1. Introduction

The rapid urbanization particularly experienced in Asian countries has led to many problems such as urban sprawl, inefficient use of land and inadequate provision of infrastructure and services. Currently, Land Readjustment (LR) seems to be one of the most appropriate measures to solve these problems. LR can be defined as a method of land development whereby a group of land parcels are consolidated and redistributed for unified planning with new infrastructure development and the cost of the project to be covered through a contribution of part of the private land 1,2). Its basic features such as improvement to the environment and providing infrastructure while still maintaining existing land ownership are expected to be beneficial to Asian countries.

LR has been widely practiced for urban development in countries such as Japan, and efforts are continuously being made to transfer this practice to other countries including South East Asia (SEA). However, such transfer is accompanied with great challenges as the implementation of LR which is connected with aspects such as socio-economic, administrative and institutional systems would need to be changed or modified 3). In general, the application of LR project would require the existence of laws to establish principles of implementation 3). Law would allow the institutional set up to initiate projects, set rules of reploting and ease negotiation process. The lack of enabling legislation in addition to the lack of competent staff can be a hurdle to the adoption of LR in some Asian countries 4). Moreover, LR as a mechanism is new and has no prior recognition by landowners. At present, Thailand is the only country that has established an LR law.

This report focuses on a pilot project in Brunei which utilizes an approach similar to LR. Brunei like most countries in SEA does not have a specific LR law in place. Despite this, the pilot project was able to be carried out for the development of an urban area and thus can be seen as a successful LR. With this background, this paper aims to analyze this project as an LR approach as a mechanism for promoting urban development. The commitment of the government to open up a new commercial area enabled LR to be carried out using existing laws and new policies. Unlike typical LR elsewhere, Brunei’s model opted for a no reserve land approach. This was done as to promote LR and was also made possible as existing state land in the project area was available to be used. The rezoning of the project area and other benefits offered to landowners enabled negotiation to progress smoothly.

2. Methodology

To achieve the objectives above, this paper takes Kiulap Improvement Project (KIP), which is located in the capital city of Brunei, as the case study area. Firstly, it is the first pilot project undertaken that can be said to be similar to LR. Secondly, the project is a good example of an area where the concern is on the improvement of infrastructure to enable development through also undertaking rearrangement of lands concurrently.

The project phases & processes were derived from documents 5) obtained...

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*1 Planning Officer, Dept. of Town & Country Planning, Brunei Gov., Ph.D.
*2 Prof., Graduate School of Mie Univ., Dr. Eng.
from the relevant departments, interviews undertaken with individuals who are/were involved in the project and also first author’s observation when attending one of the discussions. The findings were arranged according to the project stages and the analysis was categorized to answer the research questions above.

3. Existing land mechanism for development in Brunei

In Brunei, there are existing mechanisms to ensure the provision of land for infrastructure in areas involving private lands. The two main mechanisms are Land Acquisition and Land Consolidation & Subdivision. The third option is Readjustment (Reshaping) of Land and this is different from LR defined earlier, because it is used independently and limited to changing of shape. Fig.1 shows the application of these mechanisms.

Under the Land Acquisition Act, the government has the right to acquire any private lands as determined necessary for public purposes with compensation. This includes lands for public services such as roads. Under this act, Brunei has two forms of compensation: cash or non-financial which is in the form of land exchange. The use of land exchange as a form of compensation can be applied when the land area affected by acquisition is large. However, the use of acquisition is often the least popular option as it requires compensation funds from the government and also the relocation of residents in some circumstances. In addition, the use of acquisition can only be carried out whereby public purpose can be justified such as the construction of the main road.

The second mechanism is Land Consolidation & Subdivision which is supported by the Town and Country Planning Act. Under this act, land ownership would consolidate and subdivide their lands to produce new land shape and at the same time voluntarily surrender part of their lands for access when necessary. However, the new land shape would be within the original lot boundary and surrendering of land can only take place when owners decide to subdivide or develop their land. This limits the ability to improve the overall layout of an area.

The third mechanism is Readjustment/Reshaping of land. Lands that would be affected by the proposed road alignment would have their shape readjusted using the available state land to avoid the road alignment. This method would not result in any reduction of land area. However, it is by far rarely used as it depends on the availability of state land within its vicinity and also due to the absence of any existing law to support it.

The condition of the KIP area in the early 90s was not fitting to encourage developments to take place. There was an absence of infrastructure in the project area and the land allocated for construction of road was also not wide enough to cater for future traffic generation in the area. In order to open up the area for development, the re-planning of the area is necessary which involves the provision of an arterial road. Therefore, this project was undertaken with the combination of all 3 mechanisms above being utilized.

