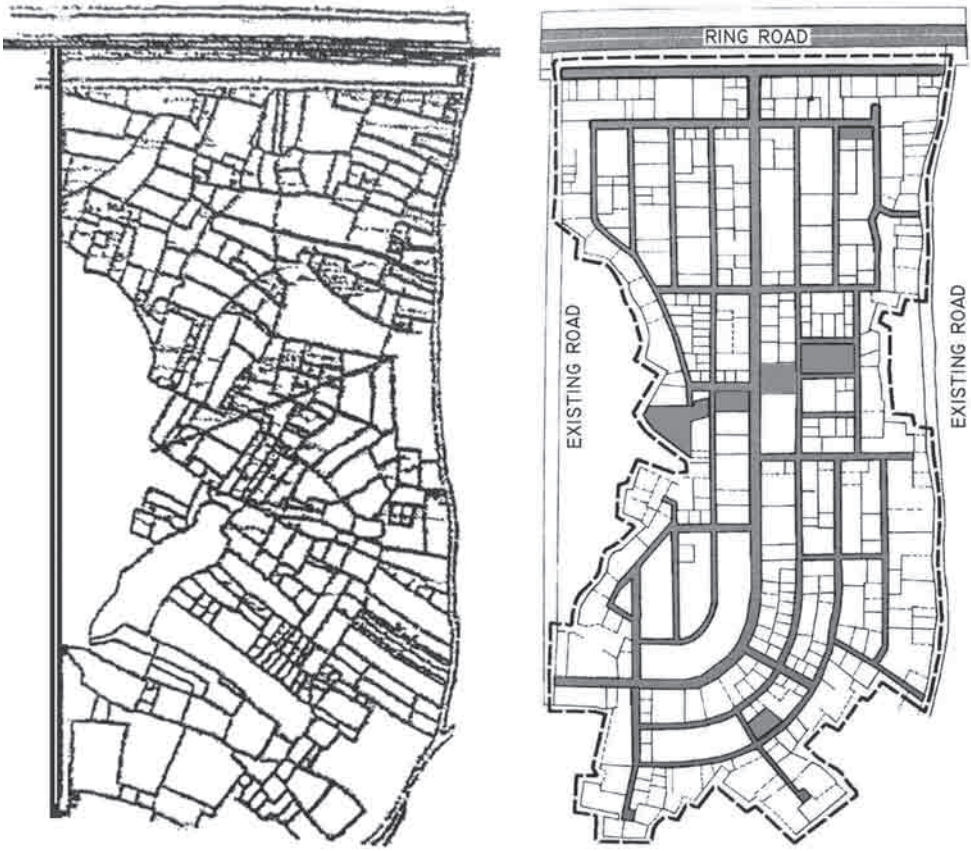
spite its small size (14.3 hectares), the project paved the way for other large-scale land pooling projects such as the Bagmati Corridor Land Pooling Project (110 hectares). The project also provided valuable experience and lessons to urban planners and policymakers, but it also exposed several legal flaws and impediments to planned urbanization. In particular, the Gongabu experience showed that there were not sufficient provisions in the *Local Self-Governance Act* of 1999 to enable local governments (municipalities) to replace TDCs and undertake urban development projects by themselves as envisioned in the act. One of the most important influences of the Gongabu Land Pooling Project is the popularization of land pooling as a powerful urban planning tool. The concept of land pooling is now being explored for road construction or widening projects (e.g. "Kathmandu Ring Road Improvement Project" and the proposed "Outer Ring Road Project"). Moreover, in addition to the government or local governments,the private sector is also coming forward to develop land following the principle of land pooling.

Production of service plots and public open spaces without hurting the welfare of the original landowners has also given rise to some innovative ideas, such as providing land to the landless urban poor. Likewise, looking at the present need for inclusive society and mixed settlement, the conventional approach that uses the land readjustment method can be redesigned using a holistic approach (Shrestha and Taniguchi 2003). For instance, provision of agricultural land could be made for productive greening, creating a Food Green City (Shrestha 2004) that provides affordable food to the city dwellers and creates a green and healthy environment in the city. On the one hand, small-scale land pooling projects cannot make a significant contribution towards planned urbanization and housing affordability. On the other hand, because of the emerging roles of local government the central government cannot manage large-scale land pooling projects alone. Therefore, priority should be given to the institutional strengthening of local governments with necessary amendments to the related laws to avoid confusion between the central and local governments over their responsibilities.

The massive destruction caused by the April/May 2015 earthquakes in Nepal has highlighted the need for disaster-resilient planning of human settlements. The earthquakes caused a huge loss of life and property in the country, with 9,000 casualties, 22,300 injuries, and the destruction of over half a million buildings. Within the Kathmandu Valley, Gongabu was one of the worst hit areas where many newly constructed buildings collapsed because of poor construction technology and design coupled with weak soil conditions. Although buildings within the land pooling area survived major damage, the experience has shown that land availability and public acceptance alone is not enough for a land pooling project; risk-resilience should also be seriously considered in the formulation of any such project.

Table 3.8. Gongabu Land Readjustment in Kathmandu, Nepal

Name of the project:		Gongabu Land Pooling Project
Location of the project:		Gongabu, Ward 29, Kathmandu Metropolitan City, Nepal
Name of the implementation agency:		Government of Nepal: Kathmandu Valley Town Development Committee (now restructured as the Kathmandu Valley Development Authority).
Project period:		1989-1995
Implementation of the project period:		1991-1995
Area of the project:		14.3 hectares
Rights holders:	Nº of landowners:	376 (406 plots)
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	9 to 41% (including uniform contribution of 5% for roads).
	Decrease for reserved land:	5%
	Total ratio of decrease:	14 to 46%
Implementation plan, stages:		No information.
Total built-up area of the project:		11 hectares
Density involved before and after the project:		Before the project: uninhabited. After the project: 476 people per hectare.
Reserved land and additional built area:		Reserved land: 8.5 hectares. Loss of total residential area: 3 hectares.
Land evaluation:		Increase of 30% in average.
Real estate market evaluation:		No information.
Benefits to the local government:		0.7 hectare of open public space. Planned residential development. Successful implementation of the first official land pooling project.
Benefits to the landowners (and/or leaseholders):		Fair distribution of benefits. Planned neighborhood with road and sewerage network.
Benefits to the investors:		-
Principal and eventual conflicts (site/landowners):		Lack of prior experience in land pooling. Legal hassles regarding transfer of land ownership. Landowners with less than 79.50 square meters of land did not have to contribute but had to pay some money to the implementation agency as a project counterpart.
Finance of the project:		Kathmandu Valley Town Development Committee
Total cost of the project:		NRs. 69.8 million
Features of the project:		(Infrastructure Services) Road network: 5.9 kilometers. Sewerage network: 10.3 kilometers. (Land Use Distribution) Residential plots: 78.35%. Roads: 16.74%. Public spaces: 4.90%.



▲ Figure 3.30. Plot division before and after the project (1989-1995)

Figure 3.31. Residential development in Gongabu land pooling project area (2008) ▼

▼ Figure 3.32. Aerial image after the implementation of the Gongabu Project (2004)

From Land Consolidation to Land Readjustment in the Netherlands

Adri Van Den Brink

Statutory land consolidation was introduced in the Netherlands in 1924, as a tool to improve the structure of agriculture and the related reallocation of land use rights and ownership. The instrument was gradually extended in order to improve water management and infrastructure and to make space available for the development of non-agricultural uses. Today, the implementation of policy objectives for nature, recreation, landscape, cultural history, water, and the environment is more dominant. Over the years, land consolidation plans involving nearly 1.4 million hectares and divided among approximately 480 projects have been completed. This surface represents about three quarters of the total area of cultivated land. At present, an area of 800,000 hectares is being consolidated and 360,000 hectares are in the preparation phase.

The growing interest in non-agricultural uses is reflected in the rapidly changing physical appearance of the country. The landscape of towns and cities surrounded by meadows and fields is taking on a number of increasingly metropolitan traits, in particular the integration of highly urbanized, densely built-up centers and open, rural areas of divergent shapes and dimensions. The use and appreciation of these rural areas is inextricably linked to the needs of the urban centres. Urban and rural areas have become more integrated, and together they form the aptly termed "metropolitan landscape." However, with its roots in agricultural structural improvement, traditional land consolidation is not well suited to dealing with the dynamics of the metropolitan landscape. Moreover, private parties, such as developers, have gained greater importance in the implementation of development policies. As a result, more emphasis is placed on the so-called "area development," which is a way of spatial planning at the regional level. The core elements of area development are based on integrated planning by all actors involved. The plan itself is focused on implementation, which usually takes a long time from start (idea) to finish (realization) and involves a combination of urban ("red") and rural ("green") functions.

Due to these characteristics, area development makes use of urban-rural relations instead of focusing on rural and urban areas separately. The concept focuses on public-private partnerships, creating alignments between land use functions, interests, disciplines, and financial arrangements. In other words, it is a co-production between public and private actors, interest organizations, advisors, designers, and users. There is a "readiness for battle" and, by leveling administrative and sectorial borders, a focus on speed and results. Permanent communication, debate, and dialogue form a very important part of the process. An example of this new approach to spatial planning and the implementation of spatial policies, can be seen in the "Groningen Lake City Project."

The "Groningen Lake City Project," or "Meerstad Groningen," is a project on the eastern side of the city of Groningen in the northern part of the Netherlands (see Figures 3.33-3.36). The project incorporates the construction of a new housing estate in a single integrated plan, with open space development and the improvement of water management. It involves 10,000 dwellings for 22,000 inhabitants, approximately 140 hectares of commercial premises, and a lake covering 650 hectares to be used for recreational purposes and for coping with excess rainwater. Additionally, the project will incorporate landscape and nature development over an area covering a total of 4,000 hectares, 1,700 hectares of which will remain available for agricultural use. The remaining 2,300 hectares is designated for houses, commercial premises, water, and nature and is almost as large as the city of Groningen. In this area, seventeen different "living landscapes" will be created, each one with its own character. They will consist of single-family houses, apartment buildings, social housing, and houses located at the waterfront, amongst

other things. The average plot size will be 450 square meters, which is almost twice as large as in other housing projects in and around the city of Groningen.

Until recently, urban and rural developments in metropolitan areas were planned "back to back" by both the "red" and the "green" planning domains, each with separate flows of money. Profits from urban development ended up in the pockets of private investors and the government was trying to guide this development in the landscape with the little money available. In addition, agricultural land prices around cities are booming. Only a small part of the price is determined by the agricultural value of the land. The driving force in these areas is land as a speculative investment. For this reason, farmers are no longer willing to sell land at low prices for green purposes as they are now in a position to sit and wait until a major buyer comes along.

In Groningen, public actors have realized that combining their strengths with the private sector may pay off and solve the problem of speculation. Making the assumption that green surroundings result in a surplus value of houses leads to the question: why not use this surplus value for promoting the surroundings? Public bodies, therefore, started negotiations to create public-private partnerships. It took two years to investigate the financial and legal feasibility of joint exploitation, including extensive public consultations. The result was a joint venture and a master plan created in 2005. The joint venture is a public-private land and property company that was established by a consortium consisting of the municipalities of Groningen and Slochteren, the province of Groningen, the Ministry of Agriculture, Nature and Food Quality, and four real estate developers.

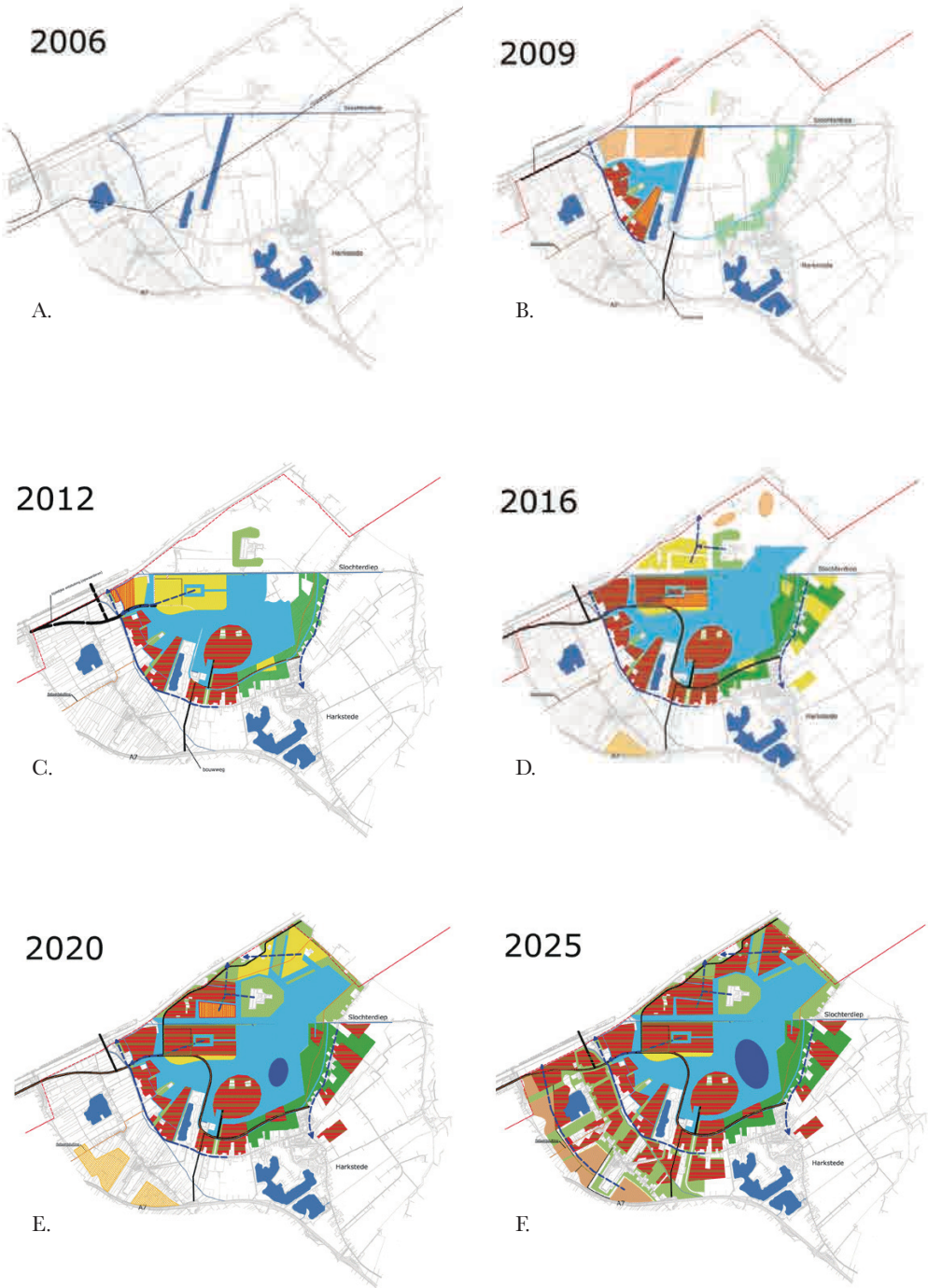
The company took over the land that was still in the hands of the consortium partners. This was effectuated at one fixed unit price to create a neutral playing field for the partners in their joint search for the best project plan. A "neutral playing field" means that the land is sold to the company independent of its future function, and price differences between the "red" and the "green" functions are not taken into account. The company is responsible for preparing the land for construction, including the excavation of the lake and the development of green spaces. The cost of this operation will be covered by land grants made to project developers who will then finance the construction of houses in the area at their own risk. Any profit made by the company will be ploughed back into the area. Total investments for converting the land into building plots were estimated at € 800 million at current prices (approximately USD 1,200 million). This amount does not include the investment needed for the construction of houses, which was estimated to be € 2 billion at present prices (approximately USD 3.5 billion). The project is expected to take 25 years, and the first phase of the project started in 2008. In 2010, the first houses were delivered.

