



Vanished Landscapes: The Socio-Economic and Environmental Impact of Abandonment

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Abstract

In this paper, we are analysing the urban abandonment using a broad socio-economic and environmental framework complemented by four case studies pertaining to different situations Teufelsberg (Germany), Detroit (USA), Bhargarh Fort (India), and Lavasa (India). The abandonment in Western context has been well reported in scholarship, but a critical gap nevertheless exists in comprehending how the forces of rapid urbanisation, failure of government, and environmental limitations combine in the developing world to produce versions-of-the-urban-and-rural-decline. Attempting to fill this gap, the prototype is questioning the causal mechanisms as well as the consequences of abandonment giving extra emphasis on the case of Lavasa as the example of a modern urban failure. Through the resilience theory, the study investigates how restructuring of the economy, environmental disasters both natural and caused by human beings and the issues of governance interact to achieve abandonment. It also considers the redevelopment strategies, which are deemed to be sustainable given the urban planning and engagement of the communities coupled with adaptive reuse activities, which may play a critical role in reducing the risks of abandonment, as well as promoting resilience in cities. The research conclusion is that a set of policy recommendations related to the enhancement of sustainable redevelopment has been developed and that future research directions have been proposed that could improve urban resilience, in particular in India and other developing countries.

Keywords: Abandonment, urban decay, ghost towns, environmental degradation, socio-economic decline, Lavasa, resilience theory, sustainable redevelopment.

1. Introduction

Abandonment as the discarding of human settlement due to economic, environmental, social, or political factors is a complex phenomenon which draws together urban studies, environmental science, anthropology and heritage protection. Any sites of abandonment, whether the long-written-upon example of the historical ghost town of Centralia, Pennsylvania, or the projects of more recent history that have yet to become reality, e.g. places like Lavasa, India, serve as material texts on the transition in society, the failure of unrealized ambition, and structural collapse. They represent an equilibrium among human desire and economic decline, environmental limitation, and political shortcoming hence offering the relevant analysis of a territorial decline pattern in both urban and rural settings. Studies on abandonment have focused mainly on the western setting. As the counter-examples, Detroit, USA is an example of industrial decay, and Pripyat, Ukraine is the example of what happens to the environment because of the disaster. By comparison, the literature on abandonment in developing countries especially India is relatively thin. The high rate of urbanization in India, together with the doctrines of lax governance and lack of environment growth, creates respective problems. The intended city of Lavasa, Maharashtra, represents a modern-day case of partial desolation that was initiated by an insufficient infrastructure, economic controversy and organizational governance. It is against this gap that the present research dictates the need to contextualized inquiry on how these conditions are coalescing to induce abandonment in urban and rural Indian socio-ecological environments, where socio-economic imbalances and environmental susceptibilities are rife.

The current study is founded on the following research questions:

1. Which are the major socio-economic and environmental causes of abandonment of an urban and rural settlement?
2. How do failures in governance and the issues of infrastructural challenges multiply the problem of abandonment as is the case of Lavasa?
3. What are some of the sustainable redevelopment strategies to curb the dangers of abandon and bring about urban resilience in developing countries?

There are numerous questions involved, such as why are urban spaces abandoned, what impact do they have, and how can such spaces be regenerated sustainably. The three questions that are closely connected with one another are the subject of interrogation in the present study. In order