4. Outline of KIP and project stages

The KIP with a size of approximately 55 hectares is located in an area called Kiuwai located between the old capital city (Bandar Seri Begawan) and the commercial area (Gadong) (see Fig.2). Under the National Master Plan (1987), the area was zoned for residential. However, under a local plan called Gadong Planning Scheme of 1975 (revised 1987), part of the project area was seen as a potential for future commercial developments and zoned as commercial with road improvements proposed. A later review of this proposal led to the rezoning of the whole project area to commercial in the 1990s. With this new zoning, the government felt that there was a necessity to improve the area and therefore the KIP was started in 1993. The project area is divided into two work sections: Section I (25 ha) of the project was carried out between 1993-2004 and Section II (30 ha) which began in 2005 is still ongoing. Fig.2 shows the project area location and division of area in work sections. As currently only Section I of this project has been completed, the analysis undertaken by this paper will only focus on this Section I.

In general, an LR project would involve a similar flow of processes. In this paper, the stages have been simplified to four stages and named to suit the processes of this project: Initiation, Planning & Design, Negotiation and Implementation. Table I shows the chronology of the project and the findings of processes discussed below.

a) Initiation stage

The project was initiated by the Department of Town and Country Planning, a National government agency, as the implementer to ensure the implementation of its land use plans. During this stage, a committee was formed in 1993 consisting of members from different government

![Fig.1 Existing land mechanism for road development](image)
departments and a written acknowledgement from the political leaders *6) on the project initiation *7) was obtained in 1994. With this acknowledgement, the participation of the relevant departments was highly expected.

b) Planning and Design stage

Before the start of the project, the available land between the lots for construction of the arterial road was insufficient and some private land lots were also not easily accessible (Fig.3a). To cater for future traffic generation in the project area, a 30-meter wide (two-way lanes on each side) arterial loop road was needed in the area. Based on the interview *8), it was found that the implementing agency had no staff with formal training on LR and the replotting plan & infrastructure design were based on committee members’ experience in plan making and project implementation.

Planning:

Committee members had a role in discussing available policies and practices to support the project. In addition, the political leaders continued to be involved particularly in Section 1 to ensure continuous support and approving new policies. The policies *1)*2) introduced that would affect the design of project were:

- Lots to be readjusted should remain within its original vicinity.
- The shape of affected lands should be improved in order to provide optimum development potential.
- The size of readjusted lands will remain the same.

In addition, it was also decided by the committee that the landowners would undertake and fully finance the road construction. The reason being that the landowners would enjoy huge benefits from future commercial developments which are made possible due to the rezoning and provision of infrastructure. The committee also agreed that no calculation in the difference of the land value of replotted lands will be made as this is a government initiated project *8).

Design:

In order to implement the proposed road network, 17 private lots in Section I were affected. Fig.4 a) & b) show the land mechanisms that were used in the project.

1. Readjustment (Reshaping) of land (A) involved 6 private lots. As there was ample state land within the vicinity of these lots, these lots were reshaped with maintaining original land size. This reshaping allowed for the widening of the road and also to give access to lots which was originally inaccessible.

2. Acquisition and exchange of land (B) involved 8 private lots. As there was no state land available within the vicinity of these lots, these lots were acquired and relocated to the large state land found in the south-eastern part of the project. The relocated lots also maintained their original size.

3. Acquisition and cash compensation for lots (C) involved 3 lots. There was no clear mention of reasons for acquisition in earlier reports. However, referring to lot shape (Fig. 4a), the lots were already allocated for use as roads during subdivision. Based on common practice during that period, such subdivided lots for use of road would not be voluntarily surrendered but given compensation.

According to one of the interview, the implementing agency preferred to use the minimal disturbance approach to lots. This approach resulted in 24 lots in the area remaining unchanged/unaffected by the road design. Due to the policies created such as maintaining original land size, replottage has also become simpler. In KIP Section I, there was no surrendering of land for reserve land and the readjusted and relocated lots were also not required to surrender land for roads. Table 2 shows the changes in the size of public and private land before and after the project. Though the total area of private land decreased, individual size of the readjusted and relocated lots remained the same. The reshaping/relocating of lands were made possible due to the availability of state land in the area.

c) Negotiation stage

Negotiation undertaken was based on two matters: the reshaping/relocation of lands and the financing of infrastructure. The negotiation on replotting was carried out in 1994 and agreement of landowners was obtained the same year. Due to land rights of owners under the Land Act, 100% agreement from the landowners affected by the proposal are required for the project to proceed to the implementation stage.

