



Integrated Sustainable Planning Process

(Set of Competitions and Comprehensive Terms of References)

Gehan Ahmed Nagy Radwan¹, Manal M. F. El-Shahat²

¹ The Higher Technological Institute,
10th of Ramadan City, Egypt

² Department for Urban planning and Design, Faculty of Engineering,
Ain Shams University, Egypt

manalfathy@hotmail.com; manal.el-shahat@si.uni-stuttgart.de

Abstract

Planning policies in Egypt are undergoing a transformation process, not only on the political levels, since 2011, but also on the social, behavioural and economic levels. A new vision and planning process are needed to assure sustainability. Hence, this paper attempts to view and assess the sustainable urban development policies and process applied in "Bahnhof" Railway suburb in Heidelberg, Germany and adapt it to the case of Ramses Railway neighbourhood in Downtown Cairo. It also attempts at setting guideline strategies for an integrated sustainable urban neighbourhood planning prototype.

Keywords: Sustainable urban neighbourhood, urban Transformation, Brownfield, Ramses Railway area.

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1.0 Introduction

Cairo is one of the most densely populated cities with approximately 17 million inhabitants. The increasing pressure of the population on the existing built environment calls for significant urban changes. The city is facing increasing poverty, loss of heritage and degradation in the quality of life. (Bott, Gangler & El-Shahat, 2009)

In light of the political, social and economic transformation triggered by the 25th of January revolution, Cairo is on the verge of a new era. Thus, this paper strives new planning process to achieve a socially responsible, environmentally friendly and economically successful future development while retaining the unique identity of its districts.

1.1. Problem Definition:

Over the last decades, there was nearly no attention paid from the governmental policies towards 'sustainable' urban development. This research is to investigate the concepts and strategies behind achieving Bahnstadt project as one of the well-known sustainable district in Germany and. It is to determine the tools and the planning process that can be learned from this case in order to be contextualised and applied on the case of Ramses area in Cairo.

1.2. Case Study areas selection

The research tackles a comparative analysis of two cases, where development projects on a Brownfield area attached to railway main station are to be initiated. One of these cases, namely in Heidelberg, Germany, was approached from the beginning with a clear vision for sustainable qualification strategies. The other case Ramses area in central Cairo was considered in the same time period (1997) as in Heidelberg as a potential area for urban development. In Heidelberg, the development process was based on competitions with comprehensive terms of references towards sustainable strategies. The redevelopment initiatives and competitions' terms in Ramses case did not target sustainability and furthermore is not yet implemented.

The selection of these two cases is based on that both areas have the potential of functional transformation through sustainable development. Other criteria can be understood from the following table (1). The urban development process and progress will be described in details later in the timeline comparison by the end of the research. (Fig. 17 and 18).

Table 1: Case studies selection criteria's relevancies

| CRITERIA | HEIDELBERG | RAMSES | REMARKS TO RAMSES RAILWAY AREA |
|--|------------|--------|--|
| URBAN CONTEXT | | | |
| Attached to the historical and central city district. (Identity & Potential) | Yes | Yes | Have a very long and valuable history and heritage. (Identity & Potential) |
| Direct connection to the main Railway Station | Yes | Yes | Direct connection to the Railway Station and indirect connection to the Downtown |
| left unused for a long time (Brownfield land) | Yes | Yes | left unused for a long time (Brownfield land) |
| Sustainable urban | Yes | No | <u>No clear sustainable development</u> |

| | | | |
|--|-----------------------------------|---------------------------------|--|
| development Potential by the end of the 20 th century | | | <u>definition</u> |
| location with rich and diverse urban context | Yes | Yes | Transportation and business central hub. Surrounded by various functional and liveable urban neighbourhoods. |
| DEVELOPMENT PROCESS | | | |
| Development planning inspired from the regional <i>sustainable strategic urban development</i> . | Yes Clearly starting from 1997 | No | Cairo's planning authorities did not develop regional sustainable strategies reports yet |
| The first intervention through national or international competition | Yes in 2001 | Yes in 2008 | Previous attempts were only approaching the square in 2006. Lately, the competition in 2008 approached the whole area. |
| The competition - terms of references TOR – clearly target sustainable development ideas and approaches | Yes | No was not clearly defined * | * The research highlights the lack of well-defined TOR vision targeting directly the various sustainable development strategies. |
| City authorities and councils defined monitoring and implementing process of the results of the competition | Yes | No | No clear monitoring or implementation process of the winning project. |
| The urban development plans of the winners have been reviewed and modified. | Yes | No | The winning project was left on paper, and the area is still empty while it is still being a great potential. |
| The urban and construction development took place and still in progress. The area getting its new residence in 2011. | Yes | No | |
| Additional urban development projects are based on the city Sustainable visions and strategies. | Yes | No | |
| | | | |

2.0 Ramses Railway Area, Cairo, Egypt

Ramses Railway station is the main rail hub for transportation. Ramses area is well known by its station, previously named 'Bab El-Hadid'. The entrances and exits on the southern side of the station open directly onto Ramses square, where Ramses II statue previously stood. North east of the station lies a former warehouse) area, which displays exceptional potential for urban transformation.

