

# Alternate Strategies for Achieving Urban Redevelopment

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**Abstract**—It is not unusual to witness buildings that are relatively young being demolished to make way for new developments. Redevelopment is one of the alternate solutions to adapting buildings and sites to new demands and economic uses. Redevelopment implies the total replacement of existing buildings whereas rehabilitation involves maintenance, repair and adaptation in order to ensure a sound structure and some functional adjustment of the building. Redevelopment therefore offers wider possible advantages in modifying land use, site coverage and density as well as introducing new building techniques and standards of construction, specification, design and layout. Urban redevelopment involves comprehensive redevelopment of numerous buildings and activities extending to large parts of an urban area.

Population growth and urban decay has led to city redevelopment projects which are undertaken through different strategies. This study would discuss alternate ways through which urban redevelopment can be achieved. A well-orchestrated urban redevelopment campaign could serve as a long term objective when focusing on the social planning strategy which focuses on the people rather than urban properties.

## 1. INTRODUCTION

Whilst the annual increase in the supply of building stock is low as a proportion of total built stock, it is nevertheless significant. Building use is varied ranging from social to commercial use. Also change of use occurs over time where social, technological and economic developments occur over time. Such change affects the requirements for built space. History indicates that, as time progresses, change occurs more rapidly. An individual building that needs to be redeveloped goes through a lot of stages of change and adaptation.

The first stage starts from the situation where the building is occupied by the use for which it was designed. Then the original use is replaced by another use representing a higher order activity, or a more intensive use in the same activity. Finally, buildings are demolished and replaced, either by a more intensive use like retailing to offices, or by a more intensive form of the existing use such as high-rise office space, business parks, shopping malls or high density residential flats. This sequence usefully describes the process of adaptation of the built environment to accommodate changing demands.

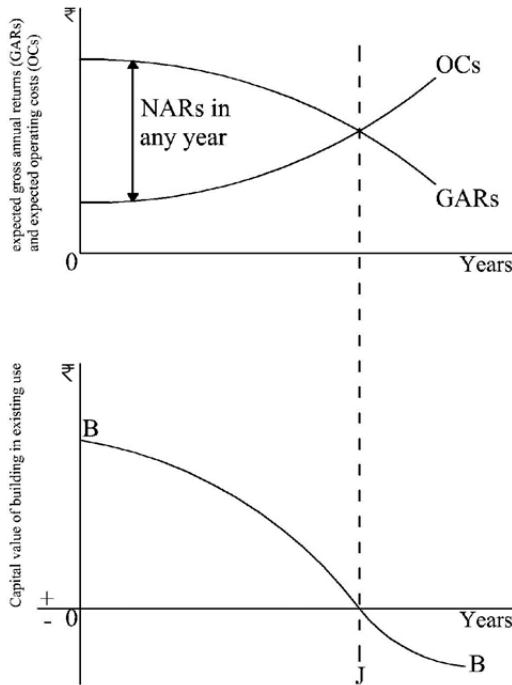
Clearance and total redevelopment is unavoidable in many areas, and in some instances positively desirable like Industrial buildings. Rehabilitation is only worthwhile if it results in attractive conditions for those who live and work in the improved area. Much of the past criticism of clearance and redevelopment is due to the inhuman scale and unsuitable character of the new development and the destruction of communities.

The rehabilitation of industrial buildings is less common because of advances in technology. To rehabilitate industrial premises leads to problems such as:

- Upgrading heating and lighting which is invariably necessary because of subsequent health and safety legislation;
- Complex structural work invariably necessary to produce clear open space which is usually preferred these days;
- Complex structural work is necessary to produce satisfactory floor loadings;
- Existing industrial premises rarely have adequate space for transport access and circulation;
- Changes in the production process that may not easily be accommodated in existing premises.

## 2. THE ECONOMICS OF REDEVELOPMENT

It has been identified over time that for redevelopment to be profitable, the value of the cleared site for the new development should be more than the value of the site and the building in its existing use. As discussed earlier, over time buildings become increasingly unsuitable for the demands placed upon them by the market. This influences the achievable rents of the buildings. The maintenance costs of these buildings also rise as they age as more expensive repairs become necessary as materials weather or decay and periodic updating like heating & ventilations become more difficult and more costly.