to contextualize these questions, the study relies on the concept of resilience that is a theoretical approach examining the ability of socio-ecological systems to adjust and respond to disturbances [6]. The analysis is wedged between the context of city-resilient, sustainability-redevelopment, and cultural-heritage conservation implications and resorts to international case-studies alongside Lavasa (India), which are Teufelsberg (Germany), Detroit (USA), Bhangarh Fort (India), Centralia (USA), Pripyat (Ukraine), Kayakoy (Turkey). The study, with the help of structured interviews, archival materials, and site visits, aims to clarify the process and the aftermath of abandonment occurring in diverse geographies and across diverse cultures; to question how governance systems and the physical infrastructure contribute to more rapid decay, as it was the case with Lavasa; and to outline the methods of redevelopment that can improve resilience. Through it, the research tries to fill a gap in India-centric literature on abandonment, and the study provides empirical-analytical knowledge to policymakers, urban planners, and academics. The paper has been organised in the following way: synthesised literature review that presents in a table the global and Indian case studies, methodological explanation of the qualitative methodology, results-and-discussion chapter that has answered the research questions, and an extended conclusion that makes out policy recommendations and points towards future research directions. The paper will combine critical theoretical constructs with empirical evidence to promote the intellectual frontiers of urban abandonment as well as to educate future practitioners to ensure sustainable planning in growing economies.

2. Literature Review

Abandonment is a trans-disciplinary process and an indicator of complex socio ecological interactions associated by economic decay, environmental calamities, geo political changes and failed governance. The current review is a synthesis of the major empirical case studies and incorporation of the resilience theory to orientate the analysis by giving priority to the recent peer-reviewed publications to make them topical. Teufelsberg, Berlin, is considered an excellent example of abandonment caused by the geopolitical shift. It is built on the remains of World War II and served as an ear station in the Cold War, operated by NSA, which was decommissioned and left shut in the 1990s. Vegetation has grown back at the location, and graffiti covers it, representing nature reclaiming its territory, and it has become a tourist attraction and a dark tourism and cultural memorization center [5] [7]. The recent literature illustrates that it can transform neglected sites into cultural resources and refer to its application as adaptive reuse [7]. Detroit shows the case of abandonment due to deindustrialization in the USA. According to [3] Detroit, which used to be a center of global auto industry, lost a

substantial portion of the population and saw its economic degradation before replacing it with massive urban decay [3]. The studies of recent times highlight a more community-led type of revitalization, such as urban farming, as well as cultural initiatives that are resilient in a post-industrial context [13]. These efforts differ with the top-down model of redevelopment where valuable ideas can be borrowed to provide sustainable urban recovery. Bhangarh Fort, Rajasthan, demonstrates the idea of abandonment in India in terms of social-political and environmental reasons. The fort is famous because of its supernatural tales, making it popular among dark tourists who mostly want historical and psychological experiences [1]. The focus of recent research is on its unexpected possibilities of conservation of heritage and an appropriate balance between tourism and conservation [9]. The fact that, due to historical conflicts and the impact of environmental factors the fort was abandoned points to the cultural importance of the abandoned sites in India.

The modern-day example of a partial abandonment is Lavasa, Maharashtra, India. As an exemplar of a new urban development, it experienced a set of obstacles due to the deficiencies of governance, environmental constraints (e.g., water shortage), and economic contradictions [4]. The latest studies have associated the fall with poor planning and inter-stakeholder conflict hence highlighting the need to have sustainable models of urban development[10]. Comparative views also add value to the discussion. An example is Centralia, Pennsylvania; the inhabitation of which was forfeited in 1962, when an underground coal fire broke out rendering the area inhabitable [2] Pripyat, Ukraine, became a ghost town due to a nuclear accident that took place in 1986 in Chernobyl, and it was one of the most fascinating incidents in environmental disaster and dark tourism [11]. To add another dimension, Kayakoy, Turkey, was abandoned following the 1923 population exchange between Greece and Turkey thus saving its culture [14]. All of these examples demonstrate various abandonment motivators, such as environmental disaster and geopolitical revolution.

The theory of resilience provides powerful analyses. According to [6], resilience is a property of disturbing systems to absorb the disturbances and continue to be useful which is then implemented in the urban context by [8] where they place emphasis on adaptive capacity to the disturbing economic, environmental and governance shocks. The present framework explains the concept of adaptive reuse strategy and redevelopment practices especially that of Lavasa where environmental and governance issues are high. However, academic concerns on India-specific abandonment have been underrepresented, especially on the theme of rapid urbanization, failure of the government and environmental constraint. The redevelopment of

the western context as in Detroit and Pripyat areas is well documented but the Indian contexts require introspection to present context-based redevelopment plans. The current research would fill that gap based on the analysis of Lavasa and the diversity of other international experiences that would be analyzed according to the resilience theory to conclude on the sustainable combination of solutions.