The advantage of the construction that has been chosen for the implementation of the project is that it provides a better integration of spatial functions because the plans were developed detached from the initial property boundaries. One of the disadvantages is the financial risk of investing at an early stage in the realization of "green" or "blue" (water) functions that can only be compensated at a later stage through the surplus value of the houses. There is no guarantee that developers will be able to achieve such a surplus value. This is important as the agreement made states that "for each hectare of 'red', one hectare of 'green' and 'blue' should be developed." Nevertheless, it goes without saying that participation in a project of this scope entails major risks for all parties involved. These risks relate to the financial severity of the intended land development, the realization of the integrated objects, the effects of the market, and the way co-operation is organized. A risk analysis and agreements on hedging obvious risks are, therefore, an essential aspect of this form of planning and policy realization.

In conclusion, it can be stated that the "Groningen Lake City Project" involves a totally new approach as residential areas and the countryside will be developed in mutual cohesion. This will improve the quality of the plan and also enable a financial balance for both components. Nature and water will give the houses additional value that will be used to finance the development of green spaces. This approach has been called "green through red."

▼ Figure 3.33. Aerial image before the implementation of the Groningen Lake City Project (2004)

▼ Figure 3.34 (A-F). Schematic representation of the project implementation (2006-2025)



▼ Figure 3.35. A 3D geo-visualization of the future situation (2025)

The Failure of Land Readjustment in Sweden

Tommy Österberg

The legal origin of urban land readjustment in Sweden began when the *Joint Land Development Act* came into force in 1987 (*Lag 1987:11 om exploateringssamverkan*). The principles and procedures introduced had a legislative history greatly influenced by the rural land consolidation processes successfully carried out over the past 250 years (in Sweden this activity started around 1750). However, the new procedures for urban land readjustment were not really accepted by land developers and municipalities. Very few projects were undertaken, and the Swedish Parliament finally cancelled the legislation in 2012. The reason for this was mainly that it never really came into use. In the following discussion, a short description of the cancelled legislation is presented, followed by comments on why the legislation never came to play a role in urban development in Sweden.

The Swedish land readjustment provided to landowners a tool for planning and implementing urban development projects together in an area, and to divide the costs and the benefits of this development according to agreed shares basically determined by the area of land that everyone contributed to the common development. The legislation was established in a period when there was a very little demand for new urban housing compared to the previous period from 1965 to 1980. During that period a considerable amount of new housing construction in urban areas had occurred, which in principle was built on virgin land at the urban periphery. The land for this housing program was made available through municipal land banking. The law on urban land readjustment was intended to be used as a complement to new housing projects, and by private landowners at the urban fringe, who own older small houses, or houses for recreation purposes, and who might be interested in developing more modern houses. It was also believed that another group of landowners with properties in densely built areas and at the city centers, who owned houses in need of improvement of both the existing housing and the physical environment between the buildings, would benefit from such readjustments. A third category of landowners expected to be interested were rural landowners who might want to develop areas for recreational or seasonal living. This group would contribute to the generation of income opportunities in the rural community and allow existing inhabitants to continue to have a living in rural areas in despite of the decline of traditional rural income opportunities in agriculture and forestry.

According to the *Joint Land Development Act*, the formal initiative for development would come from those interested landowners who needed to obtain permission in advance from the municipalities, which would approve the joint development to take place, and define a joint land development area for this purpose. The landowners, therefore, were to form a joint venture to undertake physical planning and the implementation of the area development approvals. The legal system made it possible to develop the physical plan independent of existing boundaries. Profit was to be shared, and each landowner would receive an area for development and construction according to their agreed share, through mutations and subdivisions, and the cadastral division would be adjusted to the new plan after this process was concluded. If the profit could not be shared fully this way, there might be exchange of money between the landowners. Landowners divided the costs – including planning, cadastral fees, construction and/or contribution to joint facilities (private or public) – according to the individual shares. The development area included land for housing, for joint facility construction (like playgrounds and parking spaces), and for public facility construction (streets, water and sewerage systems). Questions on joint development projects had to be addressed and examined, through a cadastral procedure, by the "Cadastral Authority," which is a State, or sometimes a municipal, organization. The "Building Development Plan" approval was made by a municipal assembly, and the establishment of the joint land develop-

ment, of the shares, of the change of land boundaries, and of the share of costs and compensation – included those incurred at the lay-out plan stage – were made by the "Cadastral Authority." The transfer of land titles to new owners was made through sale contracts between the original landowners (sellers) and the new inhabitants of the area (buyers).

The experience with these land readjustment projects in Sweden included about 10 to 15 projects implemented at the beginning of the 1990s (see Table 3.9 and Figures 3.36-3.37 for the Uddaberg project), but since then very little has happened. There are several reasons for that, as follows:

a. The decrease in demand for new housing caused by the surplus production from previous periods. This situation lasted until around 2010;

b. Low interest in promoting private-led housing development in municipalities. This resulted in rather complicated procedures for achieving permission from municipalities for projects under the 1987 *Joint Land Development Act*. The procedures were then considered too complicated by many developers;

c. Low interest in land development among existing landowners in possible areas for land readjustment. In rural zones, where land readjustment was expected to give additional possibilities for income, most people had already moved out by the time the legislation came into effect;

d. Municipalities still owned considerable portions of land, which could be developed, and thus more complicated areas, with many landowners who would have to be involved in development projects, were avoided; and

e. The existing tradition of municipal-led urban development on land owned by municipalities and then distributed among public and private developers, combined with a strong policy to avoid direct development on private land, which was believed to lead to higher final costs for new housing and to the creation of unearned land values for private landowners. An increase in land value was deemed to be unearned when it was created by investments in infrastructure by the State, or the municipalities, and not by present landowners.

Despite the failure of the urban land readjustment legislation, rural land readjustment following similar procedures has a long tradition in Sweden, and is still going on, mainly in forest areas, where the land is divided on many small owners, with uneconomic shapes like plots that are very long (kilometers) and very narrow (few meters), and that need to be consolidated into more economic parcels.

Table 3.9. Uddaberg Land Readjustment Project in Skövde, Sweden

Name of the project:		Uddaberg Land Readjustment Project
Location of the project:		Skövde, Sweden
Name of the implementation agency:		Private Implementation Agency
Project period:		1990-1992
Implementation of the project period:		1992-1996
Area of the project:		4 hectares
Rights holders:	Nº of landowners:	20
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	Landowners will pay to municipality a fixed amount per new plot for access to public utilities.
	Decrease for reserved land:	-
	Total ratio of decrease:	Land for public use allocated to the municipality without compensation.
Implementation plan, stages:		November 1990: area regulation developed. May 1991: area regulation approved. June 1991: application for the joint development. September 1991: first decision on the joint development. March 1992: second decision on the joint development. September 1992: detailed plan approved by municipality. November 1992: decision on compensation.
Total built-up area of the project:		40 new plots for family housing.
Density involved before and after the project:		No information.
Reserved land and additional built area:		-
Land evaluation:		Rural before and areas for family housing after.
Real estate market evaluation:		No information.
Benefits to the local government:		For the municipality the process resulted in new housing with small input of resources since the project was handled mainly be the private landowners.
Benefits to the landowners (and/or leaseholders):		Housing development, and new roads, water and sewerage system connected to the municipal system.
Benefits to the investors:		-
Principal and eventual conflicts (site/landowners):		Conflict with two landowners who did not want to participate (solved through sale of these properties).
Finance of the project:		Each landowner organized his own financing (with the possibility to use mortgage loans).
Total cost of the project:		No information.
Features of the project:		The project resulted in a better plan through the cooperation. The process went well and the involved landowners were positive to the joint development. The project resulted in a positive result for the participating landowners. For the municipality the process resulted in new housing from a small input of resources, since it was mainly the private landowners who handled the project. The speed in the process was very much upheld through a construction company, which was eager to construct houses on the new sites.

▼ Figure 3.36. The Uddaberg area before the project implementation (1992)

Figure 3.37. The Uddaberg area after the project implementation (1996) ▲

Urban Land Readjustment in Taiwan

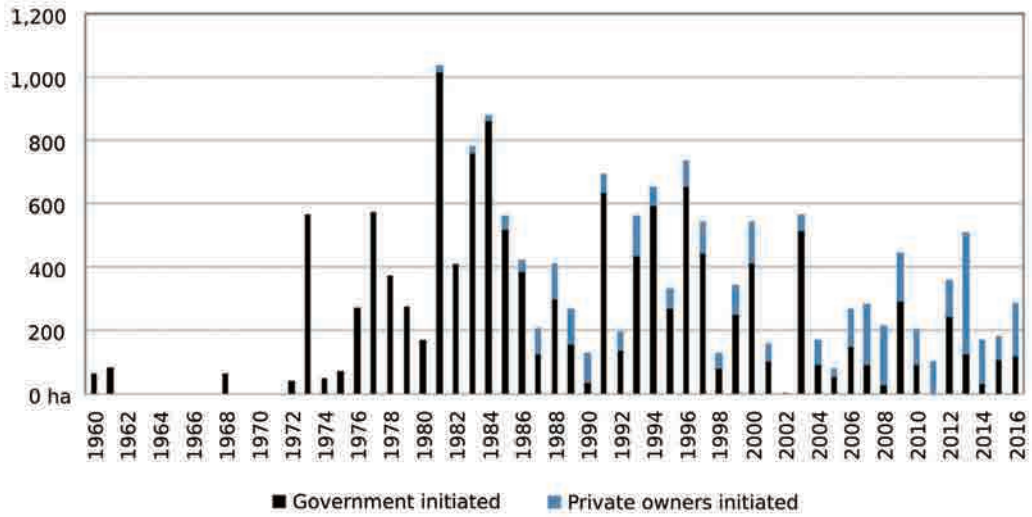
Tzu-Chin Lin and Hsiu-Yin Ding

Urban land readjustment is a measure of land development through which the location and configuration of land parcels are readjusted to solve the problems of fragmented ownership and irregular shape, and to supply well-shaped parcels of land equipped with essential public facilities for immediate urban development. This philosophy applies to urban land readjustment in Taiwan as well. Even though only 3% of the urban areas of Taiwan have been developed through land readjustment – a total of 16,500 hectares of land between 1960 and 2016 – the history of urban land readjustment in Taiwan dates back, at least, to the Japanese colonization period. In 2016, the population in urban areas accounted for approximately 80% of the total population of Taiwan, and 77% resides in the six major cities alone (Taipei, New Taipei, Taoyuan, Taichung, Tainan and Kaohsiung). Nevertheless, 82% of all areas developed through land readjustment are located inside these six major cities. That is, the majority of land readjustment projects have been implemented in the densely populated urban areas to accommodate a growing number of inhabitants.

The government implemented all projects prior to the 1980s, and land readjustment has significantly facilitated the process of urbanization through the provision of land for urban development. In 1979, the *Act of Promotion of Private-Owners Initiated Land Readjustment* was enacted in response to the shortage of budget and personnel in local municipalities. In contrast to the government-initiated land readjustment process, incentives such as tax deduction and low interest loans were offered under this act to encourage private owners to form a collective unity to undertake land readjustment by themselves. After the 1980s the era of fast growth of cities island-wide started, and the transformation of industries and massive inflow of population into cities led to demands for a larger quantity of urban land. Land readjustment was at that time employed to respond to rapid urban expansion through the more efficient use of land. In the meantime, land readjustment was also used to provide sites for public facilities at no – or little – expense to the public purse, and land-owners benefited from the rise of land values and the improved built environment.

Figure 3.38 shows that the areas of urban land supplied through land readjustment initiated by private owners has been on the rise since 1979. Among the various reasons for the increasing popularity of private owners initiated land readjustment, the most significant were the shrinking availability of urban land and the rise in housing prices. The significant increase in land values after land readjustment incentivized private landowners to participate in privately initiated projects, and government initiated projects have been gradually replaced by private landowner initiated projects. Before this, the accumulated areas of land readjustment projects initiated by the government had reached 80% but, especially due to the activities from the past 10 years, the figure for private owners initiated projects is now about 60%.

▼ Figure 3.38. Areas of urban land readjustment in Taiwan (1960-2016)



Through land readjustment, land previously used for non-urban purposes and without appropriate public facilities is converted into sites suitable for immediate urban development. Parcels of land involved in urban land readjustment normally go through the process of rezoning to become buildable urban sites. Based on the "beneficiary should pay" principle, individual landowners pay the amount of establishment costs in proportion to the benefits they receive, so it is not possible to leave unearned income with them. There are two types of costs landowners are required to bear: (1) costs associated with incurred expenses, and (2) the costs associated with sites for public facilities. Engineering works, planning and management costs, and loan interest compose the costs associated with incurred expenses. These costs are paid by the contribution of part of the owners' land to the government. The contributed land is called "cost-equivalent land." Another part of the owners' land is contributed to the government to pay for the costs associated with sites for essential public facilities. Essential public facilities refer to roads, sewages, children's playgrounds, neighborhood parks, plazas, green fields, elementary schools, junior high schools, parking spaces and retailing markets. Because part of the land is contributed to the government to pay for the costs, the land returned to landowners after readjustment will become smaller in size. The returned parcels are in principle assured to be 55% or more of their size before readjustment. The value of the returned smaller parcels is often higher than before land readjustment because the parcels become buildable and the environment is enhanced. The returned land parcels after readjustment will be located as close to their original location before readjustment as possible. In short, through urban land readjustment, participating landowners jointly endeavor to develop project areas and share the costs and benefits thus involved.

Urban land readjustment over the years have produced a variety of benefits, such as supplying urban building sites, alleviating the government's financial burden in providing public facilities, and accelerating urban growth, among others (see Table 3.10 and Figures 3.39-3.40 for the Taipei Songshan project). However, recent years have seen the increasing opposition of some landowners and interest groups, such as tenants, to land readjustment. The opposition has led to land readjustment becoming more difficult and time-consuming to implement. To initiate an urban land readjustment project, agreement needs to be secured from half the landowners, or less than half if the landowners own more than 50% of the readjustment areas. This half and half majority rule is often criticized as being too easy to meet, and runs the risk of infringing on the will of the rest of landowners. In addition, the insufficient protection of people with interests in land other than owners, such as tenants, through compensation or relocation also attracts criticism.

