



# A critical review of land pooling technique for sustainable urban renewal in developing countries

Babatunde Femi Akinyode

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**Abstract** Land pooling as a technique for urban renewal is becoming fast growing technique worldwide to achieve effective, unbiased and sustainable urban development. Continues opposition over conventional techniques of urban renewal led to the evolution of land pooling in many countries. In Nigeria, Lagos state has just adopted land pooling technique for urban renewal exercise as pilot project. This study aimed at reviewing the technique to identify and analyse its potentials and shortcomings for sustainable urban renewal project. The study reviewed relevant literatures on the subject matter and adopted content analysis technique for the analysis. Although, the result revealed that land pooling technique has several potentials, there are also shortcomings especially in the society with diversities of cultural, social and economic differences. To overcome these shortcomings, workable and future course of action are suggested to pursue a better design and implementation of land pooling technique to achieve its overall proficiency.

**Keywords** Land pooling · Land readjustment · Land modification · Redevelopment · Sustainable urban renewal

## Introduction

Globally, many countries are experiencing rapid urbanisation fuelled by industrialisation and massive rural–urban migration (Barrou et al., 2017; Njoku & Okoro, 2014; Waisman et al., 2014; Yuan et al., 2017). Urban areas in these countries are developing rapidly, necessitating extensive encroachment on the countryside to provide housing and other ancillary facilities, amenities and services for the teeming population. The fast rate of urbanisation in many of the countries brought in challenges of competition for limited land resources for different types of urban development, problem of suboptimal use of land or low land-use efficiency within the urban centres (Yuan et al., 2017). Besides, problems emanated from unprecedented rate of urbanisation include severe deterioration of built environment. This unpleasant situation has put indescribable trauma on the existing housing stock thereby resulted to congestion, decay of urban infrastructures and environmental pollution. Cities in developing countries are consequently characterised by acute shortage of decent housing units (Dung-Gwom, 2007; Njoku & Okoro, 2014; Yuan

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B. F. Akinyode (✉)  
Department of Urban and Regional Planning, Faculty of Environmental Sciences, Ladoke Akintola University of Technology, P.M.B.4000, Ogbomoso 210214, Oyo state, Nigeria  
e-mail: bfakinyode@lautech.edu.ng

et al., 2017). The aftermath of this include overcrowding, high rents, poor urban living conditions, disorderliness, economically under-productive, institutionally insecure and incompatible as well as low infrastructure services and indeed high crime rates (Ajanlekoko, 2001; Yuan et al., 2017). Urban renewal as a deliberate effort to plan and adjust the existing environment to present and future requirements for urban living is seen as a strategy to alleviate the situation (Grebler, 1965). This is the practice of making the ancient and obsolescent parts of urban areas to be revitalized. This aimed at enhancing the efficiency of land-use, increase in land value and better quality of living environment (Kochan, 2015). Although, urban renewal project plays a vital role in promoting economic growth and prosperity, this largely depends on the strategy adopted and the provision of infrastructures. The implementation of urban renewal project must not only meet the needs of the present situation of the urban area. It must also make provision for the needs of the future. This is to enhance a sustainable urban renewal project.

Several approaches, models and techniques based on different social and economic costs to solve the problems of slums and blighted areas have been adopted by several countries. Various strategies for urban renewal are with different social and economic costs attached to each strategy (Dung-Gwom, 2007). Majority of these strategies such as comprehensive urban renewal or total slum clearance, rehabilitation or gradual slum improvement, conservation, piecemeal cellular renewal, enveloping schemes and so on could not be successful due to the opposition by the slums dwellers. The strong criticisms of the total slum clearance policies in urban renewal led to land pooling strategy to resolve the urban blighted problems. Different scholars used different terms for land pooling strategy (Abd-Elkawy, 2018; Agrawal, 1999; Banon & Jehling, 2020; Barrou et al., 2017; Connellan, 2002; Dung-Gwom, 2007; Home, 2007; Louwsma et al., 2017; Mahadevia & Joshi, 2009; Tomeldan et al., 2014; Verma & Banerji, 2015; Waisman et al., 2014; Yuan et al., 2017). According to Verma and Banerji (2015), land pooling is also termed as land consolidation and land-reconstitution while Yuan et al. (2017) termed it as land readjustment and land consolidation whereas Home (2007) termed land pooling as land consolidation, land readjustment, replotting, land reassembly, parcellation, repartition,