3. Methodology

The current research is based on a qualitative methodology of a case-study investigation to expound on the socio-economic, environmental, and governance factors of urban abandonment. The study aims at detecting similar patterns and elaborating on redevelopment strategies by carrying out a systematic comparative analysis of the best global and Indian examples.

The cases were picked based on the following criteria:

- Various geographical and cultural settings (e.g Teufelsberg, Detroit, Bhangarh Fort, Lavasa, Centralia, Pripyat, Kayakoy).
- Symbolology of several causes of abandonment (economic recession, environmental catastrophe, disintegration of the government, socio-political upheaval).
- Existence of peer-reviewed literature that is published since 2020 to ensure scholarly rigour.

These cases have been chosen as:

- Teufelsberg, Germany (geopolitical neglect). Detroit, USA (industrial decay).
- Bhangarh Fort India (social and political and environmental).
- Lavasa, India (governance and infrastructure fails).
- Centralia, USA (ecological catastrophe).
- Pripyat, Ukraine (nuclear disaster).
- Turkey, Kayakoy (displaced people).

The data used were peer-reviewed journal articles, academic books and online collections complemented by government reports. In the context of Lavasa, secondary resources included scholarly surveys, government reports, and media reviews, all of which took an administrative

and infrastructural problem outlook. The world cases had the same literature review, and more attention was paid to literature published after 2020 to observe the current tendencies.

4. Limitations

The current research depends on secondary data thus limiting access to direct observation particularly in the case of Lavasa who a field study would have provided a deeper understanding. A qualitative approach puts more emphasis on depth than generalizability; thus, to enhance the generalizability of study in future, quantitative indices, including infrastructure reliability and economic indicators to back up the generalizability are possible. Paucity of sources after 2020 regarding any given example (e.g., Kayakoy) required the predilection to somewhat older, but still relevant, writing.

5. Results and Discussions

The research questions are considered in the analysis and a lacuna in scholarship of abandonment to India is evidenced.

Research Question 1: Social-economic and environmental issues the main causes of abandonments are economic down times and environmental catastrophes. The shrinkage of Detroit, triggered by the collapse of the motor industry, resulted in a large decrease in the population and urban depreciation [13]. The decommission of Centralia was connected to the underground coal fire that started back in 1962, creating environmental and health risks [2]. The desolation of the Bhangarh Fort in India is related to social and political clashes and the environmental factors such as the lack of resources that brought about limited sustainability [1]. These examples show the dynamism of both economic and ecological factors in the abandonment, as well as highlights the susceptibility of socio-ecological systems to various stresses [6].

Social and economic factors coupled with environmental factors create a driving force in Lavasa deterioration. The project was halted by economic issues such as high cost of development and pullback by investors, which undermined the financial aspect of the project [4]. Such natural factors as water deficiency through the Varasgaon Dam, and rugged terrain added infrastructure challenges. Inaccessibility of the roads due to the monsoons also limited development, limiting the access of residents and investors to them [10]. These observations are consistent with the resilience theory whereby the net effect of the stresses on the stability of a system are identified [6].

