

# Proposing of an Adaptable Land Readjustment Model for Developing of the Informal Settlements in Kabul City

Habibi Said Mustafa, Hiroko Ono

**Abstract**—Since 2006, Afghanistan is dealing with one of the most dramatic trend of urban movement in its history, cities and towns are expanding in size and number. Kabul is the capital of Afghanistan and as well as the fast-growing city in the Asia. The influx of the returnees from neighbor countries and other provinces of Afghanistan caused high rate of artificial growth which slums increased. As an unwanted consequence of this growth, today informal settlements have covered a vast portion of the city. Land Readjustment (LR) has proved to be an important tool for developing informal settlements and reorganizing urban areas but its implementation always varies from country to country and region to region within the countries. Consequently, to successfully develop the informal settlements in Kabul, we need to define an Afghan model of LR specifically for Afghanistan which needs to incorporate all those factors related to the socio-economic condition of the country. For this purpose, a part of the old city of Kabul has selected as a study area which is located near the Central Business District (CBD). After the further analysis and incorporating all needed factors, the result shows a positive potential for the implementation of an adaptable Land Readjustment model for Kabul city which is more sustainable and socio-economically friendly. It will enhance quality of life and provide better urban services for the residents. Moreover, it will set a vision and criteria by which sustainable developments shall proceed in other similar informal settlements of Kabul.

**Keywords**—Adaptation, informal settlements, Kabul, land readjustment, preservation.

## I. INTRODUCTION

THE emergence of informal settlements in Kabul has been greatly accelerated by social and political disruptions in the country with continued overwhelming migration from rural areas to the city in search of employment and other economic opportunities and internally displaced persons (IDP) and afghan refugees who left to neighboring countries during the conflict years.

Today, informal settlements represent about more than 69% of all residential areas in Kabul and about 82% of residents are living there [1], the residents are facing with lots of problems such as shortage of public facilities, lack of open space, poor infrastructure and solid waste management system. Basically,

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informal settlements are classified into four categories in Kabul: I) Houses which are built on private lands, II) Squatter settlements on public land, III) Settlements on the grabbed lands, IV) Land owners with the vague land title deed [2].

The area which have chosen for this research belongs to informal settlement type I, this type of settlements have covered a vast portion of the dwellings in Kabul city. According to the land law, private land means a land which the ownership is legally proven. These residents are not legal owners in a strict sense; they have acquired their ownership for their land through purchase from customary or traditional landowners. Their customary land deeds are usually counter-signed by the *wakil* or community chief of the Gozar.

## LOCATION:

The study area is located near the Central Business District (CBD) with an area of 11.6ha. Based on the market and land valuation system, lands which are located at the vicinity of the CBD are considering high price lands. Despite of being closed to the CBD unfortunately still there exist lots of problems in term of urban planning and design such as lack of open space, poor infrastructure and vulnerable houses which all these have affected the land value and environmental degradation in the area.

## II. METHODOLOGY

For the purpose of better analysis and implementation of an adaptable land readjustment module, a part of the old city of Kabul including “Char-Chata-Bazar” which is one of the most historical places of the city, has selected as the study area.

The methodology which has conducted in this research is consisting of the literature review, data collection and spatial analysis. In the literature review, some key publications such as (Journal articles, books, public policies and governmental reports related to the land readjustment and informal settlements development have been reviewed and data’s regarding the Aerial photo (Imagery), land valuation, existing land uses, public facilities and some other information related to the study area were obtained from relevant institutions and agencies such as Ministry of Urban Development and Housing (MUDH), Capital Region Independent Development Authority (CRIDA) and Aga Khan Trust for Culture (AKTC).

All data’s have been sorted and analyzed through different software’s like Geographical Information System (GIS) &

AutoCAD, and finally after preceding the spatial analysis, the result showed a sustainable model for development of the area.

### III. DATA ANALYSIS

All information related to the area has been sorted and the raw data's were inserted in (GIS) software for the purpose of further analysis and land use digitization of the area. Land uses like residential, commercial, public facilities, infrastructures and vacant plots within the area were digitized due to determine and clarify the land size area, existing radius of the accessibilities, shortage of the public facilities and other land use specifications.

According to the existing land use of the site, most of the places have been covered by the historical buildings; there were five mosques, two pilgrimages, one historical public bath and a famous historical bazar, which based on the cultural and historical value they need to be preserved and upgrade in the new plan.