In this stage, landowners were also required to appoint a project team leader that would act as a mediator between the government agencies and also the landowners. Two project leaders were appointed; an architect selected to develop one of the lots and the landowner of one of the biggest lots in the project, both of whom had undertaken an active role in negotiation. The negotiation for the financing of the road construction was done in 1998 and 2001, primarily by the project team leaders with the
Table 1  Summary of stages and duration in Section I and Section II of KIP

| Year       | Initial Stages | Planning & Design (P&D) | Negotiation  | Implementation |
|------------|----------------|-------------------------|--------------|----------------|
| 1987       | Local plan     |                         |              |                |
| 1993       | Committee formation & Meeting | Report completed | Ministry approval |                |
| 1994       | Discussion on policies | Infrastructure design & Replotting | Meeting and Negotiation with owners on a) reploting |                |
| SECTION I  |                |                         |              | Replotting of land & registration ** |
| 1995-1997  |                |                         |              | Road construction part I (by landowners ready to develop) |
| 1998       |                |                         |              |                |
| 1999-2000  |                |                         |              |                |
| 2001-2002  |                |                         |              |                |
| 2003-2004  |                |                         |              |                |
| 2005-2008  |                |                         |              |                |
| 2009-2011  |                |                         |              |                |
| 2011       |                |                         |              |                |
| 2012-2016  |                |                         |              |                |

Note: *Year of formation of the project team in the construction of part I road is not stated in any documents. → Process completed ← → Process ongoing ** One lot in Section I project has not been replotted as its relocation is in Section II and thus dependent on the implementation of Section II.

Fig. 3 Plan of roads and Allotment of lands (a & b shows the original and final design of Section I & II)

Fig. 4 Replotting Plan (a & b shows the mechanism used to produce the proposed road)

Table 2. Sizes of land in Section I

| Type of land | No. of lots | Original area (ha) | Final area (ha) |
|--------------|-------------|--------------------|-----------------|
| Private land*| 31          | 20.6               | 19.1            |
| State land   |             |                    |                 |
| Road         | 0.6         | 4.2                |                 |
| Other        | 3.8         | 1.7                |                 |
| Total        | 25          | 25                 |                 |

*decreased area of private land due to acquisition of some private land
implementing agency providing the necessary support.

As with other general LR project worldwide, LR needs to provide benefits to all involved stakeholders for the project to be implemented successfully. In terms of reploting, as most landowners were more interested in developing their lands instead of selling, landowners needed to see that new reploting would not affect developability of the land. Moreover, the fact that reploting does not affect the land size and no additional charges imposed for improvement / betterment of the private land were added advantages to landowners. While all landowners can gain benefit through the improved access, there were instances of owners’ reluctance to participate due to their lack of interest in developing their land soon. Therefore, efforts by the implementing agency and project leader were heightened in terms of persuasion.

d) Implementation

The final stage involved the reploting and registration of new lands and also the construction of the infrastructure. The construction of the arterial road was done in two parts, part I completed in 1998 and part II completed in 2004. No LR fund was established by the government and the construction of Section I road was financed entirely by the landowners.

As there was no surrendering of land for reserve land for sales, the contribution by landowners was in the form of cash. In Section I, the construction of part I road was financed by landowners of lots who were ready to develop their lands and this construction was completed in 1998. The second part of Section I road was completed in 2004 and was financed by the remaining owners in Section I (refer Fig. 4 & Table 1).

The overall LR process itself is not short and requires a lot of time and commitment from both the government and the private landowners. However, the completion of Section I have opened up the project area for development. At present, KIP area has become a new commercial center that has contributed to the vitality of the area.

5. Discussion

Through the review of the processes, the findings are discussed in order to answer the research questions posed earlier.

Q1. What are the features of the project as a model of LR?

The KIP displays the basic features of an LR project which are

1) Replotting which involves the reshaping and relocating of land,
2) Conducting of infrastructure concurrently,
3) Cost-sharing of infrastructure construction among landowners,
4) Formation of a committee and
5) Involvement of Landowners.

On the other hand, the project also shows some dissimilarity and thus can be said to be a special type of LR project or Quasi-Land Readjustment. Firstly, there is no contribution for reserve land and thus, no sales of land to cover the project cost. Secondly, simple reploting was used with no evaluation of land before and after project. Another uniqueness is that there was no total equity in contribution to financing road construction due to stages of implementation. In spite of these dissimilarities and the absence of a LR law and fund, the features of this project enabled it to be carried out successfully.

Q2. What conditions enabled the initiation and use of LR in the project?