Research Question 2: Interaction of Urban and Rural Environment the interaction between country and city processes is part of the major variables in the abandonment processes. The shrinking of Detroit, which was promoted by a crisis in the automotive industry, was accompanied by an out-migration to the suburbs, which undermined the strengths of the urban level resilience [13]. The desertion of Centralia was preceded by a coal mine fire underground, initiated in the year 1962, generating environmental and health hazard risks [2]. The social, political factors, as well as environment, which has limited the sustainability of the Bhangarh Fort are related to the socio-political conflicts and environmental limitations, such as the lack of resources [1]. These examples describe city/periphery interactions in the patterns of abandonment. The case of Lavasa also tends to show the opposite interaction of urban and rural environments. The project was halted by economic issues such as high cost of development and pullback by investors, which undermined the financial aspect of the project [4]. Infrastructure difficulties were worsened by environmental limitations, which comprised water deficiency using the Varasgaon Dam and hard terrain. Accessibility by road inaccessible during Monsoon also impeded growth and accessibility to the inhabitants and other investors [10]. These observations are consistent with the resilience theory whereby the net effect of the stresses on the stability of a system are identified [6].

Research Question 2: Lavasa Governance and infrastructure the incompleteness of Lavasa is conditioned greatly by the failure of governance and deficiencies in infrastructure. Due to the conflict with the local landowners, the project encountered social tensions and legal disputes, which caused the delay of development [10]. The inaccessible mountain roads, poor electricity, and water shortage discouraged the vision of Lavasa as an urban modern centre [4]. These concerns indicate failure to plan into organizations and top-down planning where local communities were not consulted or other aspects of the environment taken into consideration.

According to the way of governance, it is also found that there are some differences when it comes to the comparative analysis of governance patterns. Urban farming and the cultural projects embraced by the community of Detroit present the principles of participatory governance, creating resilience [13]. Comparatively, the top-down model has existed in Lavasa, and it ignored the stakeholders, leading to increased social-economic inequality gaps and possible displacement of the locals [10]. This analogy brings to fore the fact that India requires inclusive planning to ensure there is no abandonment and equal development.

Research Question 3: Long-term Redevelopment Plan Redevelopment must be sustainable, and therefore presents the need to utilize resiliency-based strategies to overcome economic, environmental, and social issues. The use of adaptive reuse and community engagement denotes the success of the revitalization projects, such as community gardens and culture-based projects in Detroit [13]. The example of Teufelsberg being a place of culture and tourist attraction shows the possibilities of using abandoned locations to achieve economic and social improvements [7]. The Bhangarh Fort in India provides an example to Lavasa in its heritage conservation, which is a conservator and tourism joint-balanced approach [8].

In the case of Lavasa, redevelopment strategies are supposed to consist of:

1. Community Engagement: Engage the local landowners and residents in planning by conducting participatory workshops so as to avoid conflicts arising between the residents on the socio-economic grounds and to have a participatory decision making.
2. Infrastructure Investment: Build the resilient system of water and electricity on the basis of public-private partnership and learn the successful example of Stranraer in Scotland with Oyster Festival [12].
3. Environmental Sustainability: Adopt water conservation strategies e.g. rainwater harvesting, as well as green infrastructure so as to prevent environmental limitations.
4. Adaptive Reuse: The example of Teufelsberg and use the picturesque position of Lavasa in eco-tourism or cultural heritage.

The theory of resilience puts forward the adaptive capacity as the main concept behind the resilient urban practice. The initial text on the resilient systems [8] argues that inclusive governance and sustainable resource stewardship react to and cope with shocks and directly apply to the much-needed recovery path that Lavasa assumed. The comparative study worldwide demonstrates the power of the dark tourism and heritage management. However, Pripyat and Centralia remain popular attractions due to their historical and environmental attraction; hence, eco-tourism projects can be promoted in Lavasa, which could be the stimulus of economic revitalisation [11].

The nature of maintaining Kalkovo as a cultural place also provides some insight into its application in preserving the architectural culture of Lavasa without undermining the promotion of tourism [14]. The present findings help to bridge a gap in the related research as it focuses on India-relevant issues, such as the high rate of urbanisation and failures of

governance, and suggests their country-specific solutions. Lavasa case highlights the need to address the issue of integrated urban planning in developing countries to avoid the scenario of abandonment, where the presence of strong socio-economic and environmental frailties meets.