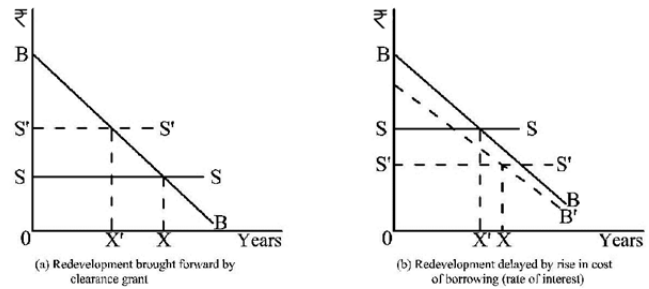
**Fig. 1: Net annual returns (NARs) and capital value of a building in current use over time (price stability assumed)**

As illustrated in Fig. 1, expected operating costs (OC) rise over time because outgoings on repair and maintenance increase over time and as a result, the gross annual returns (GARs) – based on estimates of total annual rent may eventually fall in real terms as competition with other developments increases or decreases or as the initial building becomes increasingly obsolete relative to changing user demands. It can be seen that the net annual returns (NARs) for any year, which are given by the difference between GARs and OCs for that year would eventually fall to zero after J years. This is the point where the building becomes obsolete and the maintenance costs overtake the return value given by that building in any year.

The lower diagram in Fig. 1 shows the capital value of the building – derived from future capitalized NARs – declining over time. This occurs because as we move closer to point J, there are fewer NARs remaining to be discounted to their present value. After J, capital value becomes negative, hence if redevelopment is not contemplated, the site and the building would be abandoned and left derelict at this point. Therefore, J years represents the maximum technical life of the building. [1]

Economic appraisal of the alternatives to rehabilitate or redevelop for private sector projects is a relatively straightforward comparative application of investment appraisal techniques. However, for public sector projects, evaluation is more problematic. Various models have been developed to assist in evaluation of the alternatives, and in the decision-making. The models only constitute part of the

evaluation, which must be made before a decision is reached. There are other social, physical and financial factors to consider.



**Fig. 2: Factors influencing timing of redevelopment**

The time when the redevelopment should be contemplated is also very important and is influenced by various factors. As shown in Fig. 2, redevelopment may occur (at point X) when the capital value of the cleared site in its next best use comes to exceed the capital value of the building in its current use. This point is known as the economic life of the existing building. In Fig. 2a, a clearance grant is shown as raising the capital value of the cleared site and bringing forward redevelopment from X to X' years. In Fig. 2b, a rise in the rate of interest lowers both the capital value of the existing building (since future net earnings are capitalised at a higher rate) and the capital value of the cleared site to B'B' and S'S' respectively. However, the current use is marginally favoured by this change, putting off redevelopment from X to X' years [1]. This occurs due to:

- The highest interest rate is applied to fewer net annual returns in the case of existing building. (this is why BB and B'B' converge towards later years of project life).
- The next best alternative use will incur higher development costs because of the higher cost of borrowing.

A fall in interest rates would tend to bring forward the pace of redevelopment.

**3. BROWNFIELDS**

Brownfields are abandoned or under-utilized commercial or industrial properties that usually have some environmental contamination. Most urban areas today face difficulty in redeveloping these contaminated lands. Redeveloping Brownfields [2]:

- Can help in increasing the housing stock of the nation that is in great demand as of now.
- This also helps in cleaning the environment as the number of contaminated lands decreases.

To develop these Brownfields, there is a need of private and public sector partnerships where the private sector brings development expertise and equity capital to the table and the

public sector brings certification, expertise, zoning and density variances. Treating contaminated land to make it suitable for redevelopment has never been a straightforward task. Detailed surveys are required to identify the nature of the contamination before suitable remedial work can be carried out [3]. A number of innovative financial and remediation techniques have been employed in recent years to expedite the clean-up of brownfield sites. As a consequence, developers face additional demolition and site preparation costs even before development can begin, deeming brownfield sites as unprofitable. It is believed that there are a lot of risks involved in these redevelopment projects. But many developers feel that the reward of redeveloping Brownfields outweigh the risks involved.