kukaku seiri (or KS in Japan) and Umlegung (in Germany). The study of Abd-Elkawy (2018) referred to land pooling as land readjustment, land re-dividing, land modification, land consolidation and land plot boundary modification whereas Mahadevia and Joshi (2009) and Banon and Jehling (2020) called it land readjustment. Agrawal (1999), Connellan (2002) and Louwsma et al. (2017) named land pooling as land readjustment and land consolidation while Tomeldan et al. (2014) in their study termed land pooling as shared growth whereas others scholars only mentioned it as land pooling (Barrou et al., 2017; Dung-Gwom, 2007; Waisman et al., 2014).

Land Pooling is a legal instrument and land management technique to modify, improve and revitalize the chaotic growth with provision of necessary infrastructures and amenities to enhance better land-use planning (Yuan et al., 2017). Although, several scholars have discussed the usage of this technique for different urban development in several countries, the critical review of the technique is yet to be made in the existing literature to identify and analyse the potentials and shortcomings of the technique for sustainable urban renewal project. This article tries to bridge this gap and add to the existing literature. The author hopes that this article will also give some intuitive inferences and provides planners, administrators, urban managers and academicians valuable insights in their pursuit to espouse and employ land pooling technique as a strategy for urban renewal project through which urban renewal policy becomes agreeable and sustainable for developing countries.

The next section deals with the review of literature before presentation of the “[Methodology](#)” section and potentials of land pooling technique in urban renewal project in “[The potentials of land pooling technique in urban renewal project](#)” section. The shortcomings of land pooling technique in urban renewal project are presented and discussed in “[The shortcomings of land pooling technique in urban renewal project](#)” section before conclusion was drawn in “[Conclusion](#)” section to give policy implications and probable solutions to the diverse shortcomings of land pooling technique in urban renewal project.

## Literature review

Urban cities in developing countries are witnessing rapid growth in populations and socio-economic transformations at an alarming rate (UN-Habitat, 2003, 2005, 2012; UNCHS, 2001). Sub-Saharan Africa has the highest rates of urban growth of 4.58% followed by South-Eastern Asia of 3.82% while Eastern Asia and Western Asia have the urban growth rate of 3.39% and 2.89% respectively whereas cities within the developed world are growing at an average rate of 0.75% per year (UN-Habitat, 2007, 2011). The largest growing cities in the world are within the developing regions. Dung-Gwom (2007) described the problems of rapid urban growth to include problems of urban planning and management; increasing urban poverty; slums emerging as the dominant and distinct type of settlements of cities and poor living conditions without access to basic services. For the purpose of solving the problem of slum in many of the urban areas, urban renewal project was effected through the strategy of comprehensive slum clearance or total redevelopment. Urban renewal is the process of revitalising and rejuvenating the ruined fragments, old and obsolescent parts of urban settlement. This aimed at preventing land values from depreciation in order to enhance better environment that is conducive for living, reducing crime rates and motivating economic activities. To achieve this, demolition of housing units has to be involved to provide for insufficient infrastructural facilities and road network within the blighted areas. Ibem et al. (2013) saw urban renewal as an effective means to combat the challenges of urban decay, infrastructure and housing shortage as well as for reviving declining social and economic status of urban areas across the globe. The impacts of physical deterioration, infrastructure obsolescence, poor housing conditions and disaster vulnerability on public health would be reduced in urban centres.

It also aimed at improving the residents' welfare, standard of living and living conditions of the populace. It deals with significant devastation of landed properties, relocation of residents and provision of infrastructures for the improvement of the environment. Urban renewal through slum upgrading and redevelopment of basic social and economic infrastructure generates productive economic and efficient environment. The upgrading of slums and

provision of housing are achieved to enhance better living environment for the residents. There are numerous techniques for urban renewal and these include comprehensive urban renewal technique or slum clearance or redevelopment, rehabilitation or slum improvement and conservation. Each of these techniques has their different social and economic implication. Redevelopment deals with demolition of blighted areas to re-plan the entire area of widespread obsolescence and very poor housing community to achieve environmental and housing improvement. The problem with this technique is resistance from the slums dwellers. The ownership system of the landed property may be the root cause of this dilemma. Rehabilitation or slum upgrading technique improve on the housing and environmental conditions over time. Conservation technique necessitates areas to be designated as conservation areas with planning control measures on housing and land use changes. Such designated areas are of historic and architectural design importance. Each of these urban renewal techniques has its own shortcoming that prevent urban renewal in developing countries to be sustainable. This brought in the introduction of land pooling technique (Li & Li, 2007).