6. Conclusion

The current research provides the in-depth insight into the phenomenon of abandonment, stating that the correlation of socio-economic, environmental and governance factors is rather complex and occurs like the different global settings. Lavasa represents the pitfalls of fast urbanisation in India with the conflict with domestic landowners and water scarcity coupled with poor infrastructure leading to partial abandonment. The comparative cases examined, namely Detroit, Teufelsberg, Bhangarh Fort, Centralia, Pripyat, and Kayakoy explain how a place becomes abandoned, what it entails and the importance of resilience as part of recovery. The incomplete development of Lavasa, through community troubles, water shortage, and unstable infrastructure is symptomatic of more extensive problems with long-term ambitious urban development in India.

Such top-down planning approach stands in sharp contrast with effective ones like that of Detroit, which applied a community driven model [13]. The resilience theory provides a clear view of how to analyse the sets of socio-ecological systems that have the ability of adapting to the changes undergoing; hence offering solutions that will guide built-in redevelopment sustainability [6] [8]. Through the concept of the community-based government, adaptive reuse, and the environmentally taxes conscionable management, Lavasa could transform into a model of adaptive redevelopment in place of being a symbol of urban blight. Such lessons have serious implications on urban planning and policy in third world countries.

The Lavasa journey throws light on the necessity of context-specific strategies which are synchronized with social, economic and environmental realities of local context. Comparative examples show that derelict patches can be converted into cultural, tourism or ecological sources of economic and social value. The cultural transformation of Teufelsberg and heritage restoration of Bhangarh Fort are the outstanding examples of how adaptive reuse can be used to revive forgotten sites through reinvention [7] [8].

7. Policy Recommendations

1. Introduce more of resilience-based planning by making stakeholder involvement and environmentally friendly a priority factor. To make the decision-making inclusive, consider the local issues and avoid conflicts, it can be established community advisory boards.
2. Exploit the facilities of existing partnerships between the state and businesses and fund their development of infrastructure including clean water and power supply: look to their example, as was provided with Stranraer Oyster Festival [12]. The alliances can promote economic recoverability and structural stability.
3. Foster adaptive reuse on abandoned areas to pursue eco-tourism or cultural assets projects, using forms such as the cultural transformation of Teufelsberg [7]. This can be the development of environment-friendly resorts or cultural festivals in Lavasa as a way of enhancing tourism.
4. Put in place environmental management measures like rain harvesting and green infrastructure to deal with scarcity of resources and also increase the sustainability of places like Lavasa.
5. Intensify governance structures on how to avoid conflicts with the local communities by ensuring an open process of acquiring land and fair developmental policies.

8. Future research directions

It can be covered by the fact that there should be the process of the development of the quantitative metrics to understand the urban resilience in Indian settings in terms of water consumption, the reliability of infrastructure, economic indicators to balance with the qualitative data of this research analysis. Failure is inevitable, but lessons may be learned. Longitudinal research on the plans of redevelopment of Lavasa could trace the success of the proposed measures, which, as a set, would be the evidence of the sustainability of urban recovery. The effectiveness of the virtual heritage preservation and GIS mapping should also be explored as a way of improving conservation work and connecting with worldwide viewers. Shoulder-to-shoulder analyses of worldwide and Indian examples might also improve context-specific redevelopment strategies, dealing with the peculiarities of developing countries. Moreover, the research of socio-psychological consequences of the abandonment on communities that are local may shed light on the human aspect of the issue and explain it further.

The research covers the field of urban studies, environmental science, and heritage conservation as it contributes to the research gap related to the specifics of abandonment in India. Through a mixture of both methodological rigor and theoretical roots, it provides a model upon which sustainable urban planning and resilience-building can occur in developing countries. The study illuminates the potentiality of abandonment sites as the illustration of the fact that, with comprehensive governance, participatory measures, and adaptive reuse, they may become the lively, and sustainable infrastructures supporting sustainable cities of the future.

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