#### 4. STRATEGIES

Since the world war, seven principle strategies have been employed for Urban Redevelopment. This analyses basic human needs like general infrastructure and services as part of proving strong platform for global competitive economic growth. Many city redevelopment improvements are to be sought through a mix of strategies, which focus on the enhancement of the central area and the upgrading of the city's infrastructure.

##### 4.1 Filtration

This was the most system-oriented of all the approaches of redevelopment. This was based on the out-migration of households and employment followed by the clearance and redevelopment of vacated sites. Out-migration resulted from both planned decentralization and market forces. During the years of planned decentralization, slum clearance schemes and massive public-sector house building programs were undertaken in the inner cities. Inner cities clearance was often followed by the development of high rise housing at lower overall density [4].

##### 4.2 Social Planning

Social planning focuses on people rather than on urban space or property, and should first involve analysis of the basic causes of deprivation as a prelude to the application of needs-related policies. Cities have their focus on the large and rapidly growing proportion of the population which is unemployed or dependent on survivalist and informal activities and services. The absence of many of the infrastructural developments which characterize wealthier cities and which make urban life even more precarious for the poor is their major focus. Social planning has made such cities which provide general infrastructure and services as part of providing a strong platform for globally competitive economic growth for nations. Service delivery and infrastructure development contribute to overall city competitiveness and are seen as a broader goal of human development through empowerment. However, basic services like public transportation and sewerage are still top priorities before IT infrastructure

#### 4.3 The Boot-Strap Strategy

This involves rehabilitation (often with the aid of grants) and is mainly confined to housing. It does not involve the displacement of occupants and is believed to be less costly in economic terms than actual redevelopment. The first significant contribution to developing a mode of this kind was by Needleman, who in 1965 developed a model containing four economic factors, which represent the important points in deciding between rehabilitation and redevelopment [5]:

- The rate of interest
- The estimated length of life of the modernized property
- The difference between running costs of the new and the improved property and
- The difference between rent returns of the new and improved property.

The model states that:

Rehabilitation will be the most economic use of resources, only if the cost of improvement plus the present value of the cost of redevelopment in a given number of years, plus the present value of the running costs and rentals for the same period, is less than the present capital cost of redevelopment (all measured in constant prices).

Algebraically, the rule postulates that rehabilitation will be the more economic use of resource if:

$$B > m + B(1 + i) \lambda + \frac{r}{i} (1 - (1 + i)\lambda)$$

Where  $m$  = the cost of adequate modernization

$b$  = the cost of demolition and rebuilding

$i$  = the interest rate

$\lambda$  = the useful life of the modernized property in years

$r$  = the difference in annual repair costs

$b(1+i)\lambda$  = the present value of  $b$  in  $\lambda$  years' time at a rate of interest,  $i$

$$\frac{r}{i}$$

$(1 - (1 + i)\lambda)$  = the present value of  $r$  annually for  $\lambda$  years at a rate of interest,  $i$

The formula can be modified to take account of even more factors in order to deal with more complicated situations, but Needleman emphasized however, that the formula should not be applied too mechanically and that to include other factors might render it too cumbersome [5]. The problems of using the formula include:

- The selection of the appropriate interest rate, which is common to all future cost studies.
- The inclusion or omission of the land acquisition costs. There is no need to include land acquisition cost if it is only a transfer payment.
- The standard of accommodation produced by the renewal options. Redevelopment and rehabilitation produce dwelling units, which in terms of the standard of accommodation provided, length of life of property, and repairs and running costs, differ quite substantially. In order to make a valid comparison of renewal options, such important differences in the quality of the end product must be taken into account. Rent differentials would appear to be a convenient measure, but there are still problems in defining exactly the term *rent* mainly because of the effects of subsidies that affect this.

#### 4.4 Replacement

In this approach, clearance is followed by sound redevelopment schemes. Social problems could arise if redevelopment does not occur immediately after clearance. Therefore, schemes to be carefully selected, priorities determined and work to be programmed sensitively are essential. Development is undertaken by either the public sector or private, or by a partnership of both. The principle advantage of replacement strategy, as applied in Britain, was that the local and regional authorities were involved directly in the regeneration process. Local or regional accountability was thus ensured, and job creation and other initiatives consequently benefited the local economy [1].