In addition to the possible defects of land readjustment itself, land readjustment might also lead to various adverse effects to urban development. Spatially, urban land read-

justment is more feasible to be undertaken in the outskirts of a city. Agricultural lands at the outskirts are transformed into urban buildable sites through readjustment. The expected drastic rise in land values is naturally tempting to landowners. Given the limited government resources, less attention and investment will be placed on the inner city. The imbalanced efforts might result in over-investment at urban outskirts and under-investment in the inner city. As a result, some land development may be drawn away from the inner city towards the urban outskirts. In view of their private interests, developers therefore will tend not to engage in urban renewal projects, and instead pursue development through land readjustment at the urban outskirts. Thus, lopsided and inefficient land use is likely to be evidenced by urban sprawl and inner city deterioration at the same time. Nevertheless, because of the well-equipped public facilities, enhanced environment and reconfigured land parcels, project areas often attract investment from developers, particularly when the property market is prosperous. The land and property prices tend to be high in readjustment areas and the high prices often spill over into neighboring areas. Besides, in some land readjustment areas, the high prices are accompanied by a high vacancy rate in buildings, and speculation on land and properties is an island-wide phenomenon in many readjustment areas. In conclusion, the problems identified above either come from the process of land readjustment itself, or the disjunction between land readjustment and urban planning. The former problem often involves the issue of protecting property rights when people with interests do not wish to participate in readjustment or not agree to its outcomes. The latter problem results from the disharmony between authorities in charge of urban planning and land administration. The two authorities do not always work together.

▼ Figure 3.39. Configuration of land parcels before the land readjustment project (1981)

Figure 3.40. Configuration of land parcels after the land readjustment project (2007) ▼

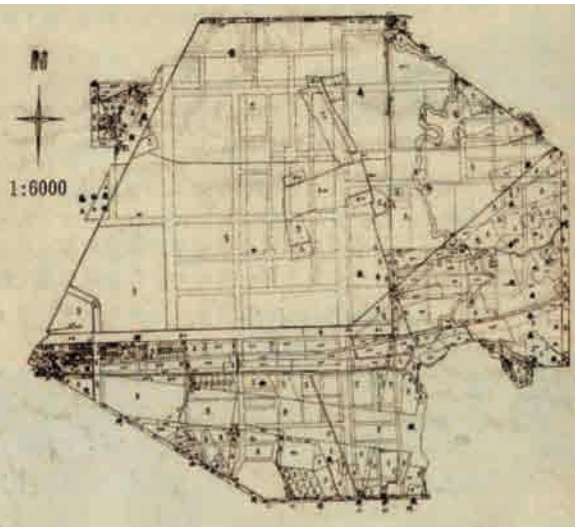


Table 3.10. Taipei Songshan Land Readjustment Project in Taipei, Taiwan

Name of the project:		Taipei Songshan Urban Land Readjustment
Location of the project:		Songshan district, Taipei city
Name of the implementation agency:		Department of Land Administration of Taipei
Project period:		1981-1983
Implementation of the project period:		1981-2007
Area of the project:		151.69 hectares (buildable area: 69.88 hectares, sites for public facilities: 81.81 hectares).
Rights holders:	Nº of landowners:	793
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	30.08%
	Decrease for reserved land:	8.53%
	Total ratio of decrease:	38.61%
Implementation plan, stages:		-
Total built-up area of the project:		Buildable area: 69.88 hectares (Floor-area ratio ranges from 200 to 630%).
Density involved before and after the project:		Before: 11,000 inhabitants (partly was military uses). After: 60,000 inhabitants (dominated by commercial uses).
Reserved land and additional built area:		12.21 hectares
Land evaluation:		Increase of land value: 203%.
Real estate market evaluation:		No information.
Benefits to the local government:		Financial surplus: USD 1.43 billion. Saving of public budget: USD 0.76 billion (USD 0.62 billion for acquiring sites for public facilities and USD 0.14 billion for the construction of public facilities). Assessed property tax base rose by 23 times.
Benefits to the landowners (and/or leaseholders):		The area after the land readjustment project became the financial center of Taipei city with high-end housing neighborhoods and high-quality public facilities, living environment and open spaces (this is the first area in Taipei where urban design control was introduced).
Benefits to the investors:		The business-related facilities were equipped with bus transit stations, world exhibition centers, superior quality hotels, and the Taipei 101 (this area became very appealing for premium office spaces and international hotel chains).
Principal and eventual conflicts (site/landowners):		There were military bases and villages in this area prior to the land readjustment project and resistance of residents came from their attachment to their homes.
Finance of the project:		Reserved land was sold by public auction to pay for the project, and its total amount was USD 1.43 billion.
Total cost of the project:		Engineering works and loan interests: USD 0.14 billion.
Features of the project:		To achieve Taipei's urban development, the project employed a steering committee of urban design aiming large-scale building blocks and a mixed land use with high-end offices, malls and residential areas.

Land Readjustment in Thailand

Ittipong Tanmanee

The enactment of the law on land readjustment in 2004, the *Land Readjustment Act*, B.E. 2547, is considered one of the most important changes in urban development practices in Thailand. Since then, this efficient instrument enables the development of areas following a city planning framework. In the past, Thailand had only a limited number of instruments for urban development such as, for example, land expropriation by the State to open up areas for road construction. Also, land subdivision by the private sector was considered to be another way of development, but individual developers carried it out without concerted efforts in operations. Landowners usually want to open routes to their lands, but these accesses are often hampered by the adjacent property boundaries, resulting in roads installed without proper planning. Changes in socio and economic conditions today make this kind of road construction, a procedure known as development at random, less popular and more infrequent, though.

Almost 10 years after the enactment of the *Land Readjustment Act*, Thai society has learned some lessons about development through the collaboration between the government and the private sector. The private sector no longer needs to wait for the development initiated by the government. Instead, it can collaborate with the government to eliminate limitations on urban development, focusing on three land plot characteristics: (i) the shape, (ii) the location, and (iii) the size of the plot. When land was used for agricultural purposes, it usually had a narrow frontage and a shape like a strip running deep towards the rear; like a flat noodle. When surrounding areas become urbanized, the shape of agricultural land is a problem because it has only a limited access and this, and other obstacles like size, become barriers to the appropriate conversion of land use in a most efficient manner.

Land readjustment in Thailand is also useful to solve urban problems, and can be applied in many ways, as follows:

a. The development of vacant land: vacant land inside urbanized areas without complete infrastructure or facilities can be developed using land readjustment according to ministerial regulations on comprehensive city planning. An example is the project in Lampang Province (see Table 3.11 and Figures 3.41-3.42 for Lampang project);

b. The development for urban expansion: urban development and expansion can be properly directed in a systematic way using land readjustment to avoid direction-

less sprawl. An example is the project in Yala Province;

c. The development of old central areas: dilapidated downtown areas, and in need of renovation, can be targets of land readjustment projects aiming proper land use and density restructure. An example would be a possible project in an old market in downtown Bangkok;

d. The development of new tows: essentially land readjustment can be used for large projects like the development of new towns. These developments include bus terminals or railway stations in order to promote land development properly. An example is the project under development for a possible high-speed train in Thailand; and

e. The development of disaster affected areas: land readjustment is the perfect instrument for prevention or renovation of cities damaged by natural events such as, for example, earthquakes, tsunamis, floods, and other related events like fire and land and mud slides.

In Thailand, since the proclamation of the *Land Readjustment Act*, many areas have been developed through this method, providing newly arranged plots and new title deeds to landowners. Projects have been implemented in the following provinces: Nan, Yala, Suphan Buri, Samut Prakan, Phitsanulok, and Narathiwat. In Bangkok, land readjustment can be found in the King Rama IX Royal Park Project. In the fiscal year of 2014, a budget was allocated for land readjustment projects according to the *Comprehensive City Planning Law* in 10 areas: Cha-am district, Phetchaburi Province and in Chanthaburi, Surin, Phayao, Nakhon-Phanom, Sukhothai, Phetchabun, Samut Songkhram and Kanchanaburi Provinces. This budget was for major road construction in land readjustment project areas designated in comprehensive city plans. Also, Trang Province is preparing a request for the construction of roads according to the comprehensive city planning through land readjustment process. In the fiscal year of 2015 and 2016, a budget was allocated for several areas in the following provinces: Amnat Charoen, Nan, Chai Nat, Ranong, Maha Sarakham, Mukdahan, Yasothon, Phetchabun, Phitsanulok, Loei, Chaiyaphum, Rayong, Phrae, Samut Sakhon, Nakhon Nayok and Nakhon Ratchasima.

The government of Thailand has a program to spread knowledge to every province of the country, through the policy to encourage them to implement land readjustment projects. We believe this is an efficient instrument to ensure development in a systematic way in accordance to our city planning standards. Therefore, development shall come in different forms, from downtown to suburbs, as context seems limitless for achieving sustainable development. Our ultimate goal is to utilize land readjustment to develop high-speed trains in Thailand, for its future stations and to connect people all over the country.

Table 3.11. Lampang Land Readjustment Project in Lampang, Thailand

Name of the project:		Lampang Land Readjustment Pilot Project
Location of the project:		Lampang Province, Thailand
Name of the implementation agency:		Municipality of Lampang, with the Department of Public Work and Town & Country Planning and the Department of Rural Roads.
Project period:		2006-2007
Implementation of the project period:		2008-2011
Area of the project:		12.5 hectares
Rights holders:	Nº of landowners:	No information.
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	17,000 m^2 (13.5%)
	Decrease for reserved land:	8,000 m^2 (6.5%)
	Total ratio of decrease:	The average contribution was 20%.
Implementation plan, stages:		2006-2007: survey of the geographic condition; making of the project master plan; replotting plan; financial plan and expenses for project implementation; landowner's meeting; consensus building and agreement. 2008-2010: construction works and relocation. 2011: issuance of ownership rights, and project ending.
Total built-up area of the project:		-
Density involved before and after the project:		No information.
Reserved land and additional built area:		Reserve land: 8,000 m^2
Land evaluation:		Land value before the project: Thai baht 313,000,150 (USD 7,825,000 or USD 62.50 / m^2). Land value after the project: Thai baht 540,232,560 (USD 13,505,800, increased 1.73 times).
Real estate market evaluation:		-
Benefits to the local government:		Implement the "Lampang Comprehensive Plan."
Benefits to the landowners (and/or leaseholders):		Income increase.
Benefits to the investors:		-
Principal and eventual conflicts (site/landowners):		Landowners consensus building and on reserve land.
Finance of the project:		National subsidy, municipal budget and resource from reserve land.
Total cost of the project:		National subsidy (20-meter road): USD 750,000. Municipal budget (14-meter road): USD 650,000. Reserve land (electricity and water): USD 130,000. Total construction costs: USD 1,530,000.
Features of the project:		The area was unused in central Lampang city. The land use plan for the project site in the "Lampang Comprehensive Plan" is mid-rise residential.

▼ Figure 3.41. Lampang area before the project implementation (2005)

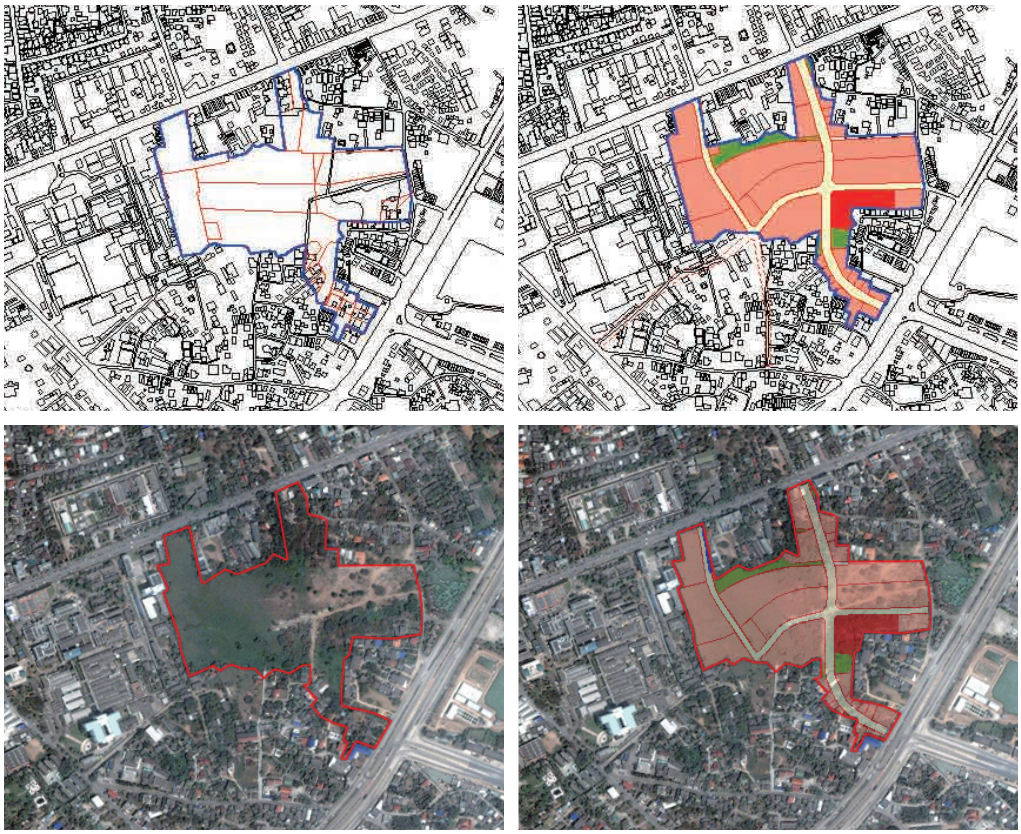


Figure 3.42. Lampang area after the project implementation (2010) ▲

The Shortcomings of Land Readjustment Application in Turkey

Tahsin Yomralioglu, Bayram Uzun and Recep Nisanci

The first Turkish land readjustment applications were based on the *Regulation of Roads and Buildings* (1864). Initially, this method was used for the rapid development of areas where fire, earthquakes and floods had occurred. Since 1930, this method has been applied in areas where development plans exist. While the contribution ratio percentage was 25% at that time, today this figure is 40%. This percentage depends on the size of the public area required within the project. Nowadays, a 45% ratio is under discussion. The reason behind the constant increase in contribution ratio arise on the fact that

the State needs more and more land to meet the ever-increasing demand for public spaces, and there is no alternative cost effective mechanism available.

Introduced legally with more specific procedures through Article 18 of the *Turkish Zoning Law*, the technique has been actively used since 1985. The *Zoning Law* Nº 3,194 states that two groups of local public bodies, namely governorships and municipalities, are legally allowed to execute land readjustment projects. While municipalities are responsible for making decisions within urban areas, governorships are responsible for the remaining areas. The municipal council makes all the necessary decisions about when, where and on which parcels the project will be implemented. After the council's decision, responsible institutions must carry on all the technical and non-technical tasks.

In order to start a project, first, the municipality prepares a development and a zoning plan. All legal records, such as the cadastral and the topographical maps, must be updated. After updating these documents, it is ensured that they reflect the final base map of the project area. Using this base map, boundaries are demarcated on the field, block corners are re-surveyed, and coordinates are all re-calculated. Then, the area is subdivided with appropriate patterns of streets, parks, schools, and sites for other public uses. Within site blocks formed by the streets, new plots are allocated for private development. In the meanwhile, densification is redesigned. In principle, after the project, private landowners must receive new plots which are as near as possible to the location of their original land.