The concept of Land pooling techniques in land management was first introduced by President George Washington in 1791 and later coded in laws for regrouping rural land in Germany in 1902 (Li & Li, 2007; Yuan et al., 2017). Japan and other countries of the Far East later adopted the concept (Home, 2007). The idea of land pooling was to solve the problems emanated from the conventional urban renewal strategy (Li & Li, 2007). Yuan et al. (2017) saw land pooling as a land management technique and legal instrument instituted to adjust plot boundaries in urban, sub-urban or rural areas mainly for the provision of infrastructures and public amenities to enhance better land-use planning. The technique entails pooling together a group of land that is established on reasonable, unbiased, equitable, rightful and efficient land development to attain planned and operational urban growth through the cooperation and participation of the community members. Land pooling comes to operation in a community after people have already erected their houses and occupied them which consequently increased land speculation and led to the increase in land's value within the neighbourhood (Banon & Jehling, 2020). The government or planning

agent has to assemble and merge the entire land parcel that landowners within the project's community contributed for the purpose of the project. This focuses on the re-organisation of the land to promote accessibility to different land uses and provision of infrastructural facilities and amenities. Banon and Jehling (2020) adopted the land transaction and readjustment as legal instrument for developing new urban land or reorganising existing urban settlements. This involves mainly the reassembling of already built-up land and subdividing it without causing major damage to prevailing structures. The process led a public or private body to develop its own already titled formal land before dividing it into plots housing development. This aimed at facilitating development by combining, assembling and re-parcelling land for better planning, cost recovery on supplied infrastructures and provision of betterment amongst landowners and the development agency. It is substitute and participatory technique to urban expansion. The individual land owners may be displaced temporarily from the community during the process of land pooling exercise while the reconstituted land parcels are returned to them after the exercise (Yuan et al., 2017).

The advancement of the technique got to several countries in the world and these include France, Netherlands, Finland, Turkey, Australia, India, Indonesia, South Korea, Taiwan, Lebanon and Israel. In Japan, the technique was adopted mainly to consolidate agricultural land and improve irrigation systems and extensively used thereafter for rebuilding urban areas destroyed by natural disasters and warfare (Sorensen, 2000). In Gujarat state of India, the practice of urban planning was through land pooling and readjustment called Town Planning (TP) mechanism. With this mechanism, certain land parcels are declared as reserved for the urban poor (Mahadevia & Joshi, 2009). Landowners pooled their land together for development and got part of the land as compensation that may not necessarily be the same land but equivalent to the original land value followed the development of infrastructure. As land acquisition mechanism in urban planning faces strong resistance by original land owners and leads to serious legal challenges and delays in implementation, land pooling mechanism of town planning schemes (TPS) are prepared in India and China. By this mechanism, land is not acquired by the government agency. This entails the land to be reshaped, readjusted and returned to the

original owner. The land owners are organised as the committee and empowered to initiate, plan and execute renewal projects on their own. The affected landowners participate in the land pooling process by making their land parcels available to be pooled together. Land pooling mechanism reduces the land area available to land owner but increases the overall value of the land through the provision of common infrastructures and facilities such as roads, gardens, play grounds and so on. Land pooling policy in Delhi brought the private sector as a main housing developer of the city through which the master plan was executed and villages at the periphery of Delhi were developed (Abouelmagd, 2018). However, the developers took the advantage over the farmers and bought lands from them. This resulted to increase in land prices thereby promoting vertical residential growth.