#### 4.5 Guiding urban growth through investment

This method combines the replacement strategy with the market forces. Areas are ranked initially according to their renewal potential, related infrastructure may be improved, and private investment is attracted. Turning to the private sector in the implementation of publicly – funded projects enhances the effective delivery of public services. Investment for urban renewal infrastructural projects using private financiers has risen a greater sharing of responsibilities between the government and the private sector, which in a process has achieved synergistic effects. The Private Finance Initiative (PFI) is a fairly new route used to achieve some city redevelopment schemes that is gaining grounds in the developed and developing worlds. For this matter it is essential that project finance is understood by the government and the private investors so as to ensure success in the provision of public infrastructure and encourage innovative designs within the city. As globalization is a major factor in aiming for competitive advantage, complex infrastructures are increasing now, governments involve private capital to implement design and build projects like Build Operate Transfer and also provide infrastructure services which previously was in the domain of the public sector [6]. It is important that government and private sector experts

understand the potential merits and demerits; and requirements for success.

### 5. DECONSTRUCTION – AN UPCOMING ALTERNATIVE APPROACH

Deconstruction is the systematic disassembly of buildings to enable the reuse and recycling of the construction materials such as brick, concrete, steel, wood, and architectural elements. Lumber, the most popular deconstructed resource, can currently be reused for nonstructural applications or re-milled for flooring or furniture [7]. Materials such as bricks, windows, and doors are resold in their existing form. Materials that cannot be reused intact are reused on-site or recycled like concrete can be crushed and used as aggregate.

#### 5.1 Advantages of Deconstruction

- Deconstruction is a more sustainable approach of redevelopment because it doesn't involve the complete demolition of buildings.
- Deconstruction reduces the amount of landfill-destined waste transported through the local environment and the airborne pollutants and dust demolition created.
- It contributes to the market by recycling of materials.

### 6. DIFFICULTIES IN REDEVELOPMENT

- Multiple and absentee ownership seriously affects land development – If there are more than one owner of the land, then conflicts can arise for redevelopment. Absence of an owner can also make redevelopment difficult.
- Disputes over compensation with owners – For redevelopment to be successful, the amount should be fixed beforehand.
- Resettlement of affected tenants – There could be disputes on the relocation of the people residing on the land to be redeveloped.
- Financial problems where initial capital investment is high – Some redevelopment projects involve a huge capital investment and shortage of funds and investments can seriously affect the progress of work.
- The lack of a centralized coordinating body to implement redevelopment – Private developers can tend to misuse the whole redevelopment process if a centralized coordinating body is not present.

### 7. ADVANTAGES OF REDEVELOPMENT

- Creates new, permanent sources of revenue
- Creates jobs
- Revitalizes the business climate

- Rehabilitates and adds to the housing stock
- Redeveloped areas receive focused attention and financial investment to reduce or eliminate physical, social, environmental or economic deterioration [8]

## 8. CONCLUSION

It has been noted earlier that the size of the repair, maintenance and improvement sector of the construction industry in most developed countries has been increasing gradually over the past ten years. The change in the profile of the output of the construction industry is significant. There are a number of strategies available to bring about redevelopment, but the choice of the strategy can tremendously affect the success of the redevelopment project. It indicates that there is a need within the industry not only for a deeper understanding of the factors to be considered when evaluating proposals for redevelopment, but also to develop and evaluate appraisal techniques. This would enable decision making to be better informed and the redevelopment projects to be implemented successfully.

Recent accounts of urban redevelopment change have been seemingly preoccupied with demonstrating the existence of a transition from managerial to entrepreneurial forms of governance, typified by the speculative deployment of resources to attract investment. Within such processes, the construction of spectacular urban backgrounds has become a requisite strategy for making the city attractive as a site for investment. The rapid population growth in attempting to satisfy its economic and social needs has led to an enormous migration of people into cities. Balchin (2002) states this has produced an uncontrollable urban explosion – resulting to greater demands on the urban infrastructure, pollution and a decrease in standards of life. The challenges facing many cities of Globalisation and economic restructuring, resulting in

urban blight, social exclusion or segregation and property market failures are evident. The origins of inner-city decline are attributed to economic restructuring, suburbanization of land uses and inappropriate policy structures. Gugler (2004) identified this as part of the weak planning and development policies of many European cities after the Second World War as a significant factor in later urban and social problems [9].

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