After the land redistribution, a tentative subdivision plan is announced to the public. For a month, landowners can object to the layout plan by stating the reasons to the municipality. Usually, these objections are about the new location and the redistribution process. Landowners' objections must be submitted to the planning committee for a final decision; amendments can be made and approved by the municipal council in regard to the committee's recommendations. If landowners still do not accept the decision, they can apply to the Court. According to the decision by the Court, necessary changes can be made. After the consultation and possible process changes, the new plots' coordinates are calculated and submitted to the cadastral office for checking and approval. The cadastral office then issues new legal records. After these procedures have been completed, the land registry office registers the new plots, and new land titles are directly distributed to the original landowners (see Table 3.12 and Figures 3.43-3.46 for Toklu-Besirli project).

There is broad agreement on the advantages of land readjustment for urban development in Turkey. The first is its potential to develop public infrastructure, as landowners must contribute a part of their land for roads and other public facilities. Furthermore,

land readjustment is certainly cheaper than gathering all the required project land into a single ownership, whether by purchasing through the market or by expropriation. The second advantage is the reform of the patterns of old property divisions. This feature is particularly important in locations where rural property divisions were irregular and fragmented into many small parcels with little or no road spaces. Thirdly, the original landowners retain the ownership of great part of their land. This result in less landowner opposition to projects than in the case of large-scale land expropriation, and development is less disruptive to the existing community. But, although land readjustment has these advantages in solving land use problems in urban areas, there are still some problems (Yomralioglu 1993). Since the *Zoning Law* was enacted, some projects were found to be unsatisfactory or were not completed on schedule. The limitations of budget, poor land information management, and lack of public support have prevented some projects from achieving their objectives. The current issues with land readjustment in Turkey can be summarized as follows:

a. Landowners: in many cases, landowners do not support land readjustment. They are aware of the fact that some part of their land will be forfeited for public use without any compensation. In the re-allocation process, landowners usually object, claiming that equitable benefits will not be obtained after the project because of several factors, such as the number of floors allowed by the re-zoning, or on the land uses proposed, their views after the project, the project's proximity to commercial areas, and/or the lack of access to some public facilities. Commonly, landowners are not consulted when decisions are made about public requirements and their lands. In other words, landowners are not informed before projects commence, and there is no necessity for landowners' consent at the beginning of it;

b. Municipalities: municipalities have the greatest responsibilities in a land readjustment project. They must provide all the necessary documents for the project implementation, however, due to the power of the municipal council to allow land readjustment application some projects can be delayed or cancelled for political reasons. As people living in project areas can affect the local election results, the members of the elected council may not be positive about their implementation. For this reason, land development objectives may fail, especially in small and non-powerful municipalities. Apart from the political reasons, the municipalities also have some technical issues. In most cases, available municipal resources, such as technical personnel, budget, and equipment are not sufficient to carry out a land readjustment project properly;

c. Land valuation: in Turkey, land value does not play a role in the calculation of the percentages to be contributed by each landowner for public spaces. The only crite-

rion is the parcel size, and the contribution factor to public land is calculated and applied to all landowners in the project. And there is no parcel appraisal, before or after the project. The area method, in contrast to valuation, does not provide an equitable approach for the landowners, and there is a common agreement that land readjustment projects should be based on a more equitable unit land value;

d. Decision-making: surveyors often have difficulties in deciding about a new parcel's location. Therefore, landowners are at risk because different approaches provide different land locations and benefits. Re-allocation is a complex task that requires highly specialized expertise because there are so many questions to be answered, like who will receive the new parcels? How the land will be evaluated? What criteria and land characteristics should be considered? How land holdings will be redistributed or consolidated according to the landowners' satisfaction?

e. Process standardization and cadastral data: there is no single standardized procedure for land readjustment implementation. In particular, the land re-allocation method is not standardized. Some other related technical processes have problems. Although both cadaster and land titling works have been carried out in digital format since 1998, manual processing is still used. Searching for required records and analyzing the existing cadastral information are carried out with conventional manual methods that are time-consuming and error-prone;

f. Land speculation and low-income families: before the beginning of the project, parcel purchases are made in a speculative manner. Generally these parcels have low prices prior to the project and the value increases by about 400 to 600% after the project. In addition, because there are no regulations to force landowners to construct buildings after the project, parcels are left vacant awaiting the ceiling in market value. Because of the high value of land prices, low-income families have no opportunity to buy parcels created from readjustment projects in Turkey; and

g. Reserve land approach: another basic issue in the Turkish land readjustment process is the lack of reserve land production to be used to recover project expenses, as achieved by land readjustment in many different countries. The main reason for this is the difficulty of explaining to landowners about additional reductions of their private property, beyond 40%, to produce reserve land. Landowners have expectations for infrastructure services in return to their 40% contribution, but, as the public authority provides all the infrastructure services, such as roads, sewage and water systems, gradually as the area is developed, it can take decades until all services are completed.

Table 3.12. Toklu-Besirli Land Readjustment Project in Trabzon, Turkey

Name of the project:		Land Readjustment Project in Toklu-Besirli
Location of the project:		Toklu-Besirli district, Trabzon city, Turkey
Name of the implementation agency:		Municipality of Trabzon Zoning Affairs Bureau
Project period:		1985-1987
Implementation of the project period:		2 years (after the preparation of the zoning plan).
Area of the project:		17.8 hectares (178,000 m^2)
Rights holders:	Nº of landowners:	500 (200 plots before the project).
	Nº of leaseholders:	-
Land evaluation, contribution ratio:	Decrease for public facilities:	32%
	Decrease for reserved land:	-
	Total ratio of decrease:	32%
Implementation plan, stages:		1985 to 1986: application of the zoning detailed plan, re-surveying, check of all cadastral records including land shares, announcement to land holders, calculation of public contributions. 1986 to 1987: reallocation of new land parcels, re-distribution of old cadastral parcels, application of new public areas (roads, streets, park, etc.), new land registration and distribution of new land titles.
Total built-up area of the project:		121,040 m^2
Density involved before and after the project:		Before: 56 inhabitants/hectare (Total population 1,000 people). After: 390 inhabitants/hectare (Total population 6,930 people).
Reserved land and additional built area:		No reserve land approach.
Land evaluation:		Before the project: TL 14.7 /m^2. After the project: TL 78.1 /m^2. Now (2015) land unit value is TL 1000 /m^2.
Real estate market evaluation:		Increase of 1,000% of the buildings price after the project.
Benefits to the local government:		Increase of 32% in public areas, new roads and streets opened.
Benefits to the landowners (and/or leaseholders):		Land value increased very rapidly, new social services were brought to the project area, the cadaster was renewed, and the boundary conflicts were minimized.
Benefits to the investors:		Building enterprise, long-term profit and new investments.
Principal and eventual conflicts (site/landowners):		Disagreement on the land value distribution balance, before and after the project implementation. Disagreement on the standard building size allowed by zoning.
Finance of the project:		Fully municipal financed.
Total cost of the project:		About USD 0.5/m^2, and project area cost was USD 85,000.
Features of the project:		Project development was made through partnership of the municipality of Trabzon, and the Karadeniz Technical University, Department of Surveying.

▼ Figure 3.43. District of Toklu-Besirli before the project and cadastral land parcel distribution (1985)

▼ Figure 3.44. District of Toklu-Besirli and the proposed replotted new land parcels (1987)

▼ Figure 3.45. District of Toklu-Besirli after the project implementation (2002)

Why Land Readjustment in the British Former Colonies, but not in the United Kingdom?

Robert Home

Land readjustment, a technique for land assembly, combines several elements: the physical re-ordering of land parcels, funding of infrastructure, pooling of property rights through some public agency, and distribution of the financial benefits of development (sometimes known as betterment) between landowners and the development agency. It evolved from rural land consolidation as a legal instrument to assist in urban growth situations, and its first application is usually attributed to the *Lex Adickes* in Frankfurt. While the technique is widely used across the world, it is virtually unknown in the United Kingdom. This may seem curious when one considers the international importance of British town planning since the garden cities movement of the early 20th century, and the new towns programme that followed (Ward 2000). We will explore why land readjustment did not find its way into the "tool-box" of British planning, and why it was nevertheless successfully adopted in some British colonies during the first half of the 20th century.

Britain's first town planning legislation was passed in 1909, and the "Town Planning Institute" meetings at that time actively discussed various planning techniques, among them the *Lex Adickes*, but land readjustment was not incorporated into the British legislation either then or later. A member of the Institute commented at one of its early meetings, during a discussion of the innovative *Bombay Town Planning Act* of 1915 that, "as the object of the town planning scheme was to benefit the community, private ownership of land should be plastic in the hands of the town planner." He went on to regret "the rigidity of ownership in this country, a rigidity which there was no provision in the law to overcome" (Mirams 1919-20). In Britain, with its tradition of large, often aristocratic, estate development (Olsen 1982), the private developer was less concerned with fragmented land ownership, took the profits and assumed the costs of infrastructure within a strong regulatory framework, so there seemed little need for land readjustment.

Schemes by local authorities under the British planning acts were regulated by the so-called "Model Clauses" (with origins in 19th century compulsory purchase regulations). Clause 42 empowered them to bring about an exchange of land or boundary adjustments, agreed between the parties with a deed of exchange on an equal "give

and take" basis, but the clause was rarely invoked. As for the provision of infrastructure, the construction of roads and drainage could be undertaken by the local authority or the developer: under the *Public Health Act* of 1875 and *Private Street Works Act* of 1892 the local authority could undertake the work and recover the costs.

The sharing of betterment between the landowner and the public authority was a more sensitive matter. The 1909 and subsequent legislation included provisions for the local authority to recover part of the betterment value conferred by a planning scheme, but the power was hedged with many restrictions, and plagued by disputed values (a problem which the "Lands Tribunal" was later created to arbitrate), with the result that only three cases of betterment were collected in the period of 1909 to 1939. A 1920's text-book for private estate developers closed with a warning about taxation:

> "So long as those engaged in development schemes are allowed to continue their exertions with the normal market risks the housing demands of the people will be met. But a threat of confiscation, special taxation or other factors leading to a feeling of insecurity will inevitably bring development by private enterprise to a standstill. This would not arise through a lack of buyers nor through a lack of enterprise on the part of the builders, but because those to whom they look for financial assistance would be unwilling to risk their money on what would then become a gambler's chance." (Howkins 1926)

In the crucial period (1905-20) when British town planning legislation was new and changing, land readjustment's German associations made it suspect, for the two countries were at war between 1914 and 1918. Interest in German planning approaches diminished with the rising hostility between the two countries, and the German model of strong municipal power over land was associated in Britain with autocracy and "bureaucratic Germanism" (Harrison 1991). In Britain, where private land holdings were larger, developers were expected to pay for infrastructure, and land values were depressed in the years during and after the World War I, land readjustment seemed to offer little advantage, and compulsory purchase was the preferred method of land assembly. For example, when the large suburban housing development at Becontree was being planned after 1919, landowners in a stagnant land market were satisfied with the compensation paid on compulsory acquisition by the London county council, and issues of boundary adjustment and fragmented land holdings did not arise (Home 1997b).

Later, when the nationalization of development rights was being considered during World War II, the Uthwatt report on betterment returned briefly to land readjustment, referred to as the possibility of "unification by private pooling schemes" (Uthwatt 1942, 24-26), but dismissed it with the lofty words:

> "The logical answer to the proposals for pooling ownerships is thus that they are theoretically sound in endeavoring by means of unification to eliminate the compensation requirements arising from shifts of value, but that as shifts are on a national scale so the pooling of ownership must result in a single pool comprising the whole of the land of the country. In a word, the only feasible system of pooling is nationalization, which is the very result pooling is designed to avoid." (Uthwatt 1942)

The subsequent 1947 *Town and Country Planning Act*, following Uthwatt's recommendation, nationalized development rights through the requirement for planning permission, compensated landowners for loss of established development rights, and introduced a development charge on betterment and change of use – which was set at 100% and proved, unsurprisingly, to be short-lived (Hall 1965). Some 60 years later the government of England and Wales returned to the matter of land acquisition processes in the *Planning and Compulsory Purchase Act* of 2014. That act was preceded by a review that claimed to be "fundamental," but which made little investigation of other possible methods for land assembly, notwithstanding some attempts at the time to promote "assisted land pooling." So the absence of land readjustment from British planning laws is apparently reconfirmed.

Although British planning legislation has thus never had land readjustment provisions, it is a different story in some of Britain's overseas colonies, where early town planners were actively experimenting with their new "tool-box" of techniques in the first half of the 20th century (Home 1997a; 2007). Town planning, promoted with evangelistic fervor by Patrick Geddes in India between 1914 and 1920, offered colonial administrators a modern tool of social management, which might help preserve the British Empire in the testing time of World War I and growing local nationalism. The 1915 *Bombay Town Planning Act* introduced land readjustment to British India. The Presidencies of Bombay, Calcutta and Madras were the cornerstones of British imperial power in India, with a strong paternalist style of government, and following British-derived land law and municipal administration. Bombay, with a tradition of interventionist government, only a few years after the British 1909 *Housing and Town Planning Act* was trying to go one better with its 1915 *Town Planning Act*. Improvement trusts had previously been created in Bombay and Calcutta, with sweeping powers to acquire property compulsorily and undertake infrastructure improvements and urban developments, but they were unpopular with landowners, who were paid little or no compensation for loss of property and were denied the financial returns from urban development. The trusts followed a practice of acquiring more land than needed for roads, so that they (not the former landowners) benefited from the betterment value and property development that followed new road construction.

The new *Bombay Act* was the subject of a paper presented in 1920 by A. E. Mirams (consulting surveyor to the government of Bombay) to the "British Town Planning Institute" in London (Mirams 1919-20). He called the act "a sincere attempt to embody in one measure all that was best from every other town planning act extant," and its provisions drew mainly upon the 1909 *British Act*, but also, significantly, upon the *Lex Adickes*. The *Bombay Act* empowered local authorities to declare a town planning scheme, and Section 12 allowed plots to be combined and reconstituted (with the consent of the landowners, in "the spirit of true co-operation"): "two or more original plots each of which is held in ownership in severalty or in joint ownership shall hereafter, with or without alteration of boundaries, be held in ownership in common as a reconstituted plot."