Public facilities are an essential component of a livable community, these facilities can provide essential services such as education, health, public safety and as well as opportunities for community involvement and enrichment; the analysis which was done however showed an existing need for some additional facilities and as well as the need for the elimination of a number of facilities such as mosques which were placed on the site regardless of the urban planning principles and resident's need.

Moreover, some of these facilities have built on irregular lot shapes which have the problem of functionality and have caused so many dead-end roads on the site. Fig. 1 describes about the existing land uses of the site.

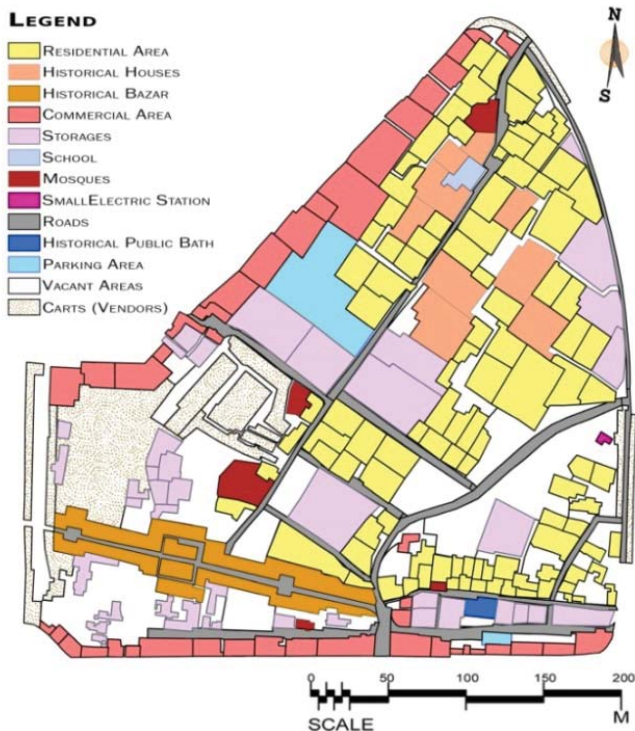


Fig. 1 Existing land use of the site

Table I shows information regarding the area and percentages of the existing land use.

TABLE I  
 EXISTING LAND USE SPECIFICATION OF THE AREA

| Existing Land Uses of the Area (Before LR) |                        |                        |                |
|--|------------------------|------------------------|----------------|
| No   | Land Uses              | Area (m <sup>2</sup> ) | Percentage (%) |
| 1  | Residential Area       | 26771.77               | 23.65          |
| 2  | Historical Houses      | 6033.10                | 5.33           |
| 3  | Historical Bazar       | 4566.00                | 4.03           |
| 4  | Commercial Area        | 11509.14               | 10.17          |
| 5  | Storages               | 14794.30               | 13.07          |
| 6  | Historical Public Bath | 246.78                 | 0.22           |
| 7  | Car Parking            | 2926.83                | 2.59           |
| 8  | School                 | 325.89                 | 0.29           |
| 9  | Mosques                | 1402.89                | 1.24           |
| 10   | Electric Station       | 48.57                  | 0.04           |
| 11   | Roads                  | 18341.95               | 16.20          |
| 12   | Vacant Places          | 15637.65               | 13.81          |
| 13   | Carts (Vendors)        | 10617.26               | 9.38           |
| <b>Site Area</b>                           |                        | <b>113197.20</b>       | <b>100.00</b>  |

Furthermore, lack of some public facilities such as health center, park and open space which can play a crucial role in community's health and development, are another big problem that the residents are suffering from. Fig. 2 indicates the existing public facilities of the area.

