

Public Perception of Environmental Change in Rapidly Growing Cities: the Case of Cairo, Egypt

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1 ABSTRACT

Cities, especially in the global south, have expanded exponentially over the recent time. However, the pace of the required public acceptance of environmental change and the progression (invasion) into new ecosystems is not yet fully taking place at the same speed of the socio-cultural and natural identity changes and environmental awareness. Accordingly, scholars nowadays are calling for the pressing necessity of dealing with cities as socio-ecological realms, where social and ecological issues should be tackled and solved in an integrated manner.

Future extensions of Cairo are promoted by the Egyptian government and the private sector promises unrealistic images of landscape futures through unsustainable landscape practices influencing the socio-cultural meanings and values of nature while disregarding the environmental context of the proposed new city extensions. Lush and vast open green spaces are being marketed on an everyday basis through billboards on main roads across the capital, TV advertisements, and newspapers. These aspirational landscape images are promoted in a desert climate, which manipulates the public expectations and masks the environmental change that is facing the new urban extensions.

This paper argues that these acts affect the public attitudes and aspirations towards nature/landscapes of the future and hinder the required shift and awareness of environmental change as per the new ecosystem inputs. Environmentalism and pro- environmental behaviour require knowledge, awareness and most importantly frequent experiences of nature as advocated by scholars from different ecological and psychological disciplines. In this regard, the research paper shall investigate these propositions in the case of Cairo and its new administrative capital as an urban extension. The research deploys various methodological strands including visual data and sources to shed a light on the different daily images and messages of landscapes. The findings offer insights about the accompanying messages of landscape production dynamics as a main step towards understanding landscape futures and balancing between quality of life, environmentalism and economic prosperity in the new developments.

Keywords: Environmental Change, Cairo, Public perception, Landscape messages, Visual rhetoric

2 PUBLIC PERCEPTION OF ENVIRONMENTAL CHANGE

Environmental change was dealt with for a long time as a purely scientific problem led by natural scientists, till a more comprehensive understanding of the environmental problems began to prevail (Heise, 2016). According to Kari Norgaard and Dale Jamieson, the detailed attention to the political, social, cultural and rhetorical forms by which the climate problem is framed in different communities is the only way forward (Heise, 2016). UNESCO has adopted environmental perception by individuals and communities as a diagnostic tool since the 1960s (Roeschel, et al., 2016), when studying environmental perception became a fundamental tool for the management of places and landscapes (Roeschel, et al., 2016). An unaware public of the realities and risks associated with climate change poses a huge threat to society and the planet (Petersen, et al., 2019).

Public perceptions of climate change causes and consequences affect the ways in which individuals and societies respond to climate change (Capstick, et al., 2015). Public perceptions of climate change are very divergent in the different countries and even within some local contexts (Capstick, et al., 2015; Rajapaksa, et al., 2018). Changes in public perceptions are not well understood and are complex, as aspects of the surrounding physical and social contexts are crucial, including cultural values, political context, the nature of media coverage, in addition to the level of direct risk exposure (Capstick, et al., 2015). It is noteworthy to mention that knowledge about the causes of climate change is strongly related to public perceptions of climate change risks compared to physical knowledge which is not always positively influential or related

(Rajapaksa, et al., 2018). Hence emphasis on the causes of climate change is crucial for effective awareness campaigns and communication strategies (Rajapaksa, et al., 2018). In addition making climate change locally relevant is crucial, by connecting it to salient local issues and co-benefits (Nash, et al., 2019; Upham, et al., 2009; Pidcock, 2018). This is an important step towards bridging the gap between wider global awareness and local relevance (Nash, et al., 2019). Perception of climate change is argued to be the foundation of climate change related policies, where the ways that climate change perceptions motivate individual pro-environmental actions is of great significance for the government to implement these policies (Yu, et al., 2013).

It is noteworthy to mention that there are a number of factors that affect the willingness of communities to engage in proactive adaptation to future climate change impacts: optimism bias (Taylor, et al., 2014), psychological distance (Taylor, et al., 2014; Rajapaksa, et al., 2018) and experience of risks (Rajapaksa, et al., 2018) are among the most discussed factors. The psychological distance refers to the spatial distance or the physical vulnerability of people's living places while the experience considers the impact of past events with regard to people's current perception and behaviour (Rajapaksa, et al., 2018). Insufficient understanding of the impact of people's actions on environmental sustainability and climate change may hinder environmentally-friendly actions (Rajapaksa, et al., 2018). Communities are affected by what they experience and what they perceive. Therefore, when the projected climate change impacts are more immediate, familiar and salient, the willingness of users to adopt protection measures proactively increase independently of climate change beliefs (Taylor, et al., 2014; Rajapaksa, et al., 2018). Environmental representations are interpreted through social and cultural layers of understanding which shape environmental issues (Nash, et al., 2019). Accordingly, my studies confirm the influential role of pro-environmental values, cultural worldview, and political affiliation in shaping beliefs and concerns about climate change (Taylor, et al., 2014).

3 THE ROLE OF VISUALS IN ENVIRONMENTAL CHANGE DISCOURSE

Despite the importance of public perceptions of environmental change, there is an ignorance about the ways that public understanding has developed as a result of the imbalance of studies of public perceptions between developed nations and other countries (Capstick, et al., 2015). The climate change issue is not always the main concern of the public compared with economic circumstances, which in turn affects its coverage intensity by media outlets (Capstick, et al., 2015; Scruggs & Benegal, 2012). The same premise works the other way around where the lack of climate change media coverage affects public perceptions and concerns for this issue compared to other widely covered issues by the media that are more salient and immediate.

There are various explanations for the challenges of public engagement on climate change as the uncertainties of the climate science act as a stumbling block for communication with the public where climate change discourses might seem abstract and intangible to the public (Pidcock, 2018). In addition, the political atmosphere is also influential for this topic. In some nations, the political polarisation of climate change is a major issue while in others the absence of public and political discourse is the problem (Pidcock, 2018). If the issue of climate change is to be perceived as genuine and of serious risk, the trust and credibility of the communicator is of crucial central influence on climate change perception, to the extent that the general perceptions of the communicator are as important as the message itself (Upham, et al., 2009). Thus the public distrust of government as a source of information about climate change, will have implications on the government's efforts for raising awareness and changing behaviours through information campaigns (Upham, et al., 2009). In addition, public engagement aiming at attitude and behaviour change has jeopardised success where powerful contextual factors are operating against this change (Upham, et al., 2009). Also institutional trust is influential regarding opinions towards environmental change, whether the change is directly engineered or managed (Upham, et al., 2009). Thus the perception of and trust in the stakeholders involved in managing landscapes is crucial in defining the public's environmental values, and place attachment (Upham, et al., 2009).

In accordance, connection with the audience should be based on shared values to build trust between the communicator and the audience (Pidcock, 2018). Media coverage has a crucial role in shaping public perceptions where people gain most of the political, economic news from the media, and scientific stories are no exception (Boykoff & Rajan, 2007). The power of media is being recognised by scientists now, whereas political, economic interests had always attempted to influence media coverage of specific topics to affect

the public's understanding and perception (Boykoff & Rajan, 2007). In addition, the state control over the public sphere coupled with high illiteracy rates and technological limitations have always been a factor acting against equal coverage of topics (Boykoff & Rajan, 2007). The intersection of mass media, science and policy is a dynamic arena of communication in which all sides have their stakes and agendas (Boykoff & Rajan, 2007). Journalism and public concerns have shaped decisions in climate policy and science, but also climate science and policy have shaped media coverage and public understanding (Boykoff & Rajan, 2007). The media landscape is changing nowadays, where digital media platforms are providing an alternative outlet. Hence the ways of picturing climate change are divergent and have different tones and voices with potential implications for engagement (Wang, et al., 2018). Eco-media has a great impact on real-world interactions with the natural environment and offers a great potential for audiences to change the ways they think about and interact with nature (Wallace, 2019).

3.1 The role of visuals in environmental change communication

The current environmental issues require strong public support and a huge shift in public awareness (Altinay, 2015). Hence the communication techniques should adjust to changing conditions through deeper levels of engagement for communicating sustainability that would foster social learning, and appeal to the values and beliefs of the audience (Altinay, 2015; Sheppard, 2006). Environmental literacy is crucial so that individuals can evaluate and construct an understanding of human-nature relationships through environmental learning (Altinay, 2015). Human awareness of the surroundings is limited and knowledge about the environment is not always obvious through observation (Altinay, 2015). In this regard, visualisations are being relied on as a tool to evoke environmental issues in a meaningful and personal way in everyday discourse (Altinay, 2015; Sheppard, 2006; DiFrancesco & Young, 2010), and is argued to lead to behavioural change (Sheppard, 2006). Visual communication is critical as a contributor to the cultural and social life of environmental issues, yet under-estimated (DiFrancesco & Young, 2010). Hence, visuals are considered a crucial part of the interface between science and the public (Brönnimann, 2002). Work on climate imagery is important in terms of psychological distance that is argued to be one of the main hindrances against perception of environmental change (Wang, et al., 2018; Rajapaksa, et al., 2018; Taylor, et al., 2014).

Images are powerful for their ability to blend facts and emotions and have great engagement potentials where they engage viewers as witnesses rather than detached receptors of information and claims (DiFrancesco & Young, 2010). It is crucial to highlight that visuals that carry emotive content and are relatable to the individual's daily life are more effective in triggering pro-environmental behaviour than cognition alone (Altinay, 2015). Despite the great importance of visual images, our understanding of the ways they relate to public perceptions of climate change is still limited and less developed (Wang, et al., 2018). Hence there have been lots of studies concerned with the characteristics of these engaging visuals which encompassed realism, personal salience, immediacy, human element, and demonstrating future consequences (Altinay, 2015). In this regard, landscape visualisation is one of the unique beneficial visual imagery for bringing consequences of environmental change home to people through its unique characteristics (Sheppard, 2006).

4 SOCIAL CONSTRUCTION OF PUBLIC PERCEPTIONS OF ENVIRONMENTAL CHANGE

People relate to the proximate and visible causes of climate change in the absence of wider understanding, as the perspectives of global climate change may be limited due to being beyond human perceptual capacity (Nash, et al., 2019). In addition, people sometimes interpret climate change events through the culturally available narratives that construct these issues, as the physical climate change is observable only over long time periods (Nash, et al., 2019). Hence perceptions of environmental conditions are fundamental to informing behaviour (Nash, et al., 2019). The social, economic, political and technological context of individuals shapes and constrains attitudes and behavioural responses to environmental change (Upham, et al., 2009). In addition, attitudes are conjectured constructs that refer to an individual's evaluation of an idea (Upham, et al., 2009). Accordingly, attitudes are dynamic contextual, and influenced by multiple factors (Upham, et al., 2009). Hence considering the wider context of the individuals is crucial while formulating and enforcing policies supportive of pro-environmental attitudes towards environmental change in addition to cognition, affect and behaviour (Upham, et al., 2009). Furthermore, risk perception is a product of psychological processes and the broader social, institutional and cultural factors and the local context (Upham, et al., 2009). Hence there is a need for effective communication to facilitate sustainable relationship

between people and the rapidly changing socio-ecological systems they inhabit and influence (Thomsen, 2015).

Landscape is the sphere where societies and nature interact and affect each other (Bürgi, et al., 2004). On the other hand, dynamism is an inherent feature of societies and nature which leads to 'change' as being an inevitable characteristic of landscapes (Bürgi, et al., 2004; Antrop, 2005; Wood & Handley, 2001). Drivers of landscape changes are argued to be socioeconomic, political, technological, natural and cultural driving forces (Bürgi, et al., 2004). Where the socioeconomic and political driving forces are strongly interlinked the socioeconomic needs are usually expressed or tackled in the political programmes, laws and policies (Bürgi, et al., 2004). Thus, the political identity dominates other factors in predicting climate change beliefs for individuals (Hamilton, et al., 2015). This is also concluded by Upham, et al., (2009), where they confirm that political and environmental beliefs strongly influence attitudes and responses to climate change (Upham, et al., 2009). Technology has impacted the landscapes a great deal as well lately, as in the case of the impact of automobiles on settlement patterns. Culture is an important driver of landscape change (Bürgi, et al., 2004; Nassauer, 1997; Rockwell, 1994). Proctor (1998) and Bürgi, et al. (2004) argue that culture is a means of making sense of reality. Culture and nature are closely tied together which can lead to devastating consequences to nature as culture sometimes ignores or erases the autonomy of the natural world (Wallace, 2019; Nassauer, 1997). Yet there is a severe lack of approaches of 'Culture' integration into the studies of landscape changes (Bürgi, et al., 2004).

5 RESEARCH PROBLEM

Climate change is investigated and addressed by natural scientists, but it is also crucial to consider the social and cultural life of the climate change issue which is influenced by competing claims, values, priorities, and narratives (DiFrancesco & Young, 2010). Hence communication and media theories, and environmental sociology would be helpful in understanding how climate change issues are packaged by visuals that are consumed by the public which is not usually well acquainted with climate science (DiFrancesco & Young, 2010). As concluded by DiFrancesco & Young (2010), the lack of clear imagery about climate change makes it difficult for the public to visualise potential impacts and consequences and to link the scientific claims to everyday life (DiFrancesco & Young, 2010). Images are considered the 'co-constructors' of environmental messages, due to their communicative and engaging powers (DiFrancesco & Young, 2010). Risk perception is also impacted by social psychological processes such as media framing, perceptions of communicators, denial...etc. (Upham, et al., 2009).

The power of images originates from their influence to be manipulated and could propagate multiple forms and purposes, in addition to constructing and expressing social imaginaries of modernity (Kapferer, 2012). The diversity of available images nowadays is another factor (Kapferer, 2012). Hence the construction of images and mythologies of power is crucial in analysing the continuously changing social assemblages of the modern world and in discovering and inventing new ways of recasting new realities (Kapferer, 2012). Advertisements for example have multi-faceted influences and effects. On the individual level, advertising media can shape and sometimes change a person's behaviour, opinions, and attitudes (Dyer, 1982). While on the community level, it propagates general ideas and beliefs (Dyer, 1982). It is also argued that the utopian imagery of advertisements encourages passivity and makes the public unaware of the imposition of consumerism ideologies (Dyer, 1982). There is evidence that asserts that advertising plays a role in defining 'reality', through the projection of goals and values that are consistent with and conducive to the consumer economy and convinces the public that they can buy a way of life and goods (Dyer, 1982).

In this regard, the power of images and the advertising effects are posing devastating impacts on the Egyptian landscape, socially, economically and environmentally. The real estate advertising campaigns that is taking over the capital specifically is shaping a utopian reality that is disconnected from the true identity of the Egyptians, imposing a westernised green utopia, and it is promoting consumerism lifestyles of living in gated communities. In addition to the devastating social impacts on the community and the solidarity of the urban form of the new cities, this new lifestyle and promoted green utopia is masking the consequences on environmental change that the public will be facing when it moves to the new desert extensions. This constructed reality is profit driven and environmentally unconscious. This research looks into the prospected impacts of these acts on the public perception of environmental change.

6 RESEARCH METHODOLOGY

In accordance with the great importance of images in the field of public perceptions and issues of environmental change, this research is employing a visual research method. Visual research methods are now adopted in numerous fields of inquiry, as a result of the rapid development of information technology that facilitated the creation and editing of digital and visual data (Knoblauch, et al., 2008). Visual data is becoming the subject matter and the methodology of social scientific inquiry where the ways of approaching visual data in a scientific, analytic or theoretical manner is gaining increasing influence (Knoblauch, et al., 2008). Visual methods can change the voice of the research and they also enable the researcher and the audience to widen their experience, understanding and representations of the issue of interest (Frith, et al., 2005).

Visual data and analysis are usually characterised as qualitative where they address the cultural meaning of visual data and relate to the different ways in which actors interpret this data (Knoblauch, et al., 2008). Visual data includes photography, video and graphic representations, but photography requires more interpretation (Knoblauch, et al., 2008). Photography is a visual system of representation where it produces certain realities through certain visibilities i.e. an object's visibility is produced that might not be present (Christmann, 2008). The intentional and subjective representation of photography offers multi-layered meanings, where recipients may see and understand them in different ways (Christmann, 2008). However if producers and recipients share common socio-cultural practices it reduces the divided understanding of the picture (Christmann, 2008). Pictures for social sciences provide personal insights and personal record of spatial and social relationships (Knoblauch, et al., 2008). The objects included in images, and the ways they are included (Dyer, 1982; Frith, et al., 2005), in addition to what is excluded are all important factors in the construction of the particular reality and the meaning-making that enables it (Frith, et al., 2005). The pictures' context of production and publication and the ways they will be perceived is of crucial importance as well (Christmann, 2008). Thus researchers should move beyond the simple level of analysing the items in the picture to perceive links and relationships to other elements and layers within the picture (Dyer, 1982). Images are socially constructed and always reflect the identity of their creator (Frith, et al., 2005). What is absent and not included in the image is as important as what is included (Frith, et al., 2005). Hence researchers are interested in what is being represented, ways of translating these representations and the process of producing the images (Frith, et al., 2005). Visual methods can be used to examine different ways of meaning-making (Frith, et al., 2005).

The research utilises visual inquiry to examine the real estate advertisements promoted in the new extensions of Cairo by the state and the private sector in order to untangle the underlining landscape messages beyond the images.

7 CASE STUDY BACKGROUND

Cairo is one of the oldest settlements in the world and is still inhabited and massively growing over time. The main attraction for the city was being on the Nile valley, which created a major natural spine through the city. The Nile is considered the green lung, providing greenery and waterscape which are both an economic and leisure asset for the community. Faced by the continuous population booming and rural urban migrations to Cairo, since the 1970s, the capacity of the city to accommodate the needs of its residents was questioned and jeopardised (Fahmi & Sutton, 2008). Hence the government considered the creation of new cities around Cairo as the way to provide better quality of life for the residents and to release the pressures on the inner core of the city. By the early 1990s, the neo-liberal economic paradigm was on the horizon towards economic globalisation which affected Cairo's cityscape a great deal. This entailed economic restructuring, the redefinition of the role of the state in national development and an increased dependence on the private sector (de Koning, 2005). The state handed over the management of some of the new towns to private promoters and speculators who depended on villa complexes, gated communities and enclosed elite compounds (Fahmi & Sutton, 2008; Schechla, 2015). This created new elements to Cairo's landscape that was not there before and affected socio economic and socio-cultural transformations accordingly and sometimes led to social and economic polarisation within the city and even within the districts (de Koning, 2005). In addition to the newly socio-cultural and socio-economic character that these real estate patterns introduced to the Egyptian and specifically to Cairo's landscape, the natural context and environmental impact of these practices were not deliberately considered. These new developments depend widely on

advertisements to attract the consumers to purchase new dwellings in these new gated communities. Billboards are spread all over Cairo, promoting a type of green nature that neither resembles the green nature of the valley nor is it the desert landscape where these projects are being erected (Abotera & Ashoub, 2017). The main green elements that these projects depend on are open grass fields, golf courses and trees that belong to a totally different climate zone than where these projects are being established (Abotera & Ashoub, 2017). Despite the fact that the water and green nature elements can be argued to belong to the Nile valley, the elements themselves and the image frames of the advertisements and billboards are European and North American in style (Abotera & Ashoub, 2017).

8 LANDSCAPE MESSAGES & MEANINGS IN CAIRO

The surrounding physical and social contexts are important, encompassing the cultural values, political context and the nature of media coverage (Capstick, et al., 2015). The symbolic, cultural and expressive meanings of landscapes that develop through social interaction and embedded in social practices and institutions are crucial for environmental management (Williams & Patterson, 1999). Meanings are not inherent in the landscapes but created through everyday discourses and reflect the ways people define themselves within the environment (Greider & Garkovich, 1994). The socio-cultural perception learned through embodied practices and the large-scale imaginations held by society and culture are crucial elements of cognition of the natural environments in addition to the sensory interactions (Schilhab & Esbensen, 2019).

In this regard, Egypt is facing a major challenge. The socially constructed reality created through the messages sent are advancing distorted images of nature and also obscuring the climate change consequences that the city is facing, by creating a parallel strong discourse. The landscape messages can be based on two parallel discourses as illustrated in Figure 1: scientific based discourse that discusses the climate change consequences facing the city extensions in the desert, and discourse that promotes social learning about the changing natural identity of the Egyptian landscape. The scientific discourse is not expansively promoted among the public and it does not usually interact with the public on an everyday basis. In addition, it is not usually a localised discourse and it does not rely on engaging visualisations, which of course adds to the psychological distancing from climate change. In addition, the media coverage of climate change is close to none, compared to economic and political issues.

Conversely, attractive and idyllic advertisements promote general meanings about what should be admired and desired through their vivid imagery, catch phrases and stereotyping (Dyer, 1982). These advertisements do not reflect social meanings and conditions, on the contrary they teach the recipients ways of thinking and feeling through fantasy and dreaming (Dyer, 1982). Advertisements impact people and societies through manipulation rather than informing, through distorting rather than reflecting the quality of life in the targeted society and are mainly the products of decisions taken by minor group of powerful businessmen (Dyer, 1982). This results in promoting fantasies for the public that results in spreading frustrations about people's daily lives through false utopias (Dyer, 1982). In accordance, the parallel discourse that interacts with the public on a daily basis, are the real estate development advertisements that have been taking place in Egypt recently. These projects are pioneered by the state and the private sector. The state announced the erection of a new administrative capital from 2015. This mega national project as promoted by the state is expected to relieve the capital's congestion. Among the ambitious plans and projects within the new administrative capital, is the 'Green River' which is a huge scaled park double the size of central park New York. This park is planned to be the main natural spine of the new city. However the main hindrance is that, this new extension lies totally in the desert with no access to freshwater, notwithstanding the major water crisis that Egypt has been facing lately. This adopted paradigm and vision by the state is propagating green images of the desert, as a clear manifestation of humans as masters of nature. It is argued that people's actions and attitudes towards their environments depend on the way they think about themselves in relation to their surroundings (Rockwell, 1994). Reflecting on that, it is clear that these messages would definitely affect the pro-environmental beliefs and such attitudes of the Egyptians.

In addition, the real estate development led by the private sector in this new extension, is all based on luxurious housing schemes that rely on vast open lush landscapes. These practices are not only ecologically draining in the desert, they do not even support biodiversity or add to the health of the ecosystem. The frequency of encounters of these constructed realities with the public are high, and are visually appealing

with striking and catching slogans and phrases, especially in contrast with the weak and impersonal media coverage of climate change consequences and risks.

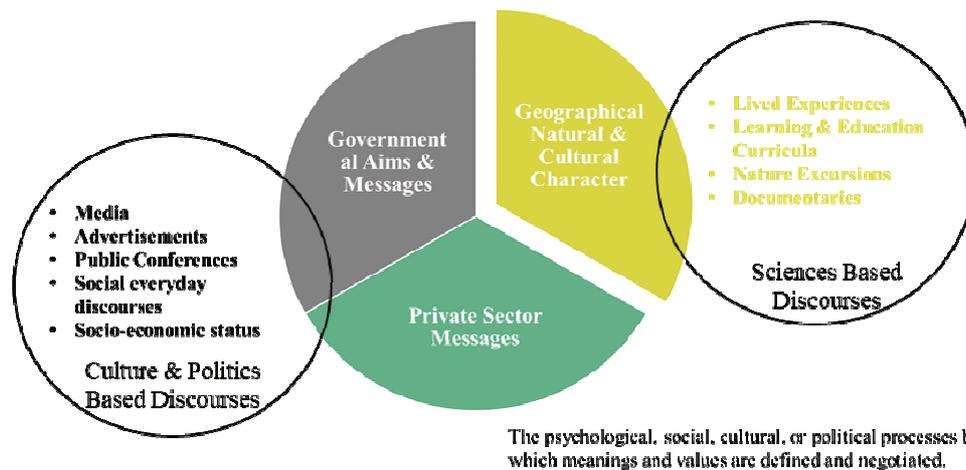


Fig. 1 illustrates the parallel discourses creating landscape messages among the public. Source: authors.

9 THE VISUAL RHETORIC AND ENVIRONMENTAL KNOWLEDGE

The state and the higher income sectors are invading the desert by their optimistic projects and luxurious housing patterns. But the billboards and the advertisements in mass media are as crucial as invading the mental image of the desert for the public and imposing a different foreign nature (Abotera & Ashoub, 2017). These new claimed utopias lead to the recreation of the mental image of the national territory and have critical implications on the spaces of representation of Egypt itself (Abotera & Ashoub, 2017).

On the other hand, the geographical natural identity and reality of the desert and its associated environmental change is not discussed or even noticed among these new created images. Hence the public perceptions of environmental change is jeopardised. The media communicate images of the satisfying life as one that is based on consumption and waste, which impacts people's values a great deal (Rockwell, 1994; Dyer, 1982) where the new levels of consumption entail and foster land use and land cover changes (Rockwell, 1994). In accordance, it is the culture of the elites that has direct independent effects on the environment, where land use and cover changes are one of them while the culture of the vast majority may affect the kind of leaders they would have which in return would have an impact on land use changes and the environment as well (Rockwell, 1994). These propositions are true of projects in the case of Cairo. Seeing is based on learning and knowledge and previous knowledge has a role in knowing what we see (Dyer, 1982). Thus the Egyptians' prior experience and knowledge of the Nile greenery of the valley is more rooted in their brains and identities than the desert landscape. In accordance, they would relate more to seeing images of greenery than images of the yellow desert. This is the crucial danger of the current transformations taking place in Egypt. Transforming the current socio-cultural natural identity would require efforts for the public to perceive the environmental change as it is and get associated with it. But the current trends are not helping in this direction. Quite the reverse, they are still reinforcing the green natural identity of the Nile and, worse still, linking it to westernised images of consumption.

9.1 Governmental/state visual rhetorics

Understanding the change that is taking place, its reasons and the solutions is one way of identifying the drivers of change (Wood & Handley, 2001). Studying the connections between people and their environments is crucial for understanding the changing societal demands as a result of an altered natural environment (Bürgi, et al., 2004). It is argued that landscape changes are driven by numerous factors, with political and cultural forces being the strongest among them. The case of the New administrative capital in the desert surrounding Cairo is another proof of this proposition. The state's ambitions and visions regarding the new extension of Cairo is not consistent with the landscape character that is expected to accommodate these extensions. The political will and the strong connection of the socio-cultural identity of the green Nile are the main building blocks of the proposed transformation/landscape change that is taking place within this new ecosystem. In addition, dysfunction defined as the disruptions caused by the mismatch between the type

or intensity of land use and the landscape character is one of the consequences of landscape change (Wood & Handley, 2001). It can be said that the dysfunction that the new administrative capital is facing, is the main landscape change driver, as illustrated in Figures 2 and Figures 3. Dysfunction destroys the character of landscape which is defined by the distinctiveness of landscape elements. This process can impose an inappropriate development pattern on the landscape through forces such as suburbanisation and intensive development (Wood & Handley, 2001). The distinctive elements of the desert landscape are being erased and substituted by the envisioned reality by the state that may be driven by the need of guaranteeing success and attracting the people from the centre to meet the main goals of this project. In this case the state is relying on the strong socio-cultural identity of the Egyptians and their desperate need of greenery in comparison to the great deprivation facing the congested centre of Cairo to accomplish the goal of this project.



Fig. 2 illustrates the real situation (on the left) vs the schematic proposal of the green river in the new administrative capital (on the right). Source: <https://www.skyscrapercity.com/showthread.php?t=2083125>



Fig. 3 illustrates the variance between the real current situation of the ecosystem (on the left) and the proposed/envisioned green (on the right) and. Source: <https://www.skyscrapercity.com/showthread.php?t=2083125>

9.2 Private sector visual rhetorics

The private sector is not only causing landscape changes of the desert ecosystem, but it is also affecting the public's culture and aesthetics preferences for landscapes. Culture is the most influential driving force of society, but sometimes it can lead to devastating consequences on the health of the ecosystems (Nassauer, 1997). In this regard, the private sector practices and projects are spreading a westernised landscape character that is based on golf courses and vast areas of green lush, as shown in Figure 4 which is not part of traditional Egyptian landscape and culture. Advertising has a powerful impact on people's beliefs and values, and it is argued that it is more or less like propaganda, as it stuns and demoralises the critical consciousness with strong and extreme statements and pushes the seller's version of reality (Shudson, 1993). In Cairo's case the private sector is producing its own propaganda.

Furthermore, analysing the context of the images production is crucial to obtain a better insight into the hidden messages within them. Also the ways that these images are being perceived is crucial. Hence this research is arguing that the hidden messages of these lush green photos in the desert distort the relationship between people and the environment as they assert the man's mastery over nature and his striking acts against the inputs and contexts of nature. In addition, the ways that people would perceive the proposed development in the desert would eliminate environmental change from the everyday discourse which would have serious implications on their environmental beliefs and attitudes. In addition the aesthetic appeal for greenery as transformed and associated with lush greenery propagated in these messages is not part of their cultural perception of nature. Aesthetics can be the path to sustainability (Meyer, 2008), but this is certainly not the

case here. The advertisements are sending deceiving and distorting messages of the new natural desert identity to the public, totally opposed to and distant from their Nile valley identity. Worse still, these images are linked to a westernised utopia. Hence these implications are not only environmentally destructive but they are also culturally and socially antagonistic.



Figure 4 illustrates the billboards spread all over the capital, advertising for golf courses and lush green based residences. Source: <https://insiteooh.com/article/2380-porto-group-launches-their-newest-project-in-mostakbal-city>

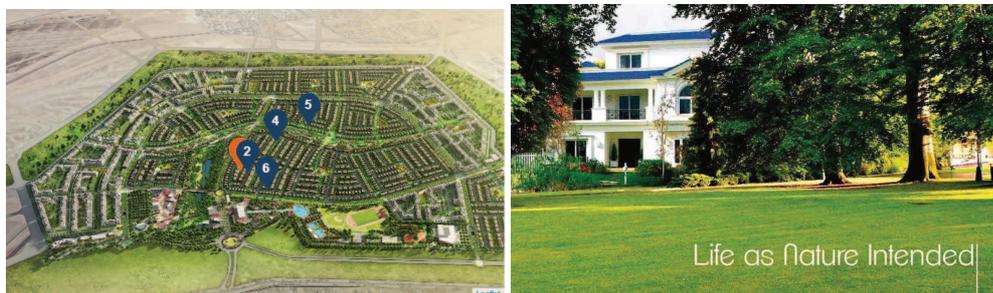


Figure 5 illustrate two examples of the imagined real estate to be erected in the new city extensions. Source: SODIC EAST, NEW HELIOPOLIS, EGYPT

10 DISCUSSION

It is argued that fast and sudden changes in the surroundings might result in a loss of sense of place and a downturn in people's identification with the landscape (Bürgi, et al., 2004). Identity has impacts on the cognition, affect, and behaviour as identity is fluid, multi-dimensional, and socially relevant (Devine-Wright & Clayton, 2010). 'Identity processes are embedded within wider dynamic cultural, political and economic forces' (Devine-Wright & Clayton, 2010). Thus identity is studied as both an effect and a cause where it can be examined as a dependent and independent variable (Devine-Wright & Clayton, 2010). Egyptians have always identified themselves as being from a green agricultural country and have the pride of the Nile river running in their veins through generations. In accordance, the new extensions are basing their success on the pride that the Egyptians hold for the Nile and is naming the huge park within the new capital as the 'Green river' replicating the image of the Nile river but in the desert. This practice is affecting the new desert identity where the state should have embraced the new ecosystem and promoted better acquaintance/adaptation with the new landscape character rather than erasing it. The state should have promoted the new identity of the Egyptians through media outlets employing local and engaging images, to help the public in reidentifying themselves with the new natural identity that is accompanying the relocation to the desert rather than the narrow Nile Valley that has been part of their lives and identity since eternity.

When natural environments become more salient in public discourse, the relevance of the environment to identity will increase (Devine-Wright & Clayton, 2010). Sustainable practices, pro-environmental beliefs, and the changing/ different natural character identity of the new cities are not communicated sufficiently and not as engaging as the distorted landscape images of the