Mirams found the financial provisions (sections 16 to 28 of the *Bombay Act*) "of considerable interest, as they treat the problem of paying for the execution of improvement schemes on what is to this country an entirely novel basis." The Bombay Presidency already operated an infrastructure charge system, whereby new roads and railways were paid for by a special rate levied on the districts to be served. Indian municipalities were also exploring how they could benefit from increased property values, realizing that in "many European cities, notably in Germany, urban increments in values are most jealously regarded by the municipalities, and as a matter of course they are considered to be entitled to a share in these increases" (Shah and Bahadurji 1925). The *Bombay Act* approach to the "increment" (or betterment value) of development land was that the final value of the land needed for a scheme was calculated, the costs of implementation and the value of the land area taken for roads and other infrastructure were deducted, and the balance taxed at 50%, or, in other words, shared 50:50 between the landowners and the local authority. The various values were to be determined by an arbitrator appointed by the government. Mirams stated that the act:

> "Aims at distributing the cost of development schemes over the lands improved thereby, and yet at the same time allows a fair margin of profit to the owners of the land, who as a rule have done absolutely nothing to improve the value of their property. At the same time, the act brings into the market large areas of land, which without co-operative action would for untold years remain agricultural land. In this way the community at large is able to obtain land at a reasonable price." (Mirams 1919-20)

Within a few years of the 1915 *Bombay Act*, land readjustment was being applied to some sixty schemes in the Bombay Presidency. The "Town Planning Institute" (TPI) President (G. L. Pepler) commented on Mirams' paper that the *Bombay Act* "seemed more vigorous and direct" than the 1909 *British Act*, and the TPI member (Joshua

Scholefield) proposing a vote of thanks to Mirams considered that:

> "It would be a great benefit to the local authorities of this country if they had such a power of re-distribution of properties for the purposes of a scheme." (Mirams 1919-20)

Later Mirams was to claim that the *Bombay Act* "conferred more benefit on the community than the English *Town Planning Act*," and that the *Lex Adickes* system of land pooling and distribution was "a magnificent thing, and the owners were intensely pleased with the provisions" (Mirams 1923-24).

Meanwhile a leading town planner, W. R. Davidge, was consultant to the Bombay and Madras Presidencies. He found land readjustment in Bombay's suburban housing development contributing to the quadrupling of land values in 10 years:

> "So popular have the suburban town planning schemes become as a means of quickly earning profits that it has been necessary for the government to take over and acquire practically the whole of the remaining area of building land within the suburban area." (Davidge 1923-24)

The Madras Presidency followed the Bombay example in its *Town Planning Act* of 1920, on which Davidge wrote that land readjustment provisions in Bombay "based upon the well-known *Lex Addickes (sic)*, has been found of very great value, and its extension to the whole of the Presidency of Madras will be watched with interest" (Davidge 1921).

Land readjustment was also tried with varying success in other British colonies, notably in Mandated Palestine, which incorporated provisions in its planning ordinances, and they have survived in the post-1948 State of Israel. In sub-Saharan Africa land was in plentiful supply, and the colonial administrations could take what land they needed by negotiation with tribal communities, with little or no compensation paid. When town planning legislation was, following colonial office policy, rolled out to the British colonies in the 1930s (Home 1993), land readjustment was not included as a component in the planner's "tool-box," and the advisors who drafted the legislation were probably unaware of its possibilities, or even its existence.

Finally, the story may not be over. As the United Kingdom government seeks to increase house-building rates, and shortages of development land are being encountered, the potential of land readjustment may yet be re-assessed. It is being promoted as an approach to Africa's problems of urban development (Fourie 2004), and the Global Land Tools Network created by UN-Habitat is providing a vehicle through which the concept may be revived and transferred to new jurisdictions.

Land Readjustment Possibilities in Vietnam

Nguyen Ngoc Hieu

Over the past three decades, Vietnam has gone through a fast urbanization period. The average urban population growth exceeds 3% per year, and the growth for residential space was even faster exceeding 8% annually during the same period (Dong 2013). Long and hasty urbanization supported leap frog projects that left many underdeveloped gaps in suburban areas (Hieu 2014), and cities grew by the fuel of converting cheap agricultural lands to satisfy investors and speculators. With the support of State's land ownership and one-party system, developers were even more ambitious.

The growth pace, however, slowed down from 2011 due to the economic recession, and the property market triggered a new turn to change the "jump far" pattern to "jump up" by consolidating existing built up areas. Things also changed when land prices plunged and further urban land use and arable land protection policies were introduced (*Decree 69 on Land Use Planning* of 2009, and the *Law on Environmental Protection* of 2014). The economic recession hampered municipality financial ability to extend urban infrastructure networks and, as consequence, outward development was frozen. The market confirmed this trend with the majority of new green field projects left abandoned, in contrast to the restart or speeding up of brownfield ones (CBRE 2014).

It seems difficult to adjust the development pattern, and some barriers seem to come from professional developers, as their nature is to avoid community redevelopment projects. Old industrial or insolvent projects bring more profit than arduous resettlement with resistance, unless developers receive some special support from the State, which is limited during periods of recession. Further, without institutional changes and in periods of weak law enforcement, redevelopment is a hard choice for both State and developers. The lessons learnt from the earlier condominium redevelopment in Vietnam showed how things become stagnant in such situations.

Land readjustment is not a new concept for both rural and urban development projects in Vietnam. In the rural area, land pooling schemes have been implemented to correct the side effects of the arable land per head policy (ensuring equity) at the beginning of the "Renovation Process" during the 1990s (*Vietnamese Law on Land* of 1993). Over a decade of immense efforts, rural readjustment policy attempted to reduce the number of inefficient land plots using the political system and its administrative power. Many locations successfully applied this tool to significantly reduce the number of land parcels. This policy, however, was not legalized at the central level, and only some proce-

dure and guidelines were available at the local level. In reality, a case-by-case approach was widely used to address the calculation and distribution of costs, and consensus building among the parties.

For urban areas, the essence of land readjustment is to implement housing development projects. From 2010 to 2014, the "Cities Association of Vietnam" (ACVN) led four projects in Hai Duong city (Hai Duong Province), one project in Tam Ky city (Quang Nam Province), and one project in Tan An city (Long An Province). The project's scales were small, less than 2-dozen households were involved, and they consisted of readjusting land plots using the consensus building approach. Compared to the Japanese procedure for a land readjustment project, they were simpler and lacked professional valuation services (see Table 3.13).

Table 3.13. Comparison of the Vietnamese Case with the Japanese Procedure

	The Japanese Land Readjustment Procedure	Vietnamese Community Housing Development
1	Initiate a replotting plan to be approved or utilize an approved one with a land readjustment approach.	No replotting plan available, an non-governmental organization initiated a community development plan with the negotiation process.
2	Professional valuation of property before and after the project's implementation, agreeing upon the exchange rules, financing and implementation plan.	Community valuation, negotiation, and arrangement of exchange and readjustment combined with a fund for the project implementation and a loan to develop housing.
3	Parties contribute to implement together with an external fund (government or private authority).	External funding and community funding for development.

(Source: Cities Association of Vietnam (ACVN), cases report from 2014).

The success of these projects relied on strong cooperation amongst donors and other stakeholders, like ACVN, local authorities, and the communities. Local authorities are committed to remove most of the administrative hindrances caused by existing land administrative requirements. A small loan from the Cities Alliance (Cities without Slums) motivated and facilitated poor households to participate in the infrastructure upgrading and the housing redevelopment program. Volunteer architects productively facilitated the negotiation process. And finally, community sense was resonated with good neighborhood leadership that overcame many disputes over the fairness of the property exchange and costs for development.

The call for legalizing land readjustment has been acknowledged. The World Bank regarded its wide potential applicability (Rajack et al. 2015) and the Japan International Cooperation Agency stated that possible application in the urban fringe has a great potential (Ochi 2012). The Vietnamese Ministry of Construction (MOC) has expressed commitment to legalize the tool in the near future and, recently, two cities in south of

Vietnam submitted their willingness to apply land readjustment under the urban upgrading program financed by the World Bank in the Mekong Delta region (Tran and Du 2014).

Although the authority's commitments have been confirmed, until 2014 however the current legislation in Vietnam was unprepared to implement this tool. The term land readjustment is not found in either the *Urban Planning Law* (2009), or the newly enacted *Law on Land* (2013). There is no outspoken support to community initiatives development in these laws. There are also no guidelines to support the negotiation processes in the community base, and according to recent analyses, there are many legal and technical gaps to be fulfilled. The necessary changes are not only limited to legal but also administrative matters. For example, it is necessary to provide support for community development initiatives, and to provide technical assistance to enable market values to be exchanged. There are other conditions to consider, such as the pre-mature nature of the market for professional valuation services, and the nature of the culture of exchange in Vietnam. Transparent, professional, and fair property valuation should be a must for any project as inequality is the source of disputes and resistance. Without good exercise of power then, this might become a deadlock during the negotiation processes. That is why a flexible and adaptive strategy continues to be the best way to implement land readjustment outside of a formalized legal framework.

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Chapter 4

JICA's Technical Cooperation and the Global Dissemination of Land Readjustment

Takeo Ochi

The 1980s and the Internationalization of Land Readjustment

The land readjustment technique became internationally known in the late 1970s. The World Bank's strong interest in land readjustment projects conducted by the Republic of Korea (South Korea) led to the "First International Conference on Land Consolidation," which was held in 1979, co-sponsored by the Lincoln Institute of Land Policy (United States of America), the Land Reform Training Center (Taiwan) and the Agricultural Planning and Development Committee (Taiwan) (LRMEC 1996). 47 participants coming from Japan, South Korea, Taiwan, the former West Germany, the Commonwealth of Australia, the United States of America and the World Bank among others attended the conference. The conference provided technical information on land readjustment to the "Association of the Southeast Asian Nations"(ASEAN) that showed interest in the land readjustment technique as a method for urban development and decided to seek opportunities to hold similar conferences on land readjustment in Africa and in the South and Central Americas (Nakano 1993). According to Kiyotaka Hayashi, who attended the conference from Japan, the English term "land readjustment" to express this technique was first used in this conference. "Even though the conference had the name of land consolidation, the conference decided to change the term land consolidation into land readjustment after realizing a variety of land readjustment projects exposed in the conference" (Hayashi 2000).

The "Second International Conference" was held in 1982 in Japan, as a commemorative event to celebrate the completion of the postwar reconstruction land readjustment projects in Nagoya city. This conference highlighted the active implementation of land readjustment projects in Japan (LRMEC 1996). After that, several international seminars on

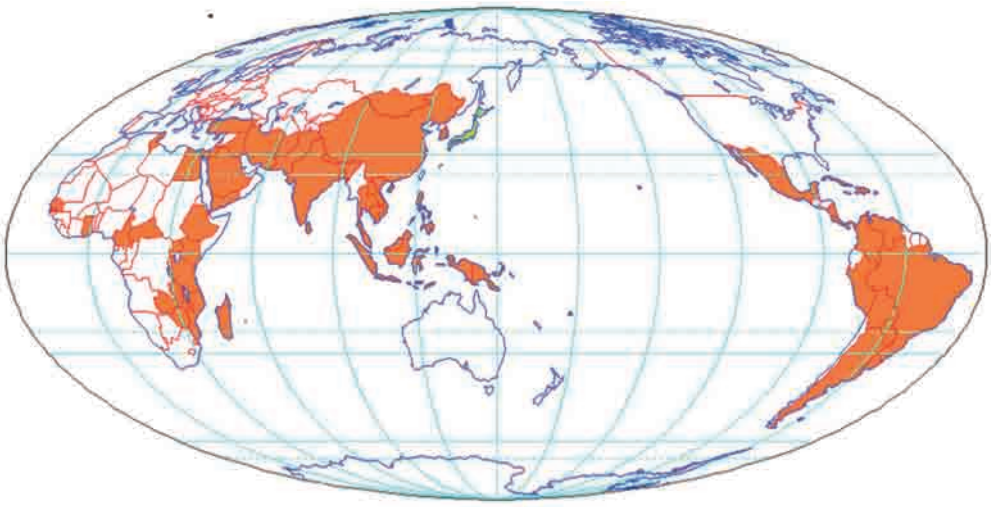
Table 4.1. The History of International Conference / Seminar on Land Readjustment (1979-2000)

Date (Month/Year)	Held in	Conference/Seminar Name
June 1979	Taiwan (Taoyuan)	The 1st International Conference on Land Consolidation
October 1982	Japan (Nagoya)	The 2nd International Seminar of Land Readjustment and Urban Development
October 1984	Colombia (Santa Fé de Bogotá)	Bilateral Seminar
March 1985	Japan (Tokyo)	The 3rd International Seminar of Land Readjustment and Urban Development
April 1986	USA (Fort Myers, Florida)	International Seminar
May 1987	USA (Honolulu, Hawaii)	International Seminar
December 1987	Philippines (Manila)	The 4th International Seminar of Land Readjustment and Urban Development
November 1989	Malaysia (Kuala Lumpur)	The 5th International Seminar of Land Readjustment and Urban Development
February-March 1991	Indonesia (Jakarta, Surabaya)	Bilateral Seminar
July 1991	Sweden (Rättvik, Dalarnas Län)	International Seminar
August 1991	Colombia (Santa Fé de Bogotá)	Bilateral Seminar
October 1991	Philippines (Manila)	Bilateral Seminar
November 1991	Thailand (Bangkok)	The 6th International Seminar of Land Readjustment and Urban Development
December 1992	Indonesia (Jakarta)	Bilateral Seminar
March 1993	Thailand (Bangkok)	Bilateral Seminar
March 1993	Philippines (Manila)	Bilateral Seminar
November 1993	Indonesia (Bali)	The 7th International Seminar of Land Readjustment and Urban Development
November 1995	Japan (Kobe)	The 8th International Seminar of Land Readjustment and Urban Development
November 1997	Thailand (Bangkok)	The 9th International Seminar of Land Readjustment and Urban Development
November 2000	Indonesia (Bali)	The 10th International Seminar of Land Readjustment and Urban Development

(Source: Ministry of Land, Infrastructure, Transport and Tourism and Infrastructure Development Institute 2002, Survey for Preparing Guidelines on the Transfer of Construction Technology, Land Readjustment, Report).

land readjustment were held in the ASEAN and other countries. The seminars held in the ASEAN countries were attended and supported by the former Ministry of Construction of Japan and the Japan International Cooperation Agency (JICA), and exerted significant impact on the urban development in Southeast Asian countries. The international seminar series came to an end in the year of 2000. In addition, JICA and the former Japanese Ministry of Construction started providing training courses on urban development in 1983, aiming to disseminate Japan's urban development and land readjustment techniques to developing countries. JICA continues to provide these training courses today. From the fiscal year of 1986 to the fiscal year of 2014, 363 participants from 68 countries attended these training courses (see Figure 4.1).

▼ Figure 4.1. 363 participants from 68 countries participated in JICA land readjustment training courses



From the 1980s to the 1990s, several Southeast Asian countries and the United States of America considered application of land readjustment as follows:

Republic of Indonesia: Indonesia's urban land consolidation projects were conducted mainly on the urban fringe where good urban planning was needed. They had five key objectives in implementing the projects, as outlined by Soeromihardjo (1989):

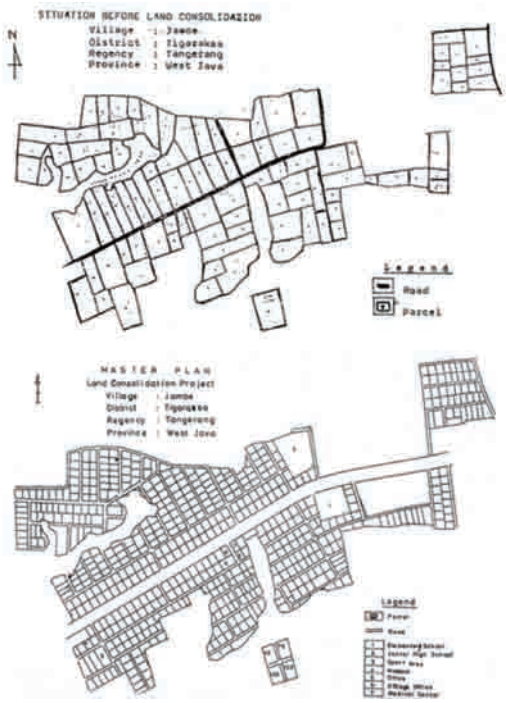
a. To create a planned layout of roads and orderly parcel subdivision, and thus encourage gradual implementation of city planning in urban fringe areas;
b. To obtain land required for the construction of roads and other public facilities at no cost to the government;
c. To regularize parcel shapes and to provide road frontage for each parcel;

d. To develop urban fringe lands and to improve the living environment; and
e. To provide landowners with registered titles and certificates for their new land parcels.

