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To cite this article: J Wahid *et al* 2018 *IOP Conf. Ser.: Earth Environ. Sci.* **126** 012167

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## Revitalizing the unused urban space, case study: *Lhokseumawe, Aceh -Indonesia*

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**Abstract.** The phenomenon of urban decline in the highly industrialized nation is now slowly taking place in the developing world. Deindustrialization as defined as a decline in the manufacturing sectors led to the changes in social, economic and subsequently a shift in urban activities. By taking Lhokseumawe, Aceh, Republic of Indonesia as an example, this paper attempts to uncover the possibilities and opportunities in identifying the causes and tracing back on the decline. Lhokseumawe, Aceh was a well-known industrial region outside Java Island, and it has attracted thousands of workers from northern Sumatera and the nearby regions. After the downturn of the economy and the change in activities, the city slowly showed a decline. Scholars has estimated that one in six of the cities around the world that relied on oil and gas production activities will suffer from this phenomenological impact. Lhokseumawe is a good example of an industrial plants where PT Arun LNG (private limited company) operated since 1974 grew up rapidly and nicknamed "Petrodollar City". The trickle effect of the activities from the petrodollar business led to a few settlements popping up at the periphery as a result of urban sprawl from Lhokseumawe, however, the glory of the economic growth outlived within a short period. This was resulted from the production of PT Arun NGL which had dropped dramatically in the 2000s and suddenly closed the operation in October 2014. From these perspectives, this paper attempts to investigate the impact of deindustrialization within the urban space and activity in Lhokseumawe which have consequences to urban declining phenomena. By taking one of the revitalized urban space formerly known as Cunda Plaza (CP) as a case study area, the paper will apply synoptic method through observation, space mapping and interview techniques for gathering and examining the data. The findings indicates that Cunda Plaza is a magnet as a central hub of urban activities which can be integrated with other thriving activities from urban conurbation of academic related activities within the city.



Keyword: *deindustrialization, urban decline phenomenon, placemaking, urban linkage, urban space, revitalization, activity as generator, enhancing urban space*

## 1. Introduction

Geographically, Lhokseumawe - Aceh is located at 4 ° 54' - 5 ° 18' North Latitude and 96 ° 20' - 97 ° 21' East Longitude, located at the east coast of Sumatra Island, Indonesia. It has a total area of approximately 181.06 km<sup>2</sup> with a population of around 180,000 people. Lhokseumawe was a well-known industrial region outside Java Island, and it has attracted thousands of workers from northern Sumatra and the neighboring regions. The city was generated by a petrogas company of PT (private limited company) Arun LNG, since then it grew into a rapid growing city simply nicknamed - "Petrodollar City". The trickle effect of the activities from the Petrodollar City led to an outgrowth of few settlements sprawling within the periphery of Lhokseumawe, however, the glory outlived within a short period. This was due to the decline of oil and gas production of PT. Arun NGL in the year 2000 and intermittently closed operation in October 2014. After the downturn of the economy and the change in urban activities it has shown a decline in the usage of space in the city. From a similar observation the scholars has estimated that one sixth of the cities around the world that relied on oil and gas processing activities will suffer from these similar impact [1], [11], [13]. As that of Lhokseumawe. These consequences affect the greatest part of the urban space. Tracing back from the early, 1990s, Cunda Plaza was a popular shopping center, equipped with children's playground and latest entertainment establishment in the city. The presence of Cunda Plaza encourage the construction of several other establishments such as Sultan Malikussaleh Airport, Bank of Indonesia office and other similar building types in Lhokseumawe. These physical development as a result of petrodollar, modern buildings slowly shaped the urban landscape of Lhokseumawe and turned it into the capital of North Aceh District. The growth of the city increased the pace of urbanization and the lifestyles of people also changed from an agrarian into a consumer society. With the existence of Cunda Plaza, it became the center of favorite places for the youngsters and public at large. Along the western part of Cunda Plaza there are rows of retail shops outlets providing various services and businesses. Thus, Cunda Plaza is a well-known modern shopping center at that time. However, in 1998, the political reformation that took place in Indonesia triggered the beginning of unsafe and internal conflicts both politically and commercially. The new political movement affects the production activities in PT Arun NGL declined tremendously. The decline in the production also led to the laid off the staffs and general workers and led to the displacement of the people. The shift of activities slowly taking place. The declining of the activities suddenly turned some areas into an unused and abandoned urban space until late 2010's.