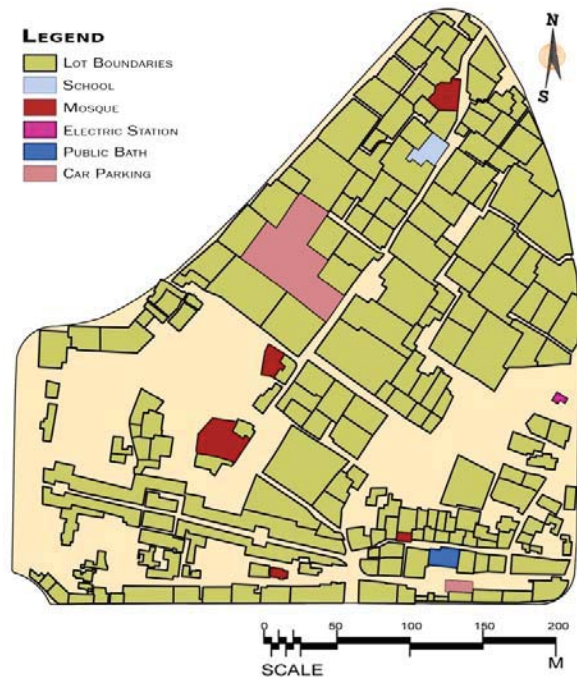


Fig. 2 Existed public facilities of the area

A comprehensive study under the SWOT analysis on the existing land uses of the area has undertaken due to identify the internal strengths and weaknesses, as well as its external opportunities and threats. The summary of this analysis has presented in Table II.

#### IV. CONCEPT DEVELOPMENT PLAN

As informal settlements have covered about 69% of Kabul and the residents are suffering from a very bad condition and low quality of life; Land Readjustment (LR) has proved to be an important tool for developing informal areas. It is identified as a potentially very useful method for developing countries [3]. The landowners collectively leave land for streets and other public places and build the required infrastructure wholly or partly [4].

Nagamin points out that the use of LR could be particularly effective in Asian countries where there is a need for clarification of ambiguous and complex land tenure rights [3]. As mentioned at the beginning that the practice of LR varies in each region, to successfully answer the needs of Afghan people we need to define an Afghan-model of LR which should incorporate all those factors related to the socio-economic condition of the country. This model will enhance quality of life and provide better infrastructure for the residents. Moreover, in this project based on the financing and technical needs, a part of the area has proposed to be developed by Urban Renewal (UR) method and the landowners who have affected by the project they should be given new apartments inside the area based on the value, location, size and legal description of their previous lot.

TABLE II  
SWOT ANALYSIS OF THE STUDY AREA

| Strengths   | Weakness  |
|---|---|
| Close to the Central Business District (CBD).   | Lack of sewerage and drainage system.   |
| High price lots   | Weak structure and vulnerable housings.   |
|   | Lack of recreational spaces such as parks and open spaces.  |
|   | Lack of medical health services.  |
|   | No proper water supply system.  |
|   | High level of pollution and no proper solid waste management system.  |
|   | Change in the land use regardless of taking into consideration the master plan                              |
|   | Unpaved roads   |
| Opportunities   | Threats   |
| Possibilities for the application of Land Readjustment (LR) method.   | Losing the character and real culture of the area   |
| People's participation in sharing of the land and contribution to the project.  | Increasing of the pollution and lack of green areas are considering a big threat for the resident's health. |
| Reconstruction of the historical bazar.   | High chance of collapse for vulnerable buildings.   |
| Generating job opportunities through making available the platform for the private sector to invest and take part in development. |   |

#### V. THE FINANCING AND MANAGEMENT OF THE PROJECT

Slum development requires enough budget and strong financial support to start, it is further experienced that lack of sufficient funds limited the success of many urban regeneration and slum clearance projects in developing countries [5]. Afghanistan is facing with economic crises due to some constraints in respect to the developmental budget, despite of the significant improvements in the economy of Afghanistan in

last decades but still it remains one of the poor and least developed countries of the world. The core national budget which has adopted by the government of Afghanistan for the year 2018 has estimated around \$5.5 billion which about \$1.6 billion of that has allocated for the development budget [6] but unfortunately due to the increase in the number of informal settlements, this much budget does not suffice for developing of the entire informal areas and infrastructural projects in Afghanistan. Figs. 3 and 4 respectively shows the national budget and gross domestic product (GDP) of Afghanistan.