Indonesia's first urban land consolidation project was conducted from 1981 in Renon, Denpasar, South Bali, covering a total of 77.3 hectares and 261 parcels. From 1981 to 1991, while no laws and regulations on the implementation of land readjustment existed in Indonesia, several land readjustment projects were conducted with the landowners' consent. During this period, 17,859 landowners participated in 58 projects covering a total of 3,196 hectares of land. These projects included redevelopment of slum areas created by squatters along rivers, using the land readjustment technique to provide the squatters with their own land parcels (Talkurputra 1993).

In many of the land readjustment projects in Indonesia the land contributed by the landowners was used for public purposes, such as the construction of roads, and the project's construction was financed by the national budget. As a result, projects were often deemed "complete," but leaving many roads unpaved and drainage facilities yet to be built, although the land for the facilities had been secured.

▼ Figure 4.2. Land consolidation project in Tigarang, west of Jakarta



Top: Before the project, Bottom: After the project

Kingdom of Thailand: influenced by the 1980s rising global interest in land readjustment, Thailand started to consider the application of the land readjustment method for the country's urban development. Aiming to answer this, from December 1987 to February 1989, Japan conducted "The Study on Applied Technology for Making City Plan," with the former Department of Town & Country Planning (DTCP) of the Ministry of Interior of Thailand, and specifically explained the land readjustment technique during this process. As a result, in 1992, the Thai cabinet decided to establish a "Land Readjustment Committee" to implement land readjustment and appointed the former DTCP as the implementation agency to officially establish a framework for this process.

Malaysia: in Malaysia, from the late 1980s to the 1990s, the Federal Department of Town and Country Planning played a central role in considering the application of the land readjustment technique in the country's urban planning processes, together with other related departments. No land readjustment project has, however, been conducted in the country to date. In those days, Malaysia had an urban planning framework in place, based on the one from the United Kingdom of Great Britain and Northern Ireland (the United Kingdom). Therefore, it was difficult for the country to consider the introduction of a new land readjustment framework that would be consistent with the existing one. On the one hand, in many countries that had faced difficulties in expropriating land for development, including lack of financial resources, attention was paid to land readjustment as an alternative method for urban planning.

On the other hand, since Malaysia's State Authority had a strong legal basis for land expropriation (the *Land Acquisition Act* (article 3(1)) states that "The State Authority may acquire any land, which is needed: (a) for any public purpose"), the country had relatively less difficulty in land expropriation than other countries. This is the major reason why land readjustment was not used in the country. In addition, the country's complex land ownership system was also a bottleneck to the implementation of land readjustment. In farmlands in the suburb of cities where the introduction of land readjustment was considered, replotting (conversion of land rights) was hindered by various tenures of land ownership, such as leasehold (land for a lease of 99 years, granted by the local State government that is responsible for land administration), freehold (land that has been alienated), and temporary occupation of land.

Furthermore, obstacles to the land ownership transfer in Malaysia included: (i) multiple land ownership inherited from ancestors, (ii) land with unknown owners (Arif 1989), and (iii) the "Malay Reserve System" (restrictions imposed on the transfer of land ownership from Malay to non-Malay citizens). In an interview with Hiroyuki Yoshimura, a JICA expert (1995-1998) dispatched to Malaysia, the point was raised that, "restrictions and limitations on Malay Reserve Land and its complicated aspects

have prevented the land from being developed." "Malay Reserve" is the designated land that can be owned only by Malays, and due to the Islamic inheritance laws, sometimes, 100 to 200 people may be registered as landowners to a single piece of land in urban areas.

In addition, according to Jun Katsumi, another JICA expert (1992-1995)dispatched to Malaysia, the country did not need land readjustment due to three reasons: (i) there was unused land in the outskirts of big cities (relatively large areas of low population density and plantations) and large-scale development was relatively easy; (ii) during the 1990s, the Federal Department of Town and Country Planning, that had been considering application of the land readjustment technique, shifted its focus away from land readjustment, that would involve difficult and complex tasks, to the development of Putrajaya, located in the outskirt of Kuala Lumpur, to which the government's administrative functions were to be moved, and Cyberjaya which was to be developed as the country's information and communications technology (ICT) hub; and (iii) there was a political issue concerning the location selection of a land readjustment pilot project: should it be in Chinese villages or in Malay villages?

Republic of the Philippines: in the first half of the 1980s, the "Metro Manila Commission" conducted a feasibility study on land readjustment for 49 hectares of land in Quezon city. That study was suspended due to the political instability in the country (Magat 1993; Nishiyama 2002) and land readjustment has not been introduced to the country to date.

United States of America: in the United States, during the 1980s, Hawaii, California and the city of Dallas considered using the land readjustment method. Also, the Lincoln Institute of Land Policy and the Florida Atlantic University/Florida International University Joint Center for Environmental and Urban Problems took an initiative to considering the application of the method. Especially, professor Frank Schnidman, the former visiting professor of the said Joint Center, made significant contributions to the introduction of the technique to his country.

Thus, the 1980s were a decade when land readjustment attracted the world's attention and the international community started to consider its application to urban planning. In this regard, Yasuo Nishiyama (1988) commented that, "perhaps, in the future, people will regard the 1980s as the beginning of the internationalization of Japan's land readjustment."

Japanese Technical Cooperation Concerning Land Readjustment in Foreign Countries

Two Approaches

Japan started to provide technical cooperation concerning land readjustment during the 1980s, and the former Ministry of Construction and JICA played a central role in this. Centering on the already mentioned international seminars on land readjustment and the land readjustment training courses, two approaches for the provision of technical cooperation were developed:

a. A full set type that included dispatch of individual experts, conduct of training programs and implementation of technical cooperation projects (Thailand, Indonesia and Malaysia). In this approach, experts were dispatched to foreign countries to investigate the possibility of conducting land readjustment projects. More specifically, 10 individual experts were dispatched to two organizations in Thailand from 1987, 6 individual experts were dispatched to Indonesia from 1989, and 6 individual experts were dispatched to Malaysia from 1987. Along with the activities of these experts, feasibility studies on land readjustment were conducted in the three countries. Also, individual experts, specialized in urban development were dispatched to the Philippines continuously from 1988, though their focus was not solely on land readjustment. After dispatch of the individual experts, it was found that the possibility of the application of land readjustment was quite high in Thailand. So, Japan implemented some technical cooperation projects with Thailand to establish their land readjustment system.

b. A training and follow-up type (Nepal and Colombia): where country-specific training courses were provided to help countries establish their respective land readjustment frameworks. JICA was responsible for these specified courses and shouldered the costs, while the former Ministry of Construction, Japanese universities and local governments oversaw the lecturers and the site visits. In addition, individual experts were dispatched to Nepal for two years (2001 to 2003), and to Colombia for three years (2000 to 2003) to follow up on the training provided.

In other developments, JICA explored the land readjustment technique in projects related to urban master plan studies for urban development. As a result, Mongolia and the Islamic Republic of Afghanistan have considered the application of the land readjustment method. Also, there is an ongoing dissemination of the method from Colombia to South American countries, such as the Federative Republic of Brazil. The follow-

ing sections will explore these approaches in Thailand, Nepal and Colombia.

Developments in Thailand

Japan has offered technical cooperation to Thailand for more than the past quarter of a century through the dispatch of individual experts and the implementation of various technical cooperation projects to establish a land readjustment framework. From the 1980s to the present, the history of land readjustment in Thailand can be classified into 4 periods. The first of these was the introduction of land readjustment between 1980 and 1992:

a. Thailand learned the concept of land readjustment through the "International Seminars on Land Readjustment and Urban Development," and through training provided by JICA;
b. Individual experts, specialized in urban planning and development, were dispatched for the first time to the "Bangkok Metropolitan Administration" (BMA) and the former DTCP, on a long-term basis; and
c. In 1992, the Thai cabinet decided to study the application of the land readjustment method in the country and established a "Land Readjustment Committee."

The second period (the establishment of the land readjustment framework, 1992 to 2004):

a. A JICA-supported feasibility study on a land readjustment project in Thailand was conducted;
b. The study developed into a large-scale technical cooperation project, called "The Project on Development of the Method of Urban Development" (DMUD); and
c. In 2004, the *Land Readjustment Act* of Thailand was enacted.

The third period (the promotion of the Thai land readjustment model, 2004 to 2013):

a. Laws and regulations related to the *Land Readjustment Act* were prepared to implement land readjustment projects;
b. The "Land Readjustment Fund" was established;
c. Ten pilot projects were commenced; and
d. Two pilot projects were almost completed.

The fourth period (the dissemination of Thai land readjustment model, 2014 to the present):

a. The Thai land readjustment booklet and a series of technical manuals were prepared;
b. The study tours as a part of JICA's land readjustment training course have been organized by Thailand; and
c. "One Project in One Province of Thailand" policy has been conducted.

In addition to individual experts' dispatch, three technical cooperation projects were conducted in the country. These technical cooperation projects, implemented over a period of 15 years and ended in 2014, were as follows:

"The Project on Development of the Method of Urban Development" (DMUD) (June 1999 to May 2005): this project helped the country to establish a land readjustment framework in Thailand (in the second period);

"The Project on Land Readjustment Promotion" (November 2005 to November 2009): this project helped the country conduct the actual land readjustment projects (in the first half of the third period);

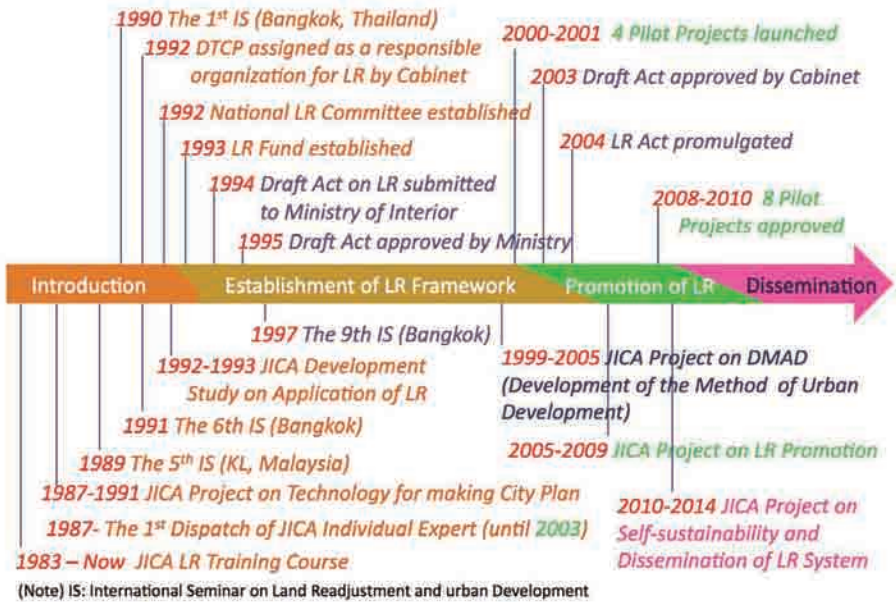
"The Project on Self-Sustainability and Dissemination of the Land Readjustment System" (July 2010 to March 2014): this project helped completion of the pilot projects, presented the Thai model of land readjustment based on its experience, and disseminated this model at home and abroad (from the latter half of the third period to the early fourth period).

Two of the pilot projects are almost completed (as of April 2014). One, led by the Department of Public Works and Town and Country Planning (DPWTCP), is named the Phisnulok Land Readjustment Project (21 hectares of land and 82 landowners); and the other led by BMA is named the Rama 9 Park Land Readjustment Project (8.8 hectares of land and 32 landowners). The latter was implemented by a landowners' association. Not only the DPWTCP, but also the BMA actively made efforts to introduce land readjustment into the country, and to build up their experiences and expertise. "National Housing Authority" (NHA) also followed suit. To record and introduce the country's experience on land readjustment, DPWTCP, BMA and NHA collaborated on the production of a introductory booklet, videos and a series of technical manuals on the land readjustment framework in Thailand (see Figure 4.3). In July 2014, the Thai government started to provide a study tour in Bangkok on the Thai land readjustment model as part of JICA's land readjustment training course.

Figure 4.4 presents the chronology of the introduction of land readjustment in Thailand with Japan's cooperation.

▼ Figure 4.3. Manual series for land readjustment in Thailand (for technical staff)

▼ Figure 4.4. History of application of land readjustment to Thailand



Developments in Nepal

Nepal established its land readjustment/pooling system based on what they learned from JICA's country-specific training programs. The history of land pooling in Nepal can be classified into four periods just like that in Thailand. The first period (land pooling on a trial basis and the establishment of a legal framework, mid-1970s to 1988), originated from a road widening project in Pokhara at the end of the 1970s. Back then,

no such concept as "land pooling" existed. In the late 1980s, a land pooling project planned for the outskirts of Kathmandu needed the government to prepare a legal framework for its implementation. The *Town Development Act* enacted in 1988 stipulated that the "Town Development Committee," a public entity, could implement three types of urban development projects, including land pooling projects (Ochi 2001). Land pooling was stipulated simply in the 1988 *Nepalese Act* that to commence a land pooling project, at least 75% of local landowners and tenants were required to give their consent to the project. Later in 1997, a third revision was made to the act to set forth more detailed formalities (the Nepalese *Town Development Act* of 1997).

The second period (the establishment of the framework and the development of land pooling projects in the Kathmandu Valley, 1988-2002), started in the 1990s. Land pooling projects were conducted in farmlands, in the outskirts of towns and cities in the Kathmandu Valley. A Japanese Overseas Cooperation Volunteer was dispatched to the former "Department of Housing and Urban Development" (DHUD), and briefed the department on Japan's land readjustment method, which prompted Nepal to learn the Japanese technique. This led to the land readjustment training course for Nepal jointly conducted by the former Ministry of Construction of Japan and JICA, with cooperation from Obihiro and Nagoya city governments, in 1995 and 1996. A two-month course was offered, and a total of 12 people participated. These trainees conducted land pooling projects in Kathmandu Valley as the head of the project office, and took initiatives to revise the Nepalese *Town Development Act* and to integrate the Japanese land readjustment method into it. As of 2000, projects were completed in 3 districts, and were under way in another 8 districts. The total area of the 11 projects is 238.4 hectares.

The third period (the establishment of the land pooling technology and projects across the country, 2002 to early 2010s), saw a JICA expert being dispatched to DHUD from 2002 to 2003. An explanatory handbook for landowners and manuals for engineers were prepared. These documents have been updated and are still used in the country. Further land pooling projects were conducted across the country, and as of 2010 projects had been implemented in 17 towns and cities outside the Kathmandu Valley. Just in the Kathmandu Valley, 12 projects were completed, 6 were under way and 7 were being planned.