The importance of investing on infrastructure projects cannot be over emphasised. The smooth functioning of national economy depends on the provision of infrastructure (Kumara, 2008). However, the long gestation periods of infrastructure prevents private from investing on infrastructure but left the investments to the government. Kumara (2008) presented the land pooling strategy as the speedy ways to fast track, parallel processing, overcoming the hurdles and means for implementing the provision of urban infrastructure within the framework of urban renewal projects using Mysore City as a case study. Land pooling as a strategy overcomes the obstacles of land availability for the provision of infrastructure. Zheng et al. (2014) saw the impossibility to regenerate or redevelop urban area if land owners within the community are not included in the exercise. As a result, land owners inclusion in regenerating or redeveloping urban area is of importance in achieving sustainable urban renewal project.

## Methodology

Appropriate published researched journal articles, books, conference proceedings, unpublished thesis and monographs were reviewed for this study. This is mainly to examine and synthesise fundamental issue with the aim of detecting subjects involving land pooling. The pertinent literature reviews focused on the theme through Search Engines like Google scholar, Library of congress, LISTA (EBSCO) and

Web of Science core collection (Thompson Reuters). The winnowing of the majority of the consulted literature through these search engines led to the use of only forty-four articles that were quoted in this study. The selected forty-four articles were on the basis of their subjects' bearing to the topic under discussion in this paper. The designated forty-four articles cut across different countries within four different continents such as Africa, Asia, Europe and America. These countries include Cairo in Egypt with one article, India with three articles, Indonesia with one articles, Nigeria with three articles, Algeria with one article and China with five articles. Others are one article from Netherlands, one article from European Countries, one article from Tokyo in Japan, one article from Philippines, two articles from Kenya, one article from Zambia and one article from Brazil in South America.

However, articles that were irrelevant to the topic were removed. The content analysis techniques was employed for analysis and discussion. This involved evaluation, scanning, skimming, scrutinising and deducing the documents that were indispensable in the materials to be analysed. This study critically identifies and analyses the potentials and shortcomings of the land pooling techniques for sustainable urban renewal in developing countries. This aimed at unfolding the potentials and effectiveness of land pooling over the conventional strategies of urban renewal to have better understanding of how urban renewal can be better implemented in developing countries. The paper also suggests workable and future course of action to pursue a better design and implementation of land pooling technique to achieve overall proficiency of the technique in the future. Besides, this paper will complement the existing literature in land pooling strategy of urban renewal and urban renewal for better development.

In attempt to exhibit the subject matters, the next section explains the potentials of land pooling technique for sustainable urban renewal in developing countries. This is followed by the shortcomings of land pooling technique in urban renewal project with aim of suggesting workable ways of overcoming the problems that may be emanated from the use of pooling techniques for sustainable urban renewal in developing countries.

## **The potentials of land pooling technique in urban renewal project**

Urban Renewal plays incredible role to rehabilitate and improve slum as well as providing affordable housing and basic infrastructures and services to the low income households within the urban centres. This brings about land development and provision of basic infrastructures in slums to achieve better environment that is conducive for living. Land pooling has several potentials and seems to be more favourable than the conventional urban renewal strategies that makes it to be adopted in majority of the countries in the world for implementing land redevelopments. Land pooling offers an attractive lawful mechanism to assemble land particularly in the absence of public funds for compulsory purchase and provision of infrastructure (Home, 2007). Although, each landowner contributing land in a land pooling project sacrifices a portion of their land, they have in return better accessibility to their land and improved amenities as betterments for the sacrifice made. Besides, there is increase in the plot ratio of the pooled land parcels (Yuan et al., 2017). The fair distribution of benefits through redevelopment amongst different involved stakeholders without displacement of the community people is of great potentials to land pooling technique. The involvement of affected landowners as stakeholders in the implementation of techniques in renewal project makes the implementation possible without generating objection or conflict from the affected owners (Agrawal, 1999; Choe, 2002; Lin & Lin, 2006). As a result, executing a project like this in developing countries would be sustainable.