The death of "petrodollar city" did not destroy the features of Lhokseumawe completely. In the year 2001 Malikussaleh University was established by the government to cater for academic pursuit of the locals in the northern region of Aceh. The location of Malikussaleh as a higher institution in the region became the anchor activities of the city of Lhokseumawe again. The enrolment of the student at the university is reaching 12,000 students and suddenly, it became the hub of neighborhood regional development centre. Once again, the campus activities emerged as a continuous economic attraction to the region. From there, the businesses started to flourish again. The phenomenon of campus activities in Lhokseumawe has become the lifeline to generate a life in the city. This is the outset of this research that focused on the revitalizing of unused urban space of Lhokseumawe including the Cunda Plaza area for enhancing the city life.

## 2. Literature

The process of revitalization in an area or part of the city includes improving the physical and economic aspects of buildings and urban spaces. Physical revitalization is a short-term strategy intended to encourage long-term economic growth. Physical revitalization believed to improve the physical condition (including public spaces) of the city, but not in a long term process [4]. It is necessary to improve an economic activities which by considering the social, cultural and environmental aspects of the locality [2]

A city is a complex organism and the activities are complex as well, thus, economic revitalization do not solely depend entirely on physical aspects alone, several other aspects need to be addressed as follows [2] :

- *Physical Intervention* - helps to initiate the physical activities of revitalization to be carried out in stages, including the development and improvement of the quality and physical condition of buildings, green open space, connecting the urban systems, and street furniture.
- *Economic rehabilitation* - physical improvement of places including the areas that are targeted for short-term economic development as well as the informal and formal economic activities either local or international economic development for value aided services of the city. In the vitality context of revitalization it needs to be developed into multi-functional activities that include physical, economic, and social activities..
- *Social / institutional revitalization* - The success of revitalizing an area will be measurable if the elements used to create an interesting environment is tangible and transparent and not solely on creating a beautiful place. These activities should have a positive impact that helps to improve the dynamics and social life of the community.

As explained in the above descriptions, the efforts to increase the vitality of the region can be manage through an arrangement of elements of attraction and activities that is accessible with a strong linkage for comfort and image representations. The attraction element is a region generator that is expected by the urban governance to generate vitality. The element can inculcate a place or a sense of place [3], [4]. The place must be recognizable and have a character as well as an identity of its own [5], [6]. In order to achieve this identity - the components must consist of a well-received physical features, tasteful appearance, continuous observed activities, functional and can communicate meaning and symbols through the physical and social linkage [4]. Accessibility as a linkage system is very important for connecting the elements of attraction through pedestrian pathways, linear open spaces or physical elements associated with the urban fabrics. The accessibility to all areas can be achieved by reducing traffic congestions and the continuous physical networks within the urban systems.

Comfort and image are the two major elements to protrude the clarity of space structure within the area by determining the hierarchy of space and regularity of connection in an urban networks [3]. Aesthetic and environmental qualities are required to provide comfort through the arrangement of urban elements with regards to proportion, scale and size, rhythm, sequence, pattern and texture, continuity, dominance and volume [7]. Environmental quality includes conditions of high and low implications on the urban ecosystems [8]. Thus, this paper limits itself on the revitalization strategy in unused urban space by strengthening or giving the attraction element of activity as the catalyst for urban vitality.