The fourth period (large scale infrastructure development and private development, early 2010s to the present), saw the land pooling projects in Nepal being increasingly characterized by residential area development targeting farmlands in the outskirts of towns and cities, and depending on the high appreciation of land values caused by the projects; not being dependent on money from the government. The rise of land prices and the land contribution ratio accepted by the landowners determined the level of

public facilities to be developed, and in areas where a big profit was not expected from the disposition of the reserve land, a project might be ended without paving roads or without constructing drainage facilities, though the land for those facilities has been secured.

A future issue concerning land pooling in Nepal is the expansion of its application beyond the development of farmlands in the outskirts of towns and cities, such as, for instance, the development of highways and areas along the highways, large scale new town developments, post-fire redevelopments or the improvement of slum areas (Subba 2010). Furthermore, Nepal's land pooling is based on the *Land Expropriation Act*, which requires that the landowners transfer their land ownerships to the implementation entity and, then, the landowners receive the replotted land according to a replotting plan. Therefore, the implementation entity has to be a public entity that can expropriate land. The major challenge faced nowadays by Nepal is to conduct a wide variety of land pooling projects using financing schemes and technology of the private sector (Gorkhaly 2012).

▼ Figure 4.5. History of establishment of land pooling in Nepal

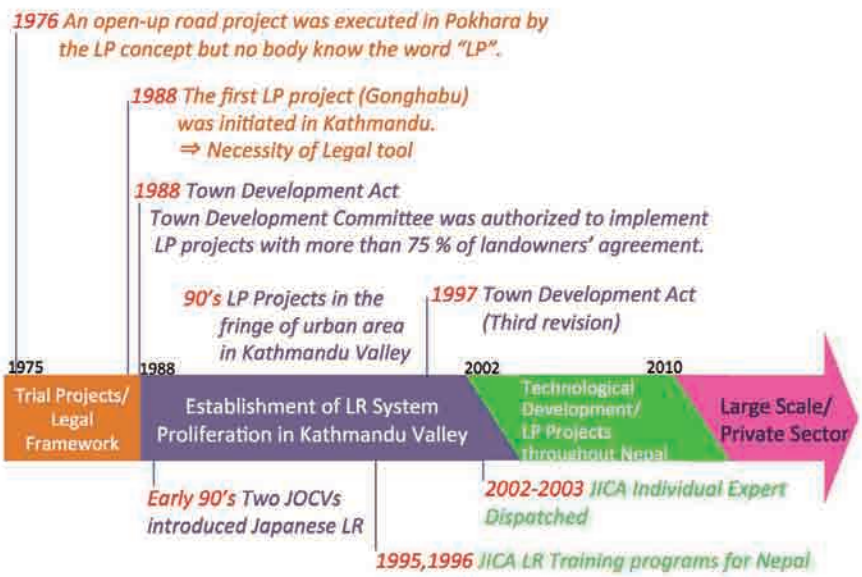


Figure 4.5 presents the chronology of the introduction of land readjustment into Nepal with Japan's cooperation. Compared to Thailand where JICA dispatched individual experts over a period of 16 years and conducted three technical cooperation projects, Japan's cooperation with Nepal was very limited. Against this background, there are two factors behind the Nepalese successful establishment of a land pooling framework:

a. Nepal's legal framework is less complicated than Thailand's. The land pooling framework stipulated by the 1988 *Town Development Act* allowed land pooling projects to be conducted without further preparation of laws concerning land pooling projects.
b. There was a huge demand for housing sites in Kathmandu Valley, and a land pooling project on farmlands, in the outskirts of towns and cities could be easily conducted without spending government funds. Therefore, the country could build up its experience in land pooling projects within a relatively short period of time.

Developments in Colombia

Like Nepal, Japan conducted training for Colombia first:

a. Country-specific training courses named "Land Readjustment Project Course" were conducted for five years (1998-2002) and were attended by 39 people in total;
b. A JICA expert was dispatched for follow-up (2000-2003);
c. Regional training courses named "Urban Planning, Land Readjustment Project" were conducted for five years (2003-2007), and were attended by a total of 64 participants of which 29 were from Colombia, and the rest were from four other countries in the Andes region; and
d. A technical cooperation project named "Urban Planning and Land Readjustment Project" was also conducted for five years (2003-2008). In this project, unique efforts were made. The trainee candidates from the Andes region for the above training courses took pre-training from ex-Colombian trainees prior to their visit to Japan so that they could enter the training course in Japan smoothly.

In 1997, the *Law N° 388* was enacted in Colombia, which prompted all Colombian city councils to prepare an urban planning master plan called "Plan de Ordenamiento Territorial" (POT). Japan's 10-year cooperation contributed greatly to Colombia's efforts to build this new urban planning framework. The driving force of the country's urban planning was the former trainees from the country-specific training and the regional training courses, as mentioned previously. At the "National Council of Economic and Social Policy" (*Consejo Nacional de Política Económica y Social,* CONPES) – an equivalent to the cabinet council – held in August 2004, the government of Colombia proposed urban redevelopment projects, and asked for the participation of the former JICA trainees. This meant that JICA's support for capacity building in the areas of urban planning and land readjustment through country-specific training, and the subsequent technical cooperation project and regional training, were relevant to the Colombian government and its development policies, and the high level of the capacity building was recognized.

The major outcomes from these 10 years' period were (JICA 2008):

a. The former JICA trainees worked in administrative institutions of important Colombian cities including Medellin, Cartagena, and Chia, and applied the urban planning and the land readjustment method they learnt. By 2013, land readjustment projects including urban redevelopment projects were conducted in 5 districts including Medellin, and projects using methods like land readjustment numbered about 50 all over the country; and
b. Many former trainees held important positions in urban planning-related departments in the central and the local governments. The POTs for almost all city councils were prepared. The Ministry of Environment, Housing and Territorial Development (MAVDT) promoted a ministerial ordinance (which also serves as a manual) concerning the "Partial Plan" (which is a plan under the POT and includes land readjustment), for which the former trainees played a central role.

In sum, the former Colombian trainees have a lead over the countries of the Andes region, and are able to guide the other countries' urban planning. Colombian experts have been invited to provide technical support for land readjustment in several other regions and cities, such as Curitiba, Brazil, which commenced in 2012 to establish a framework for land readjustment and urban redevelopment. Colombian experts are also providing capacity development training programs in Colombia for the participants from Curitiba.

The Significance of Land Readjustment in Developing Countries

So far, an overview of the history of land readjustment in some selected countries with Japan's technical cooperation has been given. So, what is the significance of land readjustment for a country that plans to apply the method at home? Yasuo Nishiyama summarized challenges pointed out by urban planning experts from various countries interested in land readjustment in the latter half of the 1970s, as follows (Nishiyama 2002):

a. How to consolidate a number of small parcels to use land efficiently? (Planned supply of urban land);
b. How to develop roads prior to urbanization when there are no public funds available for this purpose? (Finance through development profits and land acquisition for public purposes by means other than land purchase); and

c. How to provide houses for the urban poor?

Items (a) and (b) are common questions for land readjustment in Japan and the other countries. Item (c) is an important question especially for Latin America. The following sections will discuss the expectations for land readjustment based on findings from a landowners' survey in Thailand, and will explore the meaning of Japan's land readjustment method for Latin American countries including Colombia.

Questionnaires to landowners in the pilot project areas in Thailand and the importance of land readjustment

In 2013, five areas where land readjustment projects were underway and title deeds have been issued or are planned to be issued soon in accordance with replotting plans, were selected for the survey. A questionnaire-based satisfaction survey was conducted for 429 landowners of the selected areas (i.e. all landowners, including landowners with co-ownership) (JICA 2013). The objectives of the survey were: (i) to understand the landowners' assessment of land readjustment projects as a new experience in Thailand; and (ii) to understand the extent of the development wanted by the landowners when the beneficiaries are required to pay for the development costs. There were 222 respondents and the response rate was 51.7%. Table 4.2 outlines the five areas where the survey was conducted.

Table 4.2 Outlines of the Areas where a Survey was conducted in Thailand (2013)

Name	Area (ha)	Project Approved Date	Contribution Ratio (%)	Numbers of Land Parcels	Numbers of People to Whom the Survey was Sent	Number of People Who Responded	Response Rate (%)
Samut Prakan	30.4	2010.08.23	13.8	29	34	11	32.4
Suphan Buri	31.3	2009.12.22	29.7	83	91	47	51.6
Nan	45.2	2008.05.14	14.3	126	158	73	46.2
Phitsanulok	20.6	2009.04.10	25.5	78	93	54	58.1
Rama 9 Park	8.8	2012.06.20	17.5	56	53	37	69.8
Total				372	429	222	51.7

(Source: Japan International Cooperation Agency 2013).

Question 1. Why did landowners participate in the land readjustment projects?

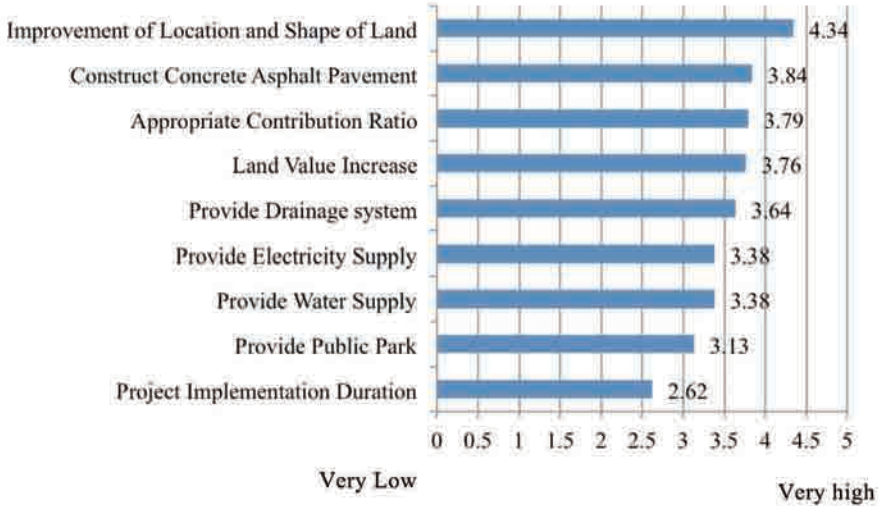
Figure 4.6 presents the important factors in deciding landowner's participation in land readjustment projects. The survey used a five point Likert scale, and the scores of each selected option for a question were summed. The factors considered most important when deciding on the participation were: (1st) improvement of location and shape of

land parcels; (2nd) construction of concrete asphalt pavements; (3rd) appropriate contribution ratio; and (4th) the land value increase.

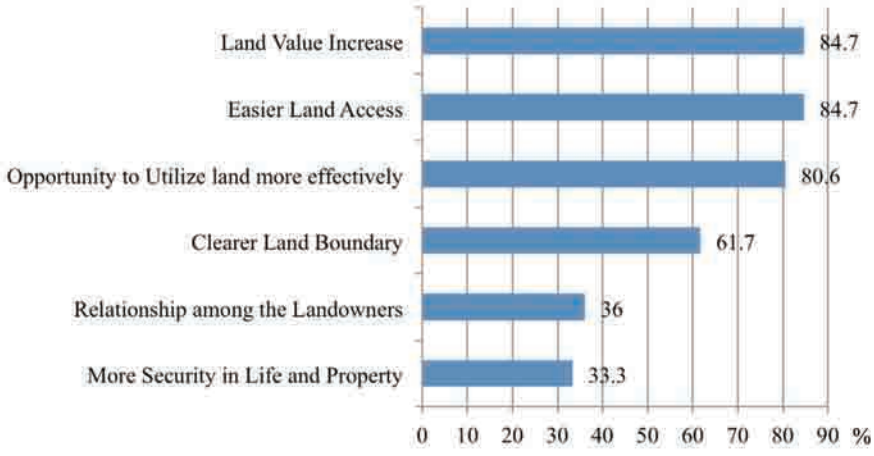
Question 2. What were the benefits acquired through the land readjustment projects?

Figure 4.7 presents that, against the previous question mentioned expectations, more than 80% of the respondents indicated that the top three benefits they acquired by participating in the projects were: (1st) land value increase (84.7%); (2nd) easier land access (84.7%); and (3rd) opportunities to utilize their lands more effectively (80.6%).

▼ Figure 4.6. Important factors for the decision to participate in a land readjustment project



▼ Figure 4.7. Benefits acquired through land readjustment projects



Question 3. What was your satisfaction related to the replotting design?

The responses on the satisfaction to the replotting design were: very good 22.5%, good 41.9% and fair 21.6%, which accounted for 86% in total. The findings indicated that the majority of the landowners were satisfied with the replotting design. These responses may include consideration on the amount of land contribution.

Question 4. What were the desirable levels of development and land contribution ratios?

Land contribution ratio is determined in relation to the benefits acquired by the landowners. During the survey, they were asked if they would like to have a high level of public facility development with a high land contribution ratio (cost), or if landowners would like to have a moderate level of public facility development with a low land contribution ratio (cost). In Thailand, many housing sites do not have access roads, therefore, these questions were asked to assess needs and preferences: if they preferred having local roads built near/in front of their houses first and would wait for public facilities to be built in the future; or if they preferred having all public facilities built, including roads, bearing higher development costs. As shown in Table 4.3, 30.2% of the landowners tended to prefer high levels of development at higher costs (with more than 30% of land contribution).

Table 4.3. Desirable Levels of Development and Land Contribution Ratio

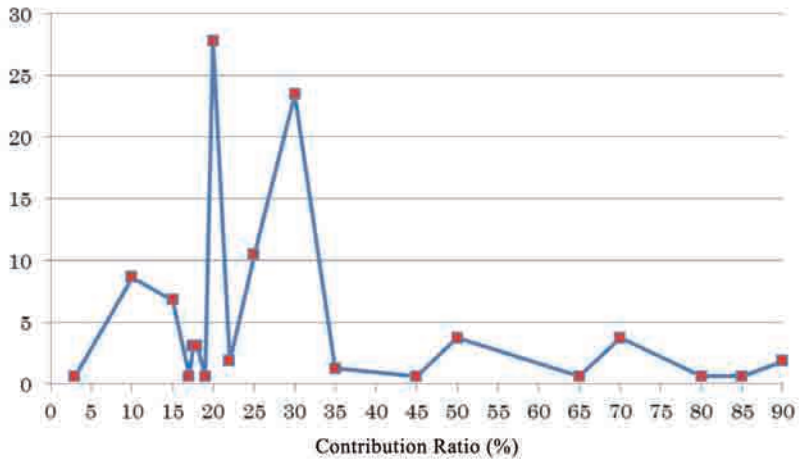
Level of Development	Expected Land Contribution Ratio (%)	Supported by (%)
Will secure land for public facilities including roads, but will not build them	Less than 20	21.2
Will build main roads and sub-arterial roads	20 - 30	28.4
Will build all roads and develop necessary infrastructure	Over 30	30.2
Others, no answer		20.3

(Source: Japan International Cooperation Agency 2013).

Question 5. What is the highest acceptable land contribution ratio?