The involvement of these people enable them to receive back a well-serviced land parcel after the renewal exercise. Verma and Banerji (2015) asserted that land pooling used in town development schemes through self help and public participation helped the government agencies to act as facilitator instead of developer and led to the success of the scheme. The benefits of the project can therefore be shared among the landowners, government, project agent and the redeveloper (Yuan et al., 2017). Likewise, they share the cost involved. While the affected landowners contribute their land and landed properties for the project in form of land pooling; government, project agent and the redeveloper provide funds to cover the project costs. The project costs include costs incurred

on project administration, demolition of the existing structures, planning, design and construction of new buildings, relocation of displaced residents and provision of infrastructures. The problem that may be anticipated on redevelopments can be resolved through land pooling technique. Land pooling technique in urban renewal is encouraged for the provision of housing to the urban poor.

Unlike conventional redevelopment strategy in which redevelopers pay huge amounts of money on landed properties for demolition and construction works, original homeowners and the redeveloper pooled and shared financial risks together. That is, both parties contribute to a land pooling project. While the developer makes provision for the infrastructures and technical expertise, the original homeowners pool their land together to achieve urban renewal exercise. Only the expenses to rehouse the affected residents temporarily and necessary professional fees are needed in land pooling technique during the urban renewal exercise (Yuan et al., 2017). According to Verma and Banerji (2015), fraction of plots of pooled land are contributed for public uses to finance equitable land development. Land pooling allows the finance of the project to be transferred to the participating community residents to lead and finance the project costs by themselves (Yuan et al., 2017). As a result, the government will not intervene much in the project. This implies that, the leading and financing of the project by the community residents give room for no financial resources to be offered by the government to support the project. As a result, the residents need to seek their own way to finance the land pooling project. Besides, reserved land will be sold to finance the costs of providing the public infrastructures in the project area and the temporary relocation of the landowners (Adam, 2019; Archer, 1989; Sorensen, 2000; Turk & Altes, 2010; Wihadanto et al., 2017). The problem of residents financing the land pooling project would be resolved. van der Krabben and Needham (2008) opined that land pooling allows provision costs of public infrastructure to be financed by means of value capture. The original property owners and the redeveloper contribute to a land pooling project. This allows the financial risks to be pooled and shared among the parties. Land pooling project is a self-financing project that can be used for positive implementation of land use plan, to finance basic facilities and other development costs (Acharya, 1988; Adam,

2019; Verma & Banerji, 2015). This self-financing technique would be of benefit to developing countries like Nigeria that may likely face funding difficulties in urban renewal project.

The adoption of land pooling technique can be of benefit to the government or urban renewal agent in terms of saving time and cost and at the same improve the environmental conditions of the area and the living standard of the residents within the community where the exercise takes place without displacement. As a result, sustainability of urban renewal can be achieved in developing countries. Land pooling technique is necessary in sprawling and fragmented development area that are resulted from urbanisation (Verma & Banerji, 2015). This is to assist in redeveloping and revitalising the disorganised growth with the provision of public infrastructures and public amenities. The vertical extension strategy through which the houses became two floors was adopted in Dechra while the vacant areas within the city were built (Barrou et al., 2017). This facilitated the convenience through the provision of the infrastructures and reduced the travels pattern of the inhabitants to access the infrastructures. The transformation of erratically shaped land parcels to proper plots of diverse nature is achieved to enhance better economic value. The urban morphology that is homogeneous also became a compact urban fabric, more organised and ensures primordial settlements' sustainability.

Unlike conventional urban renewal techniques, land acquisition is not snatched from landowners but the process of land pooling involves public negotiation, participation and democratic development. Banon and Jehling (2020) opined that, the practice of land pooling is not limited to technical process but also an avenue for socio-political negotiation to restructure the environment and make provision for infrastructural facilities. This encourages public participation, more democratic development and gives room for wide acceptability of the technique by the public. Yau (2010) in his study discovered that land pooling technique facilitates building up of partnership between various stakeholders in urban renewal project. According to him, homeowners have a say in the execution of project and were ready to support the application of land pooling through their active participation in urban renewal project. The provision of equitable allocation of land for educational facilities, communal space and recreational centres as well

as other infrastructural facilities in shared land are to achieve maximum efficiency of community. Accessibility to these facilities will also minimize average access time and restrict traveling expenses.