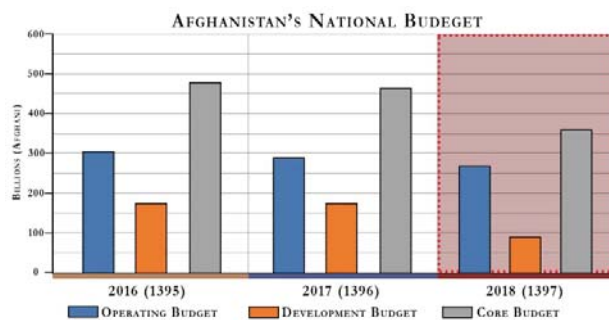


Fig. 3 Afghanistan's National Budget (2016-2018)

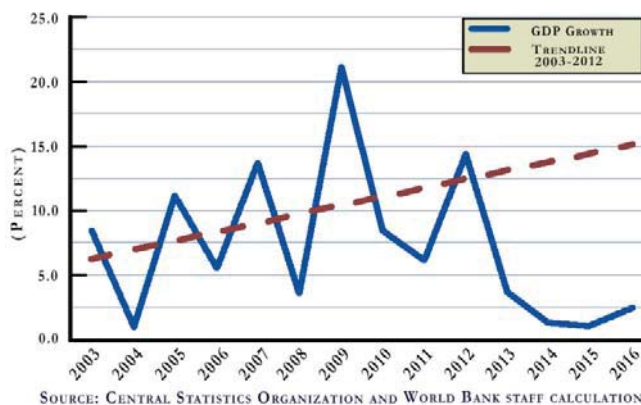


Fig. 4 Real Gross Domestic Product (GDP) growth, 2003-2016

Due to the weak national budget & low income of people and as well as existence of many historical buildings on the site, we endeavored to preserve majority of the houses in the plan in order to minimize the compensation cost.

The main financial concept which has conducted in this research is based on the engagement of private sector to the project through different Public-Private Partnership (PPP) model and people's participation in the readjustment of their settlements which means people will contribute a part of their land for the purpose of providing the required infrastructure & public facilities and a minimum reserve land of 6.7% has taken into consideration to cover the project cost.

A part of the area based on the technical and financial need of the project has proposed to be developed by private sector. The agreement can be done in the form of PPP models which will benefit all involved parties. Moreover, it will attract private capital investment and generate job opportunities through



making available the platform for the private sector to take part in the development of the country.

Public private partnership (PPP) has become a popular tool for funding new infrastructure projects around the world [7]. Through the international experiences which took place in different developing countries under the slum development and urban renewal projects, we proposed that a part of the project should be developed based on urban renewal concept with the funding of private developers.

## VI. WHAT IS PUBLIC-PRIVATE PARTNERSHIP (PPP)?

Public-Private Partnership is an agreement between the government and private sector in the context of infrastructural development and provision of public services [8]. Usually, lack of national budget has been the main reason for involving the PPP models in the projects [9]. The concept of partnerships originates in the idea that government (alone) fails to deliver collective goods such as sustainable development and that there is a need to look for support from other sectors of society. Through a partnering process it is assumed that the public and private sectors can benefit by combining their knowhow and expertise but also finances and other resources to deliver collective goods in a more efficient way. The public partners in a PPP model are governmental organizations such as ministries, municipalities and so on. The private partners can be national or international investors or entrepreneurs [8].

Increasingly, PPPs may also include nongovernment organizations (NGOs) and/or community-based organizations (CBOs) who represent stakeholders directly affected by the project. The private sector's responsibility in a PPP project is to use from its technical or financial expertise based on the contract terms. To sum up, PPP has proved a potentially positive method in providing public services and developing of the infrastructural projects. The influence of carrying out PPP work is positive as it helps in growth and progress of the society in particular and nation in general [10].

Sectors in which PPPs have been completed worldwide include power generation and distribution, water supply, sanitation, public facilities, housing and so on.

## VII. DEVELOPMENT PLAN

A detailed land use plan has prepared under the frame work of development plan incorporating all required public facilities and land uses based on the urban planning principles and existing physical pattern of the area. The concept which has conducted in this project is based on Afghan LR model, it has mainly focused on preservation of historical and religious sites, using from the local construction material, minimization of the contribution ratio and involvement of the private sector based on the need of the project. The important features which have incorporated in this module are mentioned in bellow:

- Minimum compensation cost and contribution ratio has taken into consideration.
- Areas which had historical and cultural value, have preserved and upgraded. There were five mosques and a number of historical buildings on the site; based on the

religious and traditional belief of the people with consideration of the urban planning principles, three mosques have preserved in the new plan and the areas which was noteworthy according to their cultural & historical value have proposed to be upgraded and developed based on afghan community courtyard housing concept. The main idea behind this concept is to share one yard between many dwellers in order to strengthen the social interaction.