Simultaneously, a question asked about the highest acceptable land contribution ratio to the landowners. Figure 4.8 presents that highest number of the respondents said that a land contribution ratio of 20% would be the most appropriate (27.8% of the respondents), followed by 30% (23.5% of the respondents), and 63.6% of the respondents selected a contribution ratio of 20 to 30%. The survey indicated that 87% of the respondents said that the limit to the contribution ratio should be less than 30%. However, these findings are not consistent with the responses to Question 4.

▼ Figure 4.8 Acceptable highest contribution ratio



A comprehensive analysis of the results from questions 1 to 5 indicates that in land readjustment projects in Thailand, landowners would like to have public facilities developed with focus on improved access to their houses, and would shoulder the costs up to 30% at maximum. Their willingness to contribute may be supported by their expectations that their land will be easier to use through the development of public facilities, which in turn will lead to increased land prices. This is the significance of land readjustment in Thailand from the landowners' point of view.

Land readjustment as a means to secure land for the urban poor

In Colombia, the establishment of a land readjustment framework contributed to the country's efforts in urban planning as mentioned earlier. Another significant aspect of the land readjustment in Colombia is that the method can be used to improve poor areas, and to secure land for the poor. In Japan, land readjustment is not usually regarded as a mean to address issues of poverty. Nevertheless, in Latin America where problems of poverty have to be always considered in urban planning, land readjustment has been used as a mean to improve urban poor areas.

The following is an excerpt from a message sent from the leader of the trainees, who participated in the previously-mentioned JICA training courses for Colombia and Andes region, to Yoji Kinoshita, who was dispatched to Colombia as a JICA expert, and was a lecturer of the training course after returning to Japan (Kinoshita 2008a). The message was sent when the 10-year training project was nearing completion:

> "The countries of the Andes region have benefited from JICA's support through this project. Thanks to JICA and its training, a total of 108 persons who participated in the JICA training courses are now capable of conducting urban redevelopment projects and residential area improvement projects. In fact, we have improved the quality of life for many of those who live in poverty and face danger. By learning Japan's urban planning model and putting it into practice, the countries from the Andes region have gained confidence in their abilities in the area of urban planning. Simultaneously, through our relationship with the Japanese society, we have received a clear message of 'hope' and 'faith'."

Yoji Kinoshita said:

> "In the questionnaire survey for the former trainees, a question asked about the impact of Japan's land readjustment project on Colombia. The majority of the respondents answered by selecting '*confianza*,' or confidence. This result indicates that Colombian people do not trust local project, project implementation agencies and the public sector in the country, and also indicates that project participants do not trust each other. Landowners, therefore, are reluctant to participate in a project and investors hesitate to invest on it. For instance, from Japanese perspective, Japan's land valuation method does not really consider 'humanity,' and is a method finely created to evaluate land values in fair manner as much as possible. However, in the eyes of the people of Latin America, Japan's land valuation method signifies the equal and the fair treatment of people, and this is one of the most popular subjects in JICA's training course. Land readjustment in Colombia was stipulated by Articles 44 to 47 of the *Urban Planning Law N° 388* (1997), which state that, 'cost allocation and land distribution shall be based on the principles of fair share of costs and benefits.' The former JICA trainees from Colombia learnt in Japan how to put these principles into action."

A redevelopment project for slums in Medellín is well known as a successful case of that kind in Colombia. The former JICA trainees conducted this project. For one of the slum areas in Medellín, named Juan Bobo, covering 1.75 hectares, and populated by 1,353 people in 300 households, a legal framework for an "adverse possession system" was established, in which landownership was granted to squatters, and the city of Medellín purchased the land from them to conduct the land readjustment project. This is a good example of the application of Japan's land readjustment method in Colombia (Kinoshita 2008b). Yoji Kinoshita commented that land readjustment is just one of the tools to address issues of poverty, and requires "a whole range of tools and policies to tackle poverty." The Japanese method that is based on the principle of equal and fair treatment can make it possible (Kinoshita 2008a).

Future Developments

More than 30 years have passed since land readjustment was internationalized in the 1980s. As we see in Chapter 3, various types of land readjustment are being used in various countries. Land readjustment has made the progress from the era of concept dissemination to the era of system establishment. However, not many countries have incorporated land readjustment firmly into their own urban development system. With this awareness, in 2014, JICA's training course on land readjustment – that started 30 years ago – was changed to take a more specific approach, such as the establishment of an institutional land readjustment framework and problem solving beyond a general introductory program of land readjustment. To this end, JICA decided to accept trainees from countries where land readjustment projects are being conducted, or from countries where a government organization is trying to introduce the land readjustment method at home. The program contents are not specialized in the Japanese type of land readjustment, but are based on mutual learning from countries that are successfully applying their own land readjustment process. The training course also adds a study tour program in which the trainees visit Bangkok to learn about the Thai experience of land readjustment after the two-month course in Japan. Like Colombia is now acting as the leader for Latin American countries, Thailand is expected to be a leader in Asia in land readjustment.

UN-Habitat disseminates land readjustment advice, paying attention to the participatory and inclusive approach of land readjustment. They also consider land readjustment to be a viable tool to enable public and private partnership in land development. The World Bank started to offer an online course on land readjustment in 2016, where the participants learn practical land readjustment. When thinking how to disseminate the land readjustment technique globally in the future, we should consider land readjustment in the context of urban planning as a whole, rather than communicating the technical aspects of the method to the world. The previously-mentioned slum redevelopment project in Medellín is for example "a comprehensive effort, combining an urban planning project with activities to address a variety of issues that range from poverty, unemployment, peace building, community restoration, the rights of women and children, and culture. […] Japan should enhance its capacity so that it can provide support to such a multi-faceted project" (Kinoshita 2008a). The land readjustment method should be applied considering comprehensively and strategically the issues that face developing countries, including not only infrastructure development, slum upgrading, and the guarantee of property rights, but also urban management, urban governance, inclusiveness, value capture finance (property tax, transfer of development rights, and the use of development profits), sustainable urban development, and

climate change mitigation/adaptation. Furthermore, a more diverse framework for conversion of these rights should be created; as they range from, for example, conversion of rights not only from land to land by administrative measures as practiced in Japan, but also from land to building floor by agreements between private parties as practiced in Colombia and Mongolia. By learning from the world, Japan can explore new approaches to land readjustment.

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Afterword

Felipe Francisco De Souza

Researchers and policy planners have placed increasing prominence on the history of the diffusion of ideas and models that shaped planning systems and environments, as well as the ways these ideas and models turned into reality. When these studies have focused on the diffusion that has occurred within the sphere of the so-called developed world, the participant stakeholders are considered to be relatively equal partners. When this diffusion takes place between the developed and the developing world, however, these exchanges are often considered to be a one-way imposition where the recipients are silent or oppressed. After World War II, and after the coming decades where colonialism and colonial processes came to an end, a whole new space for the diffusion of ideas and models emerged. International cooperation agencies became the main drivers in providing support to the developing world for turning new projects into reality and, consequently, scholars have begun to explore the outcomes of such processes in more complex and multidirectional ways.

Among these emerging ideas and models, land readjustment has been practiced and disseminated for more than 100 years and the last decade has witnessed unprecedented academic and practical interest in land readjustment as an urban planning instrument. On the negative side, experience has shown that, in practice, the land readjustment instrument is not easy to adapt and implement. It faces numerous challenges, such as existing path dependent planning policies, the correction of coordination failures, and necessary institutional improvements and reconfigurations. Also, as more collective actions are needed, the more complex and complicated its application becomes. Moreover, its application may not serve the same goals in different economic and social contexts under the penalty of misplaced ideas.

On the positive side, land readjustment has enormous potential to contribute to the achievement of fundamental democratic principles. This could include promoting the just use of government power based upon the consent of the governed, political equality through the fair distribution of costs and benefits of urban development, and transparent decision-making processes through fair elections of the representatives in charge to implement the project. By investigating the adaption and implementation processes of land readjustment in the developed and developing worlds, this volume makes an important contribution to the international literature on land readjustment as it consistently exposes the difficulties involved in applying it. The urge to provide an overly

idealistic picture of land readjustment would be misleading, both because it becomes more difficult to understand the opposition found in many places – even in Japan where most modern expertise comes from – and because it hides the efforts of governments and civil society to overcome multiple obstacles in order to undertake successful projects.

Nowadays, there is significant international interest regarding the reorganization of urban properties and control of urban growth. This is related to the promise of more efficient and less costly urban systems and planning methods, as well as expectations of better and more qualified services with greater public control, financial accountability and more transparent government. Even in situations of economic crises and stagnation, the demand for urban transformation still persists and many countries in the developing world are taking the opportunity to introduce real transformations and improvements in their urban and rural environments with land readjustment. In addition to all questions related to land readjustment implementation as an innovative element – considerations that are a key focus of this book – there is no doubt that governments and the civil societies might focus on quality growth to upgrade their urban development processes by using better mechanisms for land reorganization and further construction of collective spaces.

Takeo Ochi

When I think about land adjustment in various countries, two photographs come to mind. The first was taken in Thailand and the second was taken in Nepal. The Thai picture shows a ceremony handing over the land title deeds for a land readjustment project site. The government officials standing side by side are giving the title deeds to landowners simultaneously. Both those who are receiving the titles and those who are handing them over show happy smiling faces. Even though various kinds of opposition and conflict had occurred during the project, in the face of a well-developed urban infrastructure and living environment, all parties were eventually satisfied with the finished project. Based on my long experiences with land readjustment projects, I can definitely say that this was the case. The Nepali picture is an aerial photo of Kathmandu Valley. We can easily identify the completed land readjustment project areas in the picture. The areas in the photo that show a dense road network, are all land readjustment project areas. A picture is worth a thousand words. The photograph reflects the great endeavor and achievements of the Nepali land readjustment experts.

During the annual two-month long JICA land readjustment training program, we always discuss the definition of land readjustment in the first session. I tell the participants that if development involves the following three elements, we can call it land readjustment:

1. It is an urban development method through conversion of land and building rights;

2. It has a distribution mechanism for the fair sharing of costs and benefits; and

3. It has a mechanism for the participation of property rights holders and concerned citizens within the project.

Based on these three elements or principles, countries can make use of land readjustment in a flexible manner according to the situation in their own countries. Land readjustment is pre-eminently an instrument for diverse urban development. In other words, land readjustment requires our creative ingenuity. In Chapter 4, I introduced land readjustment practices in Thailand, Nepal, and Colombia. I can say that those practices are the results of their ingenuities. Land readjustment can be used for development of urban infrastructure, conversion of urban function, reconstruction of disaster-hit areas, the supply of houses and residential land, redevelopment of an unplanned urbanized area, guaranteeing people land, consolidation of fragmented land, and the elimination of dead end roads, etc. Let us apply land readjustment wisely to address a wide range of urban problems.

In contrast, land readjustment projects are often criticized for being too lengthy. Coordination and negotiation with rights holders is time consuming. These complaints are similar to those that say that democracy requires significant costs and time. However, we know empirically that once consensus among the parties concerned has been reached, the project goes smoothly; ignoring the voices of rights holders often stops the project for long periods of time. We always need to return to the questions of what and who the development is for.

The network of alumni of the JICA land readjustment training programs are a valuable asset to me. I am glad that they have grown and now play an important role as regional leaders in land readjustment. Colombia is now a leader within Latin America and continues to support Brazil and Costa Rica to apply land readjustment in their countries. Thailand is becoming the center of land readjustment dissemination within Asia. A new global network of land readjustment experts who contributed to Chapter 3, was also formed through the creation of this book. I do hope that this book will contribute to strengthening the bonds between land readjustment experts and practitioners throughout the world and will promote a new human network of land readjustment.

Akio Hosono

Over the past few years, "quality of growth" has been receiving increasing attention in academic and policy communities, particularly in terms of its connections to inclusiveness, sustainability, resilience and other key areas. In Asia and the Pacific region, Asia-Pacific Economic Cooperation (APEC) leaders agreed on an "APEC Growth Strategy" in 2010, and stressed that "quality of growth" needs to be improved. In 2015, the Japanese government released its "Development Cooperation Charter," emphasizing that one of the most important challenges of development is "quality growth" and poverty eradication through such growth.

At the same time, "economic and social transformation" has featured more prominently in recent policy debates on growth and development, including the post-2015 "Sustainable Development Goals" (SDGs) discussions. Focusing on economic transformation, the Asian Development Bank's flagship report 2013 establishes a distinction between development and aggregate growth, arguing that aggregate growth can occur without significant transformation, as has happened in some oil-rich economies. This report highlights five key components of structural transformation. One of them is urbanization.

As discussed in the Foreword by Dr. Naohiro Kitano the urbanization component is articulated in Goal 11 of the SDGs, which calls on governments and other stakeholders to "[m]ake cities and human settlements inclusive, safe, resilient and sustainable." This goal matters significantly in efforts to achieve quality growth, especially for developing countries, because accelerated urbanization will continue to take place in developing countries over the coming decades. According to United Nations' estimations, the global urban population will grow by an additional 2.5 billion people by 2050, with nearly 90% of that growth occurring in Africa and Asia. The "World Development Report 2016" states that rapid urbanization in the developing world "creates urgency to get our cities 'right' because global response to our most pressing challenges – from climate change to rising inequality – will likely succeed or fail in cities." We could consider this concept of getting cities "right" as realizing "quality urbanization."

In this context, land readjustment could provide an effective approach toward realizing "quality urbanization" and attaining Goal 11 of the SDGs. However, land readjustment alone is unlikely to achieve the expected outcomes. As the Introduction and Chapter 4 of this volume have shown, land readjustment should be applied comprehensively and strategically in addressing the issues that face developing countries. This includes not only infrastructure development, slum upgrading and the guarantee

of property rights but also urban management, urban governance, climate change mitigation/adaptation, and so forth.

In this regard, it is critical to envisage comprehensive ways of achieving "quality urbanization" that can be adapted to the many diverse realities of developing countries. Further in-depth study is needed, drawing from theoretical and empirical analysis of past experiences. This volume has provided some substantial insights into recent initiatives and their outcomes. For example, land readjustment in Medellín, Colombia, applied to urban slums, together with several measures implemented in the same period, has achieved substantial improvements within informal settlements in high-risk areas. In general, pro-poor policies, infrastructure for better access to jobs, education and health, and land readjustment could produce synergies and effectively address the challenges faced by urban slums.

Since the mid-2000s, several "smart city" initiatives have been carried out to make cities more sustainable. It is important to note that smart city development projects have recently emphasized both sustainability and inclusion. The "World Development Report 2016" identifies three exemplary practices for smart cities: using data to address the most vulnerable populations (e.g. São Paulo), opening up data to promote accountability (e.g. Nairobi), and using mobile connectivity to enhance civic participation (e.g. Philippines). The alignment of land readjustment projects to these and other initiatives of smart cities appears to constitute a very promising approach.

In summary, land readjustment could provide an important instrument for development and redevelopment of urban areas, and potentially for "quality urbanization" which is essential for quality growth in the contemporary developing world. I strongly hope that this volume has offered meaningful insights into inclusive, sustainable, and resilient urbanization by identifying the advantages and challenges of land readjustment, and hence, helped to identify steps that can be taken toward the attainment of quality growth and poverty reduction through such growth.

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