The impact of urban renewal in a community submits that the issue of sustainability is fundamental to contribute expressively to sustainable development, which is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Ibem & Azuh, 2011). The involvement of the government and residents' endorsement coupled with the financial contribution of private sector in land pooling technique informed the sustainability of urban renewal Abd-Elkawy (2018). Land pooling technique in sustainable urban renewal cannot be possible without the inclusion of the public especially the community members where the urban renewal exercise would take place (Verma & Banerji, 2015; Zheng et al., 2014). The involvement of the affected land and landed properties owners in the planning and decision making processes in Land pooling technique in urban renewal project will achieve socially sustainable outcomes (Jelili et al., 2020). Land pooling as urban renewal technique also plays a critical role to integrate physical and economic development, environmental sustainability and employment generation. It has substantial impact to ameliorate or improve poor housing conditions to enhance future residents' standard of living and the general quality of physical environment. The provision of adequate public facilities, safe and conducive environment as well as inclusion of all categories of residents regardless of their socio-economic status in the planning and execution of the projects through land pooling technique will enhance sustainability of urban renewal projects in developing countries. This implies that urban renewal exercise using land pooling technique will protect, improve and sustain the quality of life and environment to meet the present needs of this generation with the potential that cater for future generations without comprising or jeopardising the future generation needs.

The concept of Land pooling is advanced and best procedures to boost execution of infrastructural facilities delivery. Besides, the technique also reduces social tension imposed through conventional urban renewal techniques like total slum clearance and urban redevelopment. Home (2007) in his study summarised the potentials of land pooling technique to include the

rearrangement of the traditional areas for modern use, enhancing the expansion of per-urban areas that lack planning and infrastructure and redevelop buildings and ownership patterns already been disrupted through human and natural disasters. Other potentials of land pooling technique include vertical replotting of urban areas and regenerate sites where land assembly may be difficult as well as transforming obsolete subdivision into modern sites in order to protect the environment. Theoretically, Yau (2010) opined that urban renewal agents save time and money in pooling the land for urban renewal together with the use of land pooling techniques while original residents improve their living conditions without been displaced. Besides, land pooling technique hasten the process of eliminating blighted condition of the environment and provision of infrastructures within the community. The achievement of urban renewal objectives is therefore possible and made easier without unnecessary delay through the land pooling technique.

### **The shortcomings of land pooling technique in urban renewal project**

The result of the critical review of the land pooling technique of urban renewal reveals that the technique is not without shortcoming especially in the society with diversities of cultural, social and economic differences. At the earlier usage of the technique, land pooling technique is managed in a top-down mode (Cheng, 2012). The government instigated and controlled project through this process. This makes the government to become the key decision-makers and team up with private developers to implement the projects. This procedure ignores the interests of affected community members and their social well-being thereby makes the community members not to be satisfied with the exercise. Besides, the unclear and fragmented land ownership rights, land assembly are terrible and time-consuming practices (Miceli & Sirmans, 2007; van der Krabben & Needham, 2008). This makes the process to be intricate, cumbersome and takes longer time. In the process of the concerned government or renewal agent exercising its power to accelerate the process of land pooling for renewal project, it results to clashes, strains and hostilities (Cheng, 2012; Hui & Bao, 2013; Zhao, 2009). The adoption of land pooling policy in upgrading slum

areas often results to increase in land prices within the areas of jurisdiction. This is because; the land may not be given to the original land owners thereby resulting the peasants to remain poor. In view of this, Abouelmagd (2018) opined that land pooling strategy cannot be realistic in a country like Egypt where there is restriction and forbidding to change agricultural land to urban land.

Moreover, development through land pooling technique is vertical which comprises of multiple dwelling units in multi-storey structures. The joint ownership of a single multi-storey structure through which each flat owner does not have distinct ownership of landed property is practiced. Flat owners within a multi-storey structure becomes co-owners owning the rights of landed property and co-responsibility to the property. In view of this, maintenance of such property would be difficult because agreement among all co-owners has to be sought before such landed property can be maintained. To reach agreement and consent among the co-owners to maintain the landed property may takes longer period. This may be resulted from differences in their socio-economic status, taste and how to handle the maintenance. The technique is in favour of high value plots in a rising market while the low value plots will not enhance value increase (Home, 2007). As a result, underdeveloped plots owners may be more beneficial compared with built up plots owners that may be arguing about the costs of demolition and reconstruction. Besides, land pooling cannot be applied and successful without the input and willingness of the affected community members to partake in the urban renewal process.