The identification of the project area for commercial development under a local plan gave the project area a better political position in importance to implement this project. The government had a firm attitude on the need to carry out the project and the subsequent involvement of political leaders in declaring the project and approving policies provided additional support. The formation of a committee specifically for the project also ensured that the relevant members were allocated in the project that would remain committed and eases communication between departments.

Q3. What measures were taken that allowed both reploting of land and construction of infrastructure to be carried out in this project even without a formal LR set-up?

In most public project, improvement of road and land conditions would be undertaken independently by the different government department. However, the KIP enabled this to be done together through the formation of a committee that would be able to work together. With clear project purpose, the KIP was carried out with utilizing existing law and formation of new policies.

Administratively, in order to ensure that the necessary technical and legal knowledge are available, committee members were comprised of different government agencies that could provide comments on infrastructure and reploting design. To implement the proposed road, some lots needed to be readjusted and relocated. The new policies allowed the readjustment and relocation of lots using existing state land. Moreover, the existence of a large state land in the area resulted in no need to surrendering part of the replotted land. The reploting principles such as maintaining land size were used to make the reploting design simpler and did not require expertise skills for reploting commonly expected in an LR project.

As obtaining 100% agreement from landowners was required, the government felt that minimal disturbance to lands is necessary. Policies such as lands to be readjusted should remain within its original vicinity and maintaining original size for replotted lots were used to promote the project. Negotiations were also done in stages according to its targeted implementation. These approaches ease the negotiation between the government and landowners who were more interested in developability of their lands than increasing land value.

Landowners were also able to enjoy clear benefits from joining the project. The lots can be better served by the construction of the new arterial road compared to its original layout and some lots enjoy better development potential from the land exchange and reshaping. Moreover, landowners were not charged for the betterment of their land due to reploting and
land and cost sharing in infrastructure construction. At the same time, the due to its similarity in improving an urban area through the replotting of agency. The identified factors are summarized as in Fig. 5.

Project also showed dissimilarity in that there is no surrendering of land for reserve land for sale. The use of Quasi-Land Readjustment has nonetheless been completed and resulted in the provision of necessary infrastructure envisioned for the KIP area. The KIP project itself is unique, however, it could offer some hints to implement LR under the circumstances of absence of LR law and lack of LR experts.

Firstly, to initiate a project, the implementing agency had clear objectives for the area, strong committee and political support. This was possible for establishing special policies for the project.

Secondly, pooling of human resources with different expertise as committee members was needed for the exchange of knowledge and enabled replotting and infrastructure provision to be carried out concurrently in the project.

Thirdly, existing law was used where possible and the new special policies were created that enabled consolidation of private and state land. Due to new policy such as maintaining land size, specific LR knowledge and skill was not needed for evaluation of land and replotting.

Finally, the replotting mechanism used was simple and easy to understand for landowners. Moreover, the final result of the project provided landowners with clear benefit.

Having a specific law would be the ideal condition to carry out LR, however, establishing such formal LR institutional framework would take time for developing countries. The study shows that even without specific law and funding, LR can still be implemented through certain conditions or measures. New approaches to LR need to be reviewed in SEA as opposed to a strict adherence to existing LR practice in developed countries. However, this KIP is under special conditions that may not be available in other areas, such as the availability of state land. Therefore, to apply LR in other areas would require the implementing agency to review other mechanisms such as surrendering of land whilst also ensuring landowners maintain benefits in the project.

**Notes**

1) Documents obtained:
   - *Reports*: Kiulap Improvement Plan, Lapuran cadangan sistem kiulap, Kiulap commercial area improvement plan
   - Minutes of meetings, Presentation notes, proposal plans

2) *Interview*:
   - *Staff / ex-staff of Department of Town and Country Planning, Department of Land and Municipal Board, December 2015 & May 2016
   - *Project leader in Section I and Section II, December 2015 & October 2016*

3) *Compulsory purchase approach is undertaken and prior agreement of owners is thus not necessary. Negotiation is usually based on the form of compensation only.*

4) *Land use plans in Brunei is divided into Master Plan (highest), District plan and Local plans.*

5) *LR process would generally be Declaration of project, Collection of land records, Creation of committee or associations, Preparation of Reploting Plan, Participatory input in plans and also Implementation Stage*.

6) *Political leaders refer to higher authority at the Ministry level such as Minister and Permanent Secretary. These leaders are appointed by the consent of His Majesty the King of Brunei.*

7) *As the project is conducted as a public-initiated LR project, prior consent of landowners for the project to start was not required. However, consent was required for reploting works.*

8) *In common practice, in private projects, land owners would be needed to make payment for the improvement of land based on land value increase for readjustment of land.*

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