### 3. Methodology

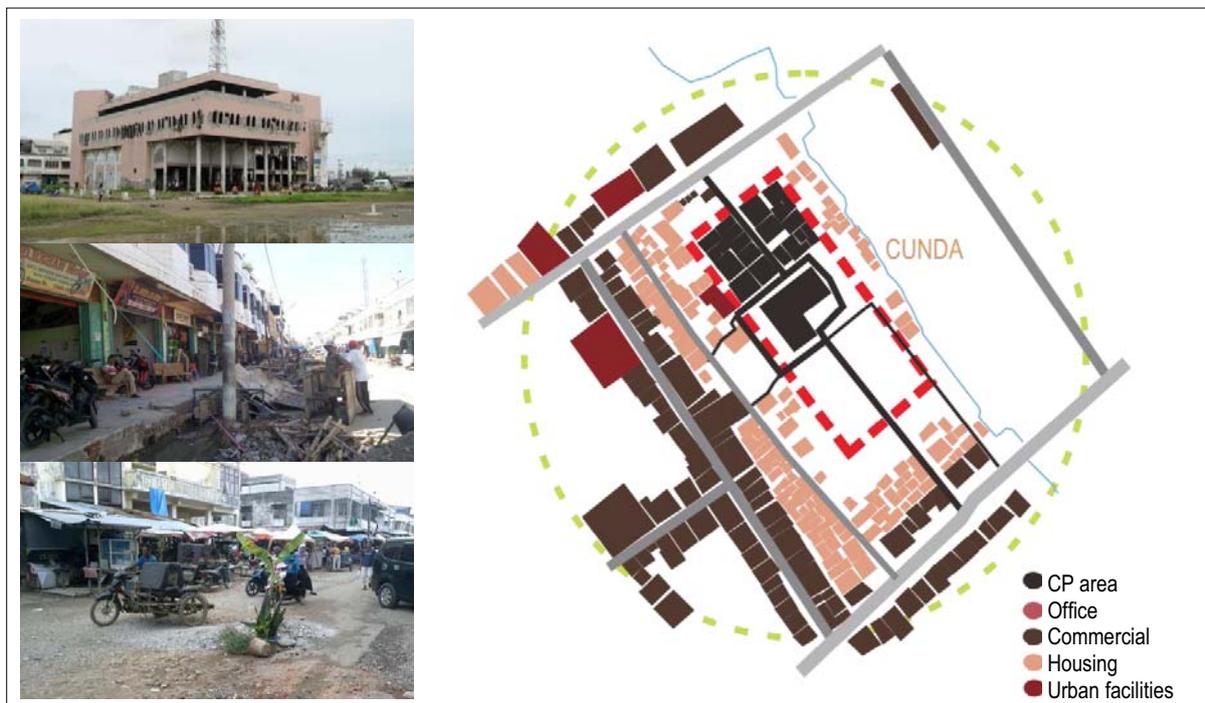
This research use the synoptic method of collecting and analyzing data which is often referred to as rational methods. Systematic design in this method consists of several steps depending on the complexity of the case [9]. This method prioritizes the structured steps in problem solving by integrating several alternatives to reach the conclusion with respect to suggested motions. This approach helps to determine clarify of sequential details of the findings in order to extract the accepted suggestion in the discussions. The best

solution seen from the quality or value that has the possibilities to give a better impact on the study. The steps are summarize as follows:

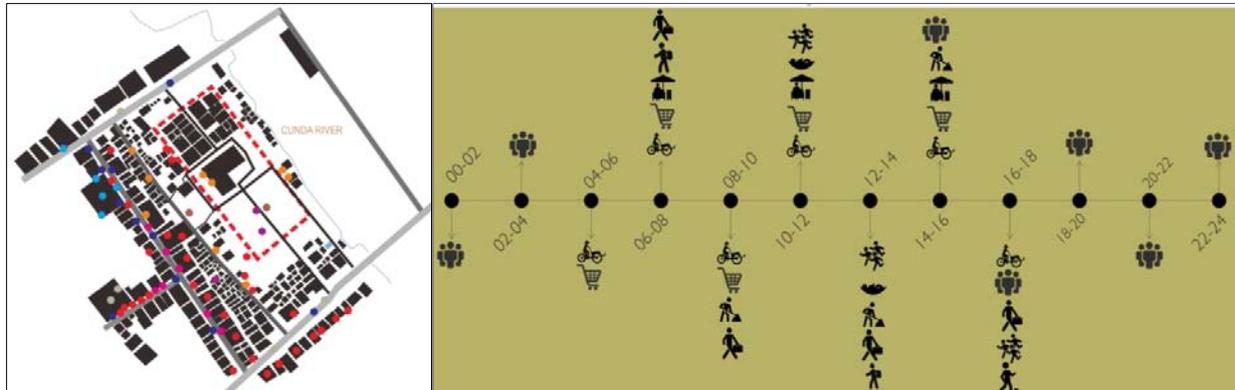
- Primary and secondary data collection, includes:
  - a. Observations at Cunda Plaza by describing, sketching, and photographing the existing condition of the building and its context in relation to the urban context. Observations are made on weekdays, weekends, holidays and other peak hours according to the cultural pattern of the community. Physical data will be presented in the form of maps, photographs and pictures
  - b. Literature studies on the urban related phenomenon in the published materials are significant secondary data to enhance and support the argument related to the findings and discussions in the paper.
  - c. Formal and informal interviews with the government officers and urbanites are deemed vital to enrich the information.
- During the urban reconnaissance, several problems on site through observations is done according to the elements of urban design principle [9], covering land use and buildings, public and social activities, street and pedestrian ways, as well as activity support
- The integration of the prospect of the region is done according to the four elements of urban space are which include accessibility and linkage; comfort and image; uses and activities and sociability [3] in order to find the factors related to the new activity as regional generator.

#### 4. Identification

The diagram shows the location of Cunda Plaza and its urban context.



**Figure 1.** Land use and buildings



**Figure 2.** Activity mapping

Generally, the problem of the study area is identified and explained in the techniques of data collection. The findings of the study can be summarized in three categories such as:

- low activities in the open space,
- inaccessible circulation to the area, and,
- degradation of physical quality of the buildings and open space.

These findings evoke degradation of image of the place, such as:

*4.1. Land use and Buildings (Figure 1):*

- Land use of the area is dominated by commercial, and residential zoning which strongly identified the functions
- The main commercial function is traditional market that takes place on the east side of Cunda Plaza.
- The architectural contribution is not positive where the present of buildings around the area that functioned as commercial, offices and residential are in bad shape and deteriorating facades.

*4.2. Public and Social Facilities :*

- Although Cunda Plaza has public amenities that contribute to the city infrastructure, nonetheless, the conditions are poor and deteriorating.
- Besides traditional markets, the majority of the social facilities of this region are dominated by educational related activities such as: the branch Campus (B) of the University of Al-Muslim, Mushola Al-Umaidah, Pasar Cunda, MIN Peukan Cunda and SDN 1 Muara Dua. Hence, the pattern of activities will signify the elements and features of the urban spaces.

*4.3. Street and Pedestrian Ways :*

- There are three (3) types of road system available as an access to the Cunda Plaza namely -Merdeka Barat and Merdeka Timur Street which act as a main artery while Station Street, T. Syiek Muhammad Said Street and H.Ibrahim Jabarrahmah Street served as local and neighbouring road that connect to the Cunda Plaza. It is observed that there is no continuity and conflicting pedestrian walkways caused the people cannot access the definite places or reaching the objective of destination by walking.

4.4. Activity Support (Figure 2):

- Actually the duration of activities around Cunda Plaza estimated to take place round the clock (24 hours).
- The activities are various according to different time of the day.
- The peak time for the activities between 6 am to 6 pm, which is dominated commercial transactions and educational related activities.
- Additionally, the remaining time are concentrated in several spots especially inside the building where food stalls and coffee shops are located.

**5. Analysis and Recommendation**

It is notified that the weakness, strength and prospects of Cunda Plaza can be identified through the present of new activities that act as a generator and magnet to this place. The result of the analysis shows that Cunda Plaza has a successful location as an urban center. The existing traditional market and other activity supports around the area compliments the existing activity inside the mall and the surrounding retail areas. The integration of the activities suggested that the place is strategically suitable to pull the crowd although architecturally it is not appropriate. It is noted that the Cunda Plaza gave its own character as an urban contributor for the community. It developed a sense of place when asked on place identity as a reference. The potential of Cunda Plaza as an urban center offer various goods and services to the community not found in the traditional markets and vice versa, indirectly it complimenting the nature of business within the Central Business District of Lhokese mawe. Cunda Plaza. On the other hand, it can be integrated with its surrounding areas as a commercial hub that supports and enhances the economic activities of the region. However, the problems of the physical imbalance between land use and buildings function (commercial function and housing function) need to be scrutinized. In addition, other problems related to pedestrians inaccessibility due to disconnected pathways and degradation of building façades has to been given attention too. The area has a good prospect as a mixed-function activity such as a center of commerce, housing; as well as city recreational hub. The following table summarize the analysis. (Table 1).

**Table 1.** Analysis of Weakness, Strength and Prospects

<b>FINDINGS</b>		
<b>WEAKNESS</b>	<b>STRENGTH</b>	<b>POTENTIALS</b>
<b>ACCESS &amp; LINKAGE</b>		
<ul style="list-style-type: none"> <li>▪ Poor pedestrian ways</li> <li>▪ There is no public transportation passing through Cunda Plaza.</li> <li>▪ There is no bus stop available.</li> <li>▪ Lack of universal design facilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Clear urban structure.</li> <li>▪ Moderate integration between buildings and urban spaces.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop as an integrated commercial zone contributed by the present of traditional markets for the society with variety of goods.</li> <li>▪ Develop as an important axis with the construction of new networks parallel to H. Ibrahim Jabarrahmah Street which can be used by all types of vehicles. The development of connectivity of pedestrian paths connecting West Merdeka Street and East Merdeka Street will give access to the disable</li> </ul>
<b>COMFORT &amp; IMAGE</b>		

<ul style="list-style-type: none"> <li>▪ Un authorized housing within the area will give a bad image to the urban settings</li> <li>▪ The present of slum settlements</li> <li>▪ Lack of soft-scape for urban ecosystem</li> <li>▪ Lack of street furniture</li> <li>▪ Lack of security and safety especially at night</li> <li>▪ Unmanaged garbage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Focus for a new development as there are plenty of unused urban space.</li> <li>▪ Cunda River can be integrated as an urban oasis with the present of the river.</li> </ul>	<ul style="list-style-type: none"> <li>▪ An attractive river-scape area through improving the access and quality of river corridor as a regional attraction.</li> <li>▪ River as a natural source to integrate the natural and built environment to sustain the urban eco-system</li> <li>▪ The development will strengthen the image and harmonized with the activities within the urban space</li> <li>▪ It helps to create a new image of the region.</li> <li>▪ Development of open spaces into urban green lung of the city that gives shady and comfortable environment with the quality and quantity of local vegetation and trees.</li> </ul>
<b><i>USES &amp; ACTIVITIES</i></b>		
<ul style="list-style-type: none"> <li>▪ Unorganized slum settlements</li> <li>▪ Unused urban space that does not have any activity.</li> <li>▪ No city facilities to connect with other activities.</li> <li>▪ Issues on Cunda Plaza that is not managed anymore (abandoned)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Household activities</li> <li>▪ Commercial activities</li> <li>▪ Various age groups involve in the area</li> <li>▪ Temporary children activities in open space</li> </ul>	<ul style="list-style-type: none"> <li>▪ Create image ability in an area by integrating traditional market activity with new activity of trading in modern goods and commerce.</li> <li>▪ Characteristics of the region need to maintain and preserve the identity of the place by giving the diversity of trading activities and products.</li> <li>▪ Giving an opportunity to add new attractions besides commercial activities as a regional activity generator.</li> </ul>
<b><i>SOCIABILITY</i></b>		
<ul style="list-style-type: none"> <li>▪ Issue of insecurity especially at night</li> <li>▪ Negative attitude towards the people outside Aceh</li> <li>▪ Lack of cultural diversity</li> <li>▪ The uncivic attitude of the local towards the environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ High level in society relationships and social attachment</li> <li>▪ The maintenance of social space.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Become an urban space that can be utilized as a social interaction for society in commercial activities as a catalyst.</li> <li>▪ Become a urban space that has a distinctive identity and character for the people.</li> <li>▪ New attractions can be added as catalysts to strengthen the relationship and social attachment among the community.</li> </ul>

## 6. The Strategies

The strategies applied to revitalize the urban space at Cunda Plaza may form economic, recreational and physical elements that act as a magnet to the area. These strategies establish vitality and well integrated with the context of the area [10]. From here, it is connected with the re-arrangement of the open space to establish accessibilities between physical and non-physical elements. The arrangement of the visual aspect within the open space can be expanded literally as explained below:

- Determination of the networking gives a potential elements as a power of attraction and function of an activity in the area. The planning of the potential elements focussing on activity’s determination, natural environment and artificial elements may contribute to the existing features of the area. The activity’s planning in the open space is based on human needs in the public space such as: comfort, relaxation, passive and active engagement with environment [3] and elements of surprise in the physical settings [11]. Activity’s planning as a generator is categorized into two groups such as: daytime and nighttime generator. On the contrary an artificial elements is planned to support the activities
- Accessibility on the arrangement of circulation directed to the area for pedestrian, and vehicular movement need to be safe and comfortable. So far there are two potential direct access to the area by vehicles and pedestrians where Merdeka Barat and Merdeka Timur road both from the north and south direction. These roads have problems in term of quality of walkways and re alignment for the comfort of the pedestrian.

- Visual linkage through a clear identification of space hierarchy helps to establish experiences in the open space with respect to human scale. Enhancing the orientation towards the river and open space can be established with the orientation of an axis and visual perception of the user. The application of the design principles enable to connect a various space elements in order to establish a visual orientation of the aesthetic physical elements of the space. The introduction of local vegetation and tasteful planting design will enhance the formal and informal pattern of the open space, street-scape and river corridor to create an interesting visual effect and image.
- The concept of urban space distribution signifies by its function that help to support the basic activities such as: human interaction, movement, communication and recreation.

## 7. Conclusion

After analyzing the findings based on the theory and analysis, it is concluded that the revitalization of an unused urban space can be achieved through several effort such as developing a new functional-activities and elements that contribute to a new vitality in conjunction with its appearance as an urban magnet and generator in the area. Throughout our observation and analysis the Cunda Plaza area is a consequences of internal inside and outside spatial relationship in the urban design theory and the continuous urban linkage Trancik [7] in place theory. Given the strategies to revitalize unused urban space proven by the new functions and activity which are based upon local daily activities help to establish and enliven the time frame usage of the urban areas. It is also observed that the urban continuity through the pathways as mentioned by Lynch [12] can be considered in this case. Besides, creating the linkage between various functions that exist in the study area exploits several elements that already exist around the traditional market and the daily life of the local culture of the people within the city.

## References

- [1] Ozdemir, S. (2014), *Intervening To Urban Decline by Urban Design Tools in Walled Cities :Lefkosa*, A Thesis Submitted To The Graduate School Of Natural And Applied Sciences Of Middle East Technical University.
- [2] Danisworo, M., Martokusumo, W. (2000), *Revitalisasi Kawasan Kota: Sebuah Catatan dalam Pengembangan and Pemanfaatan Kawasan Kota*, Buletin Urban Research Development Institute.
- [3] Carr, S., et all. (1992), *Public Space*, New York: Cambridge University Press.
- [4] Tiesdell, S., Oc, T., Heath, T. (1996), *Revitalizing Historic Urban Quarters*, Oxford: Architectural Press.
- [5] Garnham, H.L. (1985), *Maintaining the Spirit of Place*, Meza-Arizona: PDA Publishers Corporation
- [6] Norberg-Schulz, C. (1980), *Genius Loci: Toward A Phenomenology of Architecture*, New York: Rizzoli International Publication Inc.
- [7] Trancik, R. (1986), *Finding Lost Space*, New York: Van Nostrand Reinhold Company
- [8] Marsh, W.M. (1991), *Landscape Planning Environmental Applications*, New York: John Wiley & Sons, Inc.
- [9] Shirvani, H. (1989), *Urban Design Process*, New York: Van Nostrand Reinhold.
- [10] Wahid, J., Karsono, B. (2008), *Creating Open Space's Sense of Place, case study: Deli's Sultanate Area*. Proceeding of International Seminar Arte-Polis 2 , 8 - 9 August 2008, Institute Technology of Bandung - Indonesia

- [11] Doratli, N., Hoskara, S.O., Vehbi, B.O., Fasli, M. (2007), *Revitalizing A Declining Historic Urban Quarter – The Walled City of Famagusta, North Cyprus*, Journal of Architectural and Planning Research 24:1 (2007), pp. 65-88.
- [12] Lynch, K. (1969), *The Image of The City*, Cambridge: MIT Press.
- [13] Cirik, U. (2005), *A Design Problem of Under-Utilized Space: The Case of Ankara-Old Industrial District*, A Thesis Submitted To The Graduate School Of Natural And Applied Sciences Of Middle East Technical University.