This undesirable situation will eventually prevent sustainable urban renewal exercise where there are diversities of cultural, social and economic differences if attempt is not made to curb the obnoxious situation especially in developing countries. The technique cannot be applicable where there is strong philosophy of individual property rights of land ownership except where land ownership has become fragmented and land patterns have been disrupted by human or natural disasters. To resolve the shortcoming, the use of a self-organised land pooling model should be adopted. This is to organise and empower the people within the community where the renewal exercise takes place as committee members to initiate and plan the land pooling for urban renewal. The authority should be decentralised to enable the community members take

charge of the project. Yuan et al. (2017) saw cost recovery as one of the major challenges of the land pooling technique of urban renewal. Therefore, the importance of the affected members' inclusion as the committee members to plan the program themselves cannot be over emphasised in solving the challenge of cost recovery in land pooling technique. Inclusion of community members in the technique will enhance their financial commitment. The likelihood of marginalising community members in decision making in this kind of project will be reduced. This is because, the expectations and desires of the community members become input in urban renewal policy and enhance their commitment and trust in the project.

Land readjustment/land pooling technique according to Banon and Jehling (2020) ascribed land to dwellers already settled on the land and created problem of ethical menace where dwellers settle on free land and awaiting government-driven land readjustment and provenance. The demolition of the historical building through land pooling technique of urban renewal is another major concern. The readjustment of land and provision of infrastructural facilities within community may not take into consideration the historical structures. This however results to destruction of architectural, landscape and urban heritage. Efforts therefore need to be made to preserve and protect the built environment through conservation of architectural, landscape and urban heritage within the environment. The pulling down of earlier built houses during the process of land pooling consequently led to land scarcity and unable the public provide land for their individual household. The provision of high-rise buildings to replace the low building would be of assistance in solving the problem of land scarcity.

## Conclusion

Because of increase in the adoption of land pooling technique in urban renewal in many developing and developed countries, this study examined the potentials of the land pooling technique for sustainable urban renewal in developing countries. Many of the developing countries has been experiencing rapid rate of urbanisation as a result massive migration of the people from the rural areas to the urban centres. This has led to several urban problems. Some of these

problems include indecent environment, slum and inadequate housing as well as land-use inefficiencies. The urban challenge has resulted to the urban redevelopment to make the entire environment to be liveable and be conducive to the people within the community. However, the conventional strategies in embarking on urban renewal do not focus on the interests of the community people but their interests thereby results to conflicts. The community people are incapable to have a say in the planning and execution of the renewal projects. Non-inclusion of the community people result to loss of power and since their interests are not fully taken care of, there are challenges of conflict and resistance on the project. This situation necessitates the shift from conventional technique of redevelopment to land pooling technique.

The employment of Land pooling technique in urban renewal in developing countries serves as the best alternative in urban renewal. With this, the interests of the affected residents are observed through their inclusion in the planning and execution of the projects. The technique gives landowners the opportunity to express their opinion and participate actively in decision making. The objectives of enhancing efficiency of land-use and land value through the provision of basic infrastructural facilities and amenities without the displacement of the residents are achieved. The land pooling strategy results to socio-economic changes and the stakeholders' inclusion philosophies to stabilise the residents within the environment. The capability of the strategy to rehabilitate existing structures, reshape urban spaces and preserves the attributes of the urban morphology makes it to be considered as a good instrument for sustainable urban development.

Land pooling strategy is a process that motivates sustainability of ancient human settlements development. It makes use of urban inherited resources and links it to the present to answer the current need for the future urban growth without displacements of the residents. The application of the technique especially in peri-urban development allows planning without much pressure and gives opportunity for existing landowners to benefits in the proceeds. This enhances the environment to be more comfortable and conducive for living. However, for effective implementation of land pooling technique for sustainable urban renewal project, the importance of transparency and effective communications among landowners,

government, project agent and the redeveloper cannot be overlooked. Regular meetings among them to discuss on pertinent issues about the project will enhance mutual understanding and make affected residents to be confident in the planning and execution of the project. Effective implementation of land pooling technique will help to achieve sustainable urban renewal. It will also capture the present urban deterioration in developing countries and at the same time be sustained in the future.

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