The area is forming a strip land 7.28 hectare, of 250 meter width and almost 1100 meter long and extends from the station parallel to the rail lines. (Fig 1, 2 & 4) This linear area is defined by the rail lines and the 6th of October flyover. It is also connected from the south-

eastern side with Ramses Street, which is considered as an arterial axis linking the city centre with the eastern districts of Cairo.

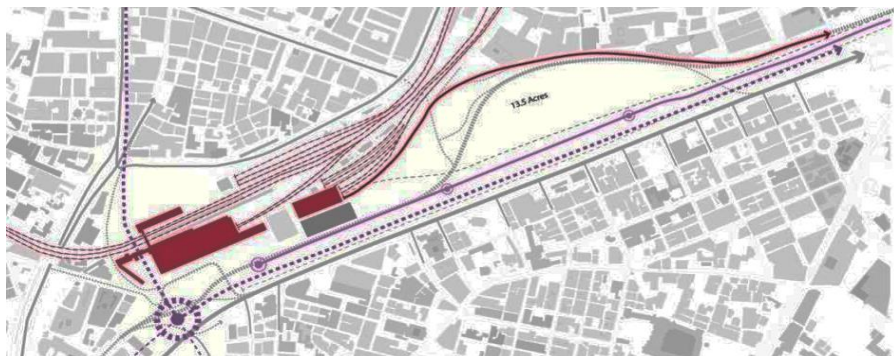


Fig. 1: The Case study area map. Ramses and Metro Station are identified in red.
(Source: First winner Ramses international competition report, AREP + BECT, 2009)

Similarly, “Heidelberg Bahnstadt” is built as a new suburb behind the main station. The development scheme transformed this area to a sustainable urban district. Hence, it resembles the railway district in Ramses where although part of it is totally vacant from any structures, but the built up zone put to use the existing public and multifunctional structures as an emphasise of identity. The next part will go through a SWOT analysis to reveal the various opportunities for the new development approaches. It ends with a review of the different urban development attempts and a criticism of the urban competition’s terms and its results.

2.1 Location within the city and the urban context:

Ramses area went through a history of urban changes, which resulted in a diverse built environment and varied urban fabric which should contribute towards significant urban development.

In the late Islamic period, Ramses area was the northwest edge of the mediaeval town and the entrance to the historic Islamic city. The train station was built in the first half of the 19th century, in front of this entrance. (Fig. 3 (b) & Fig. 5) The area acquired its name from Ramses II statue that stood till year 2005 in the middle of the square. (Fig. 4 & Fig. 5) Nowadays, Ramses square and its surroundings are a vital part of Downtown Cairo (CBD). They act as a meeting node between the western Khedive areas, south-eastern Islamic Cairo and the northern quarters (Shoubra district). (Fig. 7)

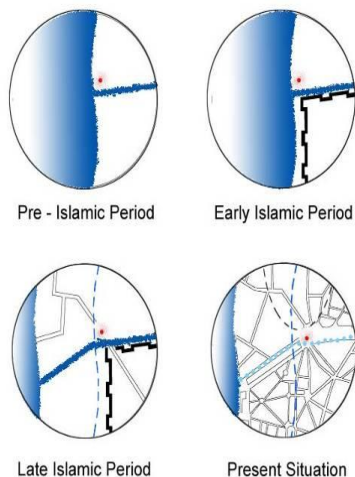


Fig. 2: Panoramic view for the case study area, 'Mahmasha' to the northeast of Ramses railway station.

(Source – Photo by Ahmed Abd El Aziz, August 2012)



Fig. 3: (a) Ramses II Statue stayed in the square till 2006. Source: Morsi (2008). (b) The development of the gate of (Ramses square) from pre-Islamic period to the present solution. Source: Bott, Gangler & ElShahat (2009)



(a)



(b)

Fig. 4. (a) Flyover 6th of October crossing the square.

(Source, Bott, Gangler & ElShahat, 2009)

(b) Aerial view of Ramses square area.

(Source, Morsi, 2008).

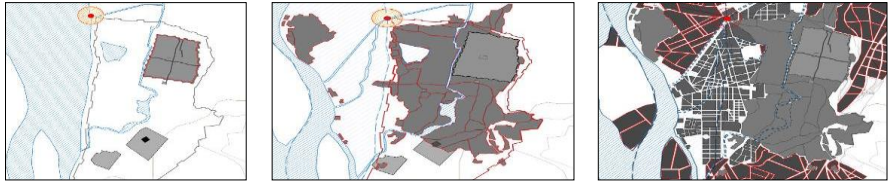


Fig. 5. The development of the gate of (Ramses square) from pre-Islamic period to the present solution.

(Source: Bott, Gangler& ElShahat, 2009)



Fig. 7. Different Urban Fabric Patterns Surrounding Ramses Square.

(Source: Bott, Gangler& ElShahat, 2009)

2.2 SWOT Analysis of Ramses area and its surroundings: Table 2.

The revitalisation of Ramses area, contributes to sustainable urban development with high quality of life; makes better use of the land for the citizen's welfare, and creates a more attractive area for companies to settle down. Green spaces, historical buildings, commercial areas, metro line transportation, in addition to, the existing railway station, are some of the key opportunities in the development process for a new railway neighbourhood.

2.2.1 Weakness and Threats of the Ramses area:

The current situation of this area is chaotic and in terms of its spatial quality a disaster. A lot of problems have emerged throughout the previous decades on different levels: (Morsi, 2008)

- Multi layers of traffic network: an elevated highway and looped ramps dismember the spatial and visual continuity of the square.
- Highly frequented traffic lanes separate the main station and its square from Downtown Cairo and Old Cairo.
- The environmental damage caused by littering from the pedestrian, emissions from transportation and the limited green spaces.
- Informal street traders: the place brings crowds of people together.
- There are no suitable parking spaces with enough capacities

2.2.2 Opportunities and Strengths in the Ramses neighbourhood:

The strategic location of the Ramses area encourages the concept of sustainable mixed uses activities district connected to the Central Cairo. The already existing old structures and railway buildings are considered as fundament for sustainable development.

On terms of Accessibility, Transportation and mobility; The Ramses area connects heterogeneous realms in Central Cairo and opens up a link to the Western and Northern quarters beyond the tracks. (Morsi, 2008) (Fig. 7)

Table 2: S.W.O.T analysis of Ramses Square.

(Source: Morsi, 2008)

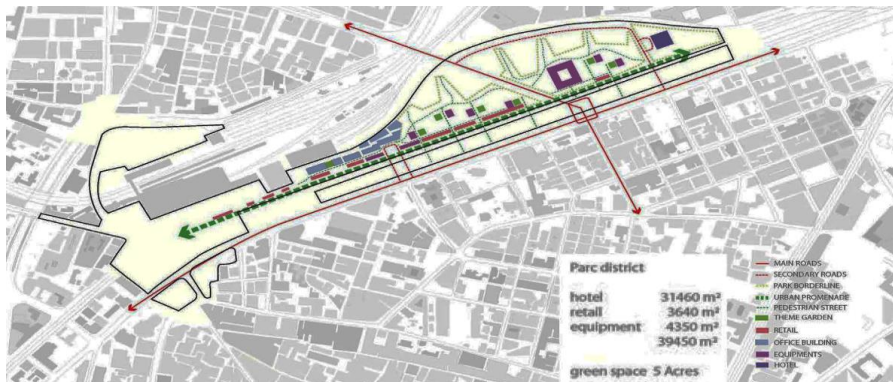
| STRENGTHS | WEAKNESSES | OPPORTUNITIES | THREATS |
|---|-------------------------------------|--|---|
| Good Infrastructure Network | Lack of Green Spaces | Presence of many company headquarters | Physical Barriers |
| Central Location in Cairo City | Different and opposing Urban tissue | Presence of many commercial facilities | Noise and Ecological pollution |
| Various existing facilities in the Square | The pressure of population growth | Historical and cultural values | Poor connections for pedestrians |
| Already existing Train stations | The pressure of traffic growth | Great tourist attraction | Complex history that needs preservation |
| Transportation Network Hub | Transportation Network Hub | Transportation Network Hub | Lack of service facilities |

2.3 Ramses urban development projects:

The National Organization for Urban Harmony (NOUH), Ministry of Arts and Culture in cooperation with Cairo Governorate were planning to create a Cairo central area including Ramses area to be the central business district. In 2006, Ramses Statue had been removed. Consequently, the government of Cairo assigned an experienced consultation office the planning of Ramses square. The outcomes did not satisfy the government officials and it did not tackle major problems of the area.

2.3.1 The 1st Competition for the square and the Railway area: (Fig. 8)

Lately, in 2008, NOUH launched an international competition for development ideas for Ramses area including the vacant land adjacent to the station. The main aim was to solve the transportation problems while; planning the nearby area was a secondary aim. (Ramses Competition Terms of References TOR, NOUH, 2008).



+ ,BECT Offices (2009).

2.3.2 Criticism to the competition results

The first prize project proposed transforming the area of 7.28 hectare, located under the 6th of October flyover, into a central urban park. While removing of the 6th of October flyover was to free the whole area visually and functionally from crowds and traffic congestion. (Sabry, 2009) and (AREP - BECT, 2009) The NOUH claimed that the implementation process will start in one year time. The prime minister alleged that a team of expertise, from the General Organisation for Physical Planning 'GOPP', will start directly identifying the financial implementation programme of the project. (Sabry, 2009) Unfortunately, the responsible authority and the owners of the area were undefined. Moreover, the governmental authorities recognised that the winning project was not applicable due to serious technical problems.

In addition, the aims and scope of the competition mentioned in the TOR were not clearly defined. The competition did not include clear vision for the whole project area within Cairo's

urban context. The main focus of the TOR was concentrating on re-planning approaches of Ramses Square, without considering the sustainable approaches for such development.

3.0 Heidelberg Bahnstadt" - Railway suburb: (Fig. 9)



Fig. 9: Map of Germany shows the state of Badenwürttemberg, and the city of Heidelberg.

The name Bahnstadt -Railway Suburb- reflected the identity of the area. It indicates the existing infrastructures in the plan. It also reflects the linearity and infinity of the space. The urban transformation process of the existing railway facility buildings added to the urban configuration plans and emphasise the identity of the area. The following section, will handle the case of Heidelberg in terms of its location and relation to the historic core of the old city. Then it justifies why the city of Heidelberg choose to develop this area. It also highlights the process of the whole and the partial competitions set for the area 'Bahnstadt' and its results. This section is then concluded by a review of the visions and guidelines in Heidelberg – Bahnstadt project.

3.1 Location within the city and the urban context:

Heidelberg is located in the north of the state of Baden-Württemberg (the southwest state of

Germany). It is a small city with approximately 148 000 inhabitants. The urban structure is influenced by its history, its very old and well-known university and variety of national and international scientific institutions. Apart from this historical importance, Heidelberg is participating in the "City of the Future" international competition. (Von der Malsburg, 2007) Heidelberg Bahnstadt or the railway Suburb is located directly behind the main station and extends southwest of the station, where previously carriages and goods and shunting premises were locating (Fig. 10)

Heidelberg city planning authority aimed at transforming this new project of Bahnstadt into the largest Passive House development in the world. Since 1997, the city local government policy has been oriented towards setting guidelines for sustainable development and focused over the last few years on conversion of former industrial and brownfield areas.

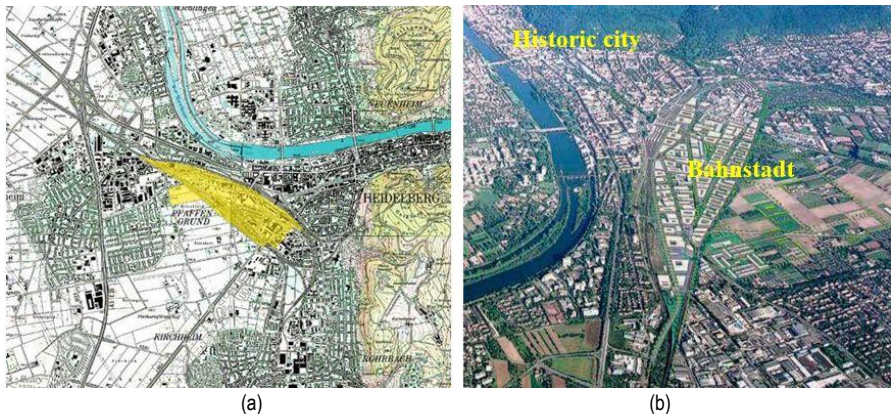


Fig. 10: (a) Railway City, site map of Bahnstadt Suburb within the urban context. (b) An aerial view of Bahnstadt Suburb within the city of Heidelberg.
(Source: Stadt Heidelberg, 2007)

A New Technology Park and a Campus is constructed in the area. Young scholars from all around the world headed to live and teach there which gave the new suburb its renowned name. (Venancio in Bott 2012) The plan targets to accommodate about 6000 inhabitants and provides approximately 7000 new job opportunities. (Stadt Heidelberg und Stadtplanungsamt, Mai 2007) In 2009, foundations were laid for the first and second phase implementation areas. In 2012, the first residents moved into the suburb. (Expo Real, 2012).

3.3 Bahnstadt urban development Process:

3.2.1 A Call for a Sustainable Urban Neighbourhood:

An urban planning competition for the area of 116 hectares located southwest to the railway station was announced in 2001. The competition called for a vision for the new district 'Bahnstadt'.

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Fig 11: 'Bahnstadt' Railway city, Mixed landuse: city of science, market-centre, campus II, residential 'living at the promenade', etc...

(Source: Städtebauliche Rahmenplanung, Stadt Heidelberg, 2007)

The city of Heidelberg intended, together with the German Railway Company ((Deutsche Bahn) DB AG), to develop a *mixed-use, future-oriented urban district with a unique identity, character and a high quality of life*. (Fig 11) The main competition task was to develop planning concepts to link the railway station with the "central" historic core of Heidelberg. The overall plan had to demonstrate ecological sustainability, social stability and economic feasibility. (Stadt Heidelberg und Stadtplanungsamt, Mai 2007) In 2008, a second competition of a residential area (*living at the promenade*) was announced. In 2010, the Bahnstadt integrated new concepts - the 3rd competition for nursery (kindertagesstätte auf Schwetzingen Terrasse) - took place. All these *series of competition assignments* were set to comply with the main visions and concepts of the whole city district of Bahnstadt. The city council approaches a simultaneous development process of infrastructure, homes and jobs in order to ensure the sustainability of the planned urban district. (Friedrich, Annette et. al., 2005) The Public transportation connections with the southern quarters took place in the first implementation phase in order to enable the development of the southern area (the first residential areas). This ensured the environment and ecological approaches for a sustainable urban neighbourhood. (Fig. 12 a & b).

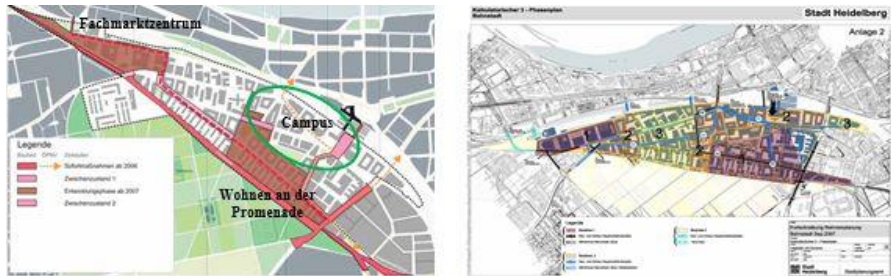


Fig. 12: 'Bahnstadt' Railway city, implementation and planning phases,
(Source: a) Friedrich, Annette et. al., 2005; and b) Städtebauliche Rahmenplanung, Stadt Heidelberg, September 2007)

In 2009, the construction of the Campus in the central area began. The entrance area from the main station was first configured, to be the centre of science and industry, where research institutions and science-related companies are located. Yet the campus will extend to include a liveable mix of uses: trade, offices and entertainment facilities (Heidelberg Bahnstadt – EGH, 2012).

3.2.2 Main aspects to the competition results:

The design concept of first prize gave a flexible framework plan and met the demands of further planning development. In 2003, the city of Heidelberg in cooperation with the winner and the Aurelis real estate GmbH & Co. KG, the owner of the railway area, and the municipal council revised the urban design. It had a balanced and incremental transformation process and was integrated in the morphology of the city of Heidelberg. (Von der Malsburg, 2007) The master plan included the future city layouts and the land use plan, open spaces and the traffic network concept of the railway town. (Fig. 11 & Fig. 16)



Fig. 13: (a) The first winning project Trojan + Trojan office in Darmstadt (2003). (b) Google maps of 'Bahnstadt' Railway city shows the current situation. The city construction phases are still processing.

In 2006, a special town development scheme was issued, which enable the re-use of vacant 'brownfield' lands to cater for the needs of the residences. (Wiegandt, Claus-Christian, 1997 & Siebielec, 2012) the research argues here that, the action of editing the building

codes, done by the city planning authorities is considered as a crucial step for sustainable development.

3.2.3 Visions and guidelines of the Sustainable Development Concepts:

The main target- among other targets since 1997 was the reduction of CO2 emissions with 20 % till 2015. (Venancio in Bott 2012) Heidelberg city planning authorities produced a vision and guideline report of the urban development plan (**STEP 2010 - STadt Entwicklungs-Plan**). The sustainable targets and guidelines of STEP comprised nine main divisions: *urban design approach, work, housing, environment, mobility, social-, cultural-, regional cooperation and demographic- change.* (Fig. 14 & 15)

In terms of sustainable development, the winning prize concept had offered an environment that: has a high quality of life, attracts science and research centres; provides affordable housing; has family-friendly structures; shows a hierarchical network of roads ranging from high to low dense roads; gives best use of the city's footprint and traffic systems, and offers interaction with the surrounding neighbourhoods. (Review Fig.11)

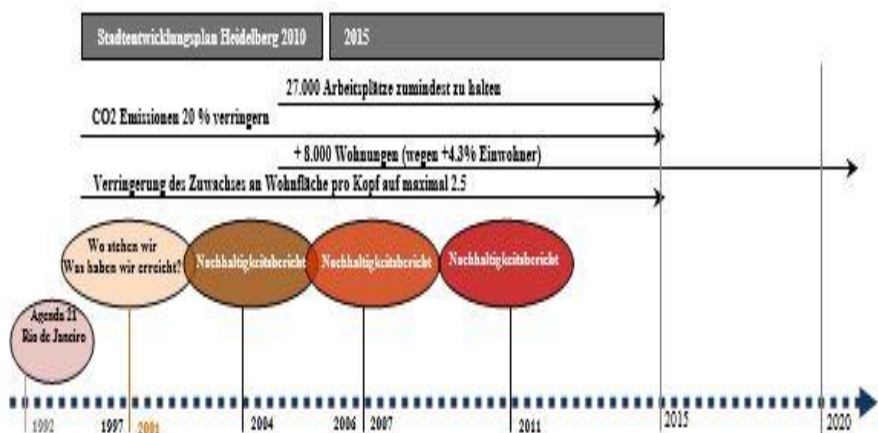


Fig. 14. Heidelberg –City Urban Development Plan towards sustainability STEP 2010 and targets till 2020.

(Source: Venancio in Bott, 2012)

These concepts composed of three core areas: (Expo Real, 2012)

- Efficient building standards; construction must comply with the passive house standard.
- Efficient energy supply; all required energy is to be generated through renewable energy sources.
- Efficient implementation; the city of Heidelberg developed a counselling approach to ensure quality assurance procedures, and the high demands on the energy standards "Passive House".



Fig. 15. Heidelberg – City Urban Development Plan 2015.
Source: Venancio in Bott, 2012)

4.0 Discussion and the Research Results:

The Comparison between Ramses Neighbourhood and Heidelberg Suburb enable Ramses case as well as Cairo's future visions to benefit from the Bahnstadt and Heidelberg experience. (Fig. 16 and 17)

The Timeline comparative diagram is showing the detailed development process and its progress in both cases. It indicates, that the progressive experience of the Heidelberg competition' processes were due to a defined scheduled sequence and a clear vision since 1997. It clearly highlights the lack of a sustainable vision of urban development projects and competition's Terms in the case of Ramses since 1990s. Yet, it is worth mentioning that the area remains undeveloped up till now. The Ramses experience showed a shallow process as there are no clear strategic plans for Cairo approaching such potentials of functional and urban transformation. Consequently, creating a successful plan could be achieved by identifying future vision and the conceptual policies and by setting key principles and related strategies.

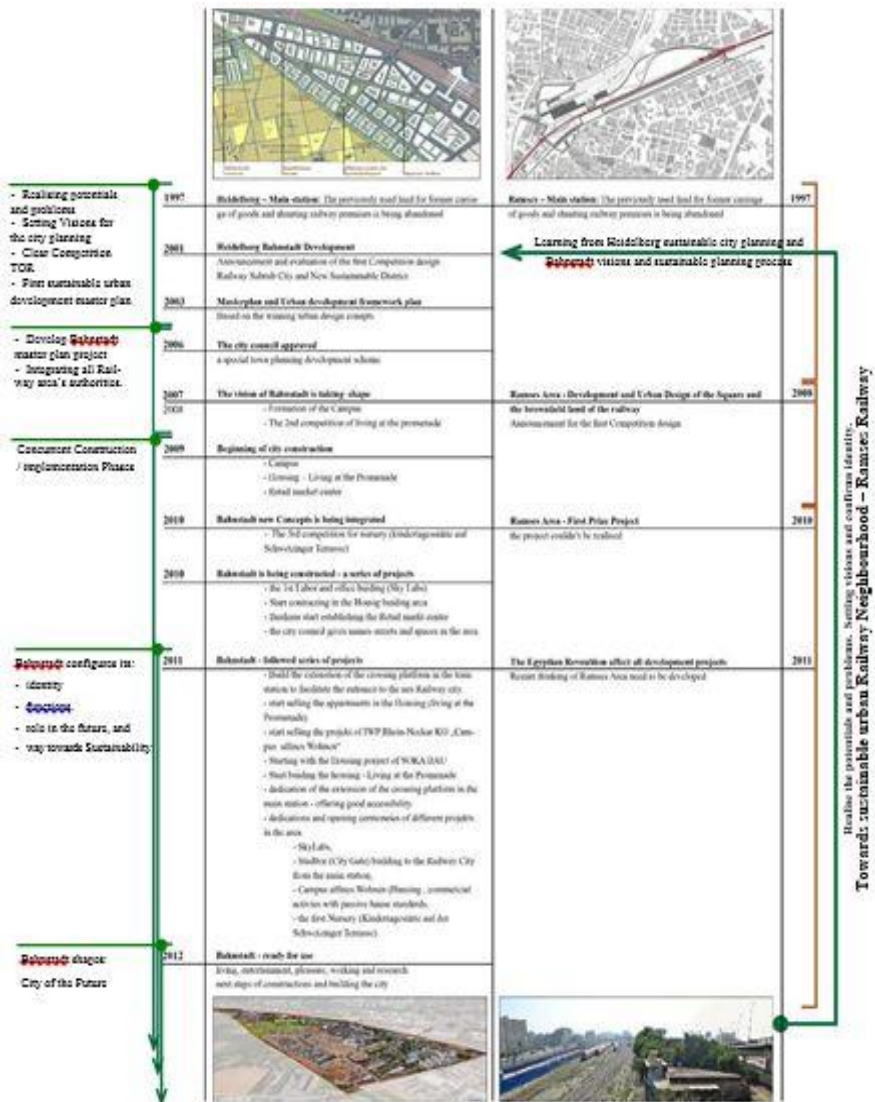


Fig. 16. Time plan development of the urban projects and competitions in both cases Bahnhofs's and Ramses- Railway's abandoned areas since 1997. Learning lessons from Heidelberg.
(Source: The diagram concept and design is developed and edited by the authors)

4.1 Vision and conceptual policies and process learned from Bahnhofs case:

The sustainable planning process, which is contorted by local governments, needs to

embrace a holistic understanding of the global sustainable vision. This vision can be identified as “A liveable sustainable neighbourhood with high social quality levels” and can run through integrated development competitions guided by comprehensive sustainable guidelines in its terms. Such vision should be addressed through public competitions, which act as a platform for developing concepts of accessibility, mixed land use, urban spaces and housing facilities, efficient energy.....etc. Furthermore, the competitions should run on phases according to constraints of the existing contextual situations. Consequently as in the case of Heidelberg, Internal Building codes should be reformed to meet the requirements of sustainable urban regulations.

4.2 Guidelines and lessons: Strategies for transformation through sustainable qualifications

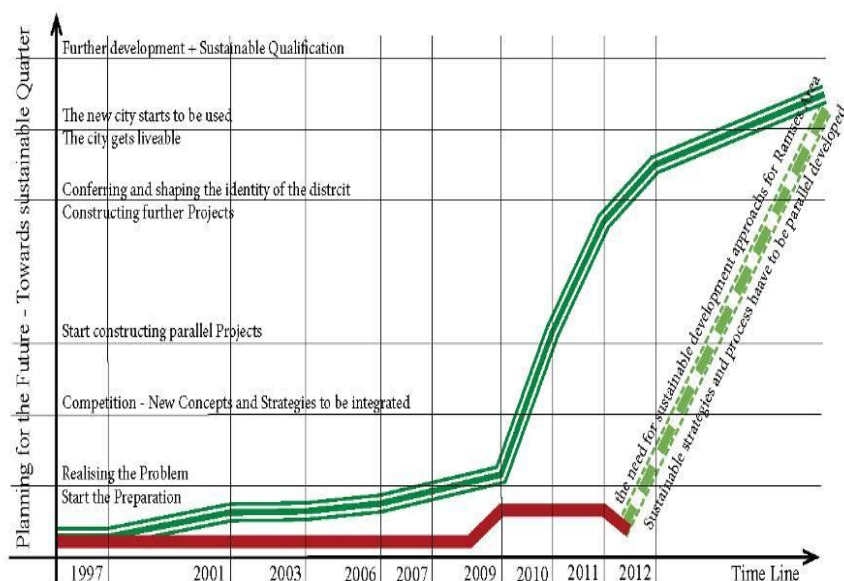


Fig. 17. Chart shows where Ramses projects and competitions progress (in red) are locating. It shows also the need for strategic planning process towards a sustainable urban neighbourhood on the area of Ramses.

The process and planning strategies in Heidelberg can be used as a guide to develop a comprehensive process on multiple aspects. Such process will lead to the creation of holistic city development, with an identity based on characteristics and history of the area, as a prototype for Greater Cairo.

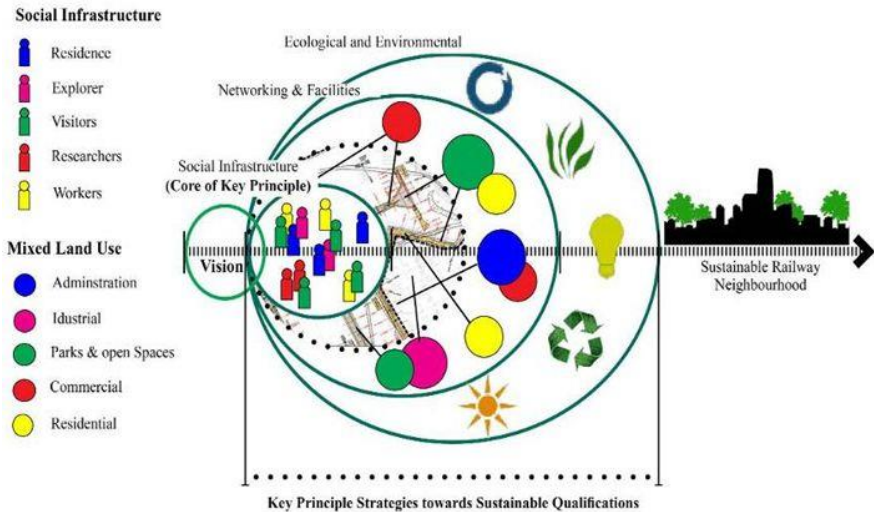


Fig. 18: A liveable sustainable neighbourhood with high social quality level - Social, Networking and Ecological layers as Key principles strategies towards Railway Neighbourhood.
(Source: Concept and design the authors, pictogram editing by Mohamed Amer)

As a conclusion, the following defines **the key principles strategies** shown as layers and assets and are overlapping and interacting to achieve the vision for sustainable urban development. These layers are understood from the investigation of the case of Heidelberg towards achieving liveable neighbourhood.

Sustainable Social and Economic Key Principle:

The sustainable urban neighbourhood should be a hub of various activities; allows the interaction between economic strata of the society; provides interaction within public spaces that act as transition zones in-between different functions and that attract people with different backgrounds other than the residence and creates a pleasant environment. The social layer here is locating in the core by being an asset for liveable neighbourhood.

Sustainable Networking and Facilities Key Principle:

Attempts towards sustainable networking infrastructure could be achieved by applying principles of sustainable transportation, decreasing the vehicular use, encouraging the use of public transportation, and creating access points into the new railway neighbourhood to provide interaction with the surrounding areas.

Ecological and Environmental Key Principle:

The planning process of an environmental district has to take place through learning process that spans through several years and involves not only planners, architects, engineers but

also other stakeholders like administrators and users of the area. Ecological and environmental education and awareness programmes are, therefore, essential in order to achieve sustainable approaches. Importing such knowledge, knowhow and techniques, in addition to the potentials of renewable energy sources is the key issue toward Environmental orientated concepts.

4.3 Final remarks:

The research indicates that, despite, Egypt has adequate potentials to be a leading country, in the field of urban development; Egypt has no successful sustainable development model due to the lack of clear vision, defined time plan, flexible building codes and regulations, and inefficient terms of projects and competitions. The paper strived to relocate Egypt's position on the world map of sustainable urban development by learning from other innovative case studies. In this manner, Ramses railway neighbourhood would act as a *successful prototype keeping people within the city, as well as attracting others from surrounding areas back to the centre*. This would produce a *sustainable urban neighbourhood* through a transformation process of a Brownfield area.

5.0 Further research:

- 1) Review and analyse the current national planning strategies to promote sustainable development.
- 2) More research investigating sustainable development objectives of successful case studies as a learning tool in the developing countries. Application using aforementioned guidelines and key principals for preparing competitions and projects terms of reference.
- 3) Research fields on the social assets as a core of the sustainable neighbourhood models.

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