- Many of the world's richest countries have benefited greatly from minerals extraction in developing of the infrastructures [11]. Afghanistan is a mountainous country and as well as rich in having stones, therefore for developing of the new infrastructures like road and pavements we proposed to use from the existed and local construction material such as stone. It is a labor-intensive construction material which can generate lots of job opportunities. Moreover, it is much sustainable and strong in terms of durability.
- This module has the potential of private sector's involvement in developing of the mid-rise residential apartments through different PPP models.
- Cultural heritages have a significant role on the socio-economic development and identity of a country. There is a special historical market by the name of "Char-Chata Bazar" on the site which was built in 17th century and it was a tourist attraction area but unfortunately was destroyed during the war; therefore, we preserved it in the new plan and proposed a rehabilitation plan based on its previous character, form and architectural style. Fig. 5 shows the proposed development plan for the study area after adapting the LR model.

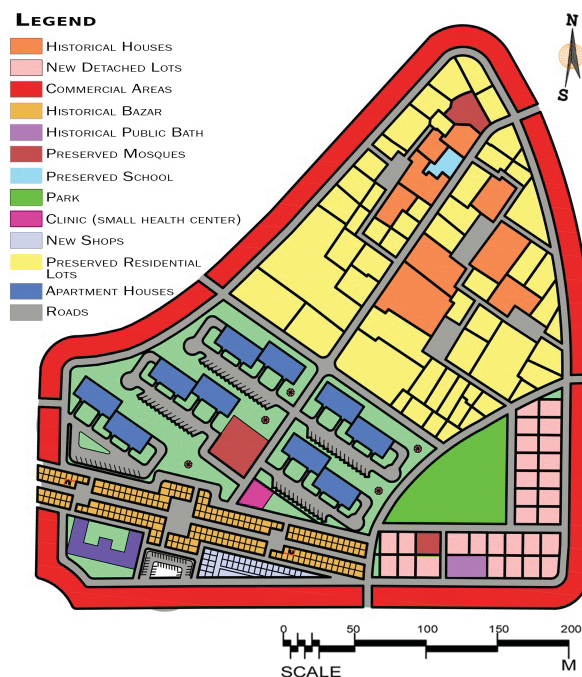


Fig. 5 Proposed development plan after adaptation of LR

After proceeding and adapting the LR method based on the socio-economic and cultural condition of the country, a minimum reserve land of 6.7% and contribution rate of 17% has taken into consideration. The total project cost and contribution ratio are respectively presented in Tables III and IV.

TABLE III  
TOTAL PROJECT COST CALCULATION

| Total Project Cost Calculation    |                  |                                      |                       |                |
|-----------------------------------|------------------|--------------------------------------|-----------------------|----------------|
| No                                | Land Uses        | Compensation & Destruction Cost (\$) | Development Cost (\$) | Sub Total (\$) |
| 1                                 | Roads            | 13980                                | 1176530.2             | 1190510.2      |
| 2                                 | Houses           | 829798.11                            | 0                     | 829798.11      |
| 3                                 | Historical Bazar | 109596                               | 2060588.43            | 2170184.43     |
| 4                                 | Clinic           | 0                                    | 86825                 | 86825          |
| 5                                 | Park             | 0                                    | 59817.6               | 59817.6        |
| 6                                 | New Shops        | 0                                    | 218516.2              | 218516.2       |
| <b>Grand Total = 4555651.5 \$</b> |                  |                                      |                       |                |

TABLE IV  
PROJECT COST CALCULATION AND CONTRIBUTION RATIO

| Contribution Rate Calculation          |                                       |                            |                |                             |                |                                   |                      |
|--|---------------------------------------|----------------------------|----------------|-----------------------------|----------------|-----------------------------------|----------------------|
| Land Value Before LR \$/m <sup>2</sup> | Land Value After LR \$/m <sup>2</sup> | Public Land m <sup>2</sup> | Reserve Land % | Reserve Land m <sup>2</sup> | Reserve Land % | Total Contribution m <sup>2</sup> | Total Contribution % |
| 400                                    | 600                                   | 11657                      | 10.3           | 7592.8                      | 6.7            | 19249.8                           | 17.0                 |

Table V illustrates information regarding the specifications and percentages of the proposed land uses after the readjustment process.

TABLE V  
LAND USE SPECIFICATIONS OF THE PROPOSED DEVELOPMENT PLAN

| Land Uses After the Land Readjustment (LR) |                                 |                        |                |
|--|---------------------------------|------------------------|----------------|
| No   | Land Uses                       | Area (m <sup>2</sup> ) | Percentage (%) |
| 1  | Preserved Residential Lots      | 24083.09               | 21.28          |
| 2  | Historical Houses               | 6348.20                | 5.61           |
| 3  | New Detached Houses             | 6069.04                | 5.36           |
| 4  | Mid-Rise Apartments             | 21572.56               | 19.06          |
| 5  | Commercial Areas                | 18764.85               | 16.58          |
| 6  | Historical Bazar                | 4661.96                | 4.12           |
| 7  | Historical Public Bath          | 457.50                 | 0.40           |
| 8  | Preserved Mosques               | 1799.09                | 1.59           |
| 9  | Preserved School                | 324.69                 | 0.29           |
| 10   | Proposed Block Park             | 3987.84                | 3.52           |
| 11   | Proposed Clinic                 | 594.77                 | 0.53           |
| 12   | Proposed Traditional Restaurant | 2503.49                | 2.21           |
| 13   | New Shops                       | 988.76                 | 0.87           |
| 14   | Roads                           | 21366.04               | 18.88          |
| <b>Site Area</b>                           |                                 | <b>113197.20</b>       | <b>100.00</b>  |

## VIII. DISCUSSION

At the context of Afghanistan, where most lands have been developed informally there is a series need for an orderly land reformation process [12]. The process should have the flexibility to solve both current and future problems of informal and formal settlements. The participation and contribution of the communities are key factors in overcoming the problem.

Currently according to the Ministry of Justice and Legislation, Kabul Municipality (KM) has the power of an eminent domain and can expropriate private land for the purpose of road widening and public services [13]. In some projects, the scheme rather than solving the problem, compounded them to a worse condition, the exercise engendered in breaking up the social networks, damaging people's income and caused high transportation cost for the dwellers after the project, therefore such projects usually faced strong challenges and public's resistance.

In Afghanistan, a major reason as to why many projects have not been effective in achieving certain objectives in the past is the result of local people were not being involved in the project.

Land Readjustment method will give the opportunity for the people to take part in the development process. It will also promote self-awareness and confidence, making people examine their problems and to think positively about the solutions. Moreover, it is a cheaper and more efficient method than collecting the land under a single ownership; it also increases the possibility of a fairer allocation of development benefits.

Each country relies on their own socio-economic and cultural condition, the method of Land Readjustment has practiced in different ways in the world; in some places it was failed but it has considered a well method for developing of the informal settlements. Consequently, to successfully solve the problem of informal settlements in Afghanistan, we need to define an Afghan-model of LR based on the economic, cultural, religious and environmental needs of the people and country.

## IX. CONCLUSION

Implementation of the urban planning methods depends on the socio-economic and cultural conditions of each country. Land Readjustment has proved a well method for the development of informal settlements; it is a land development technique used in many countries around the world, in essence it is a method whereby an irregular pattern of land is rearranged into regular plots and equipped with basic urban infrastructure such as roads and drains. A percentage of each landowners holding is contributed to provide land for roads and park and for some plots to sell to pay the costs of the project [3].

Basically, the attractiveness of LR for landowners is based on the fact that substantial increases in the value of land can be achieved through the process so that the value of the individual land holdings can be greatly increased even though the remaining area is smaller. Due to make it feasible and applicable in Afghanistan we need to define an Afghan model of LR which should meet the socio-economic and cultural needs of the people. The proposed model has largely focused on conservation and preservation of the existed historical, cultural and religious buildings, decreasing the compensation & contribution ratio and enhancing quality of life for the residents.

The result and analysis of the project shows a positive potential for the implementation of this model, it proved more sustainable and economically friendly. Moreover, this model can attract the private capital investment and minimize the

contribution ratio for the landowners. After the implementation of this model the result would be a better land use pattern, nice landscape, clean environment and proper access to any part of the area. Furthermore, it will set a vision and criteria by which sustainable development shall proceed in other similar informal settlements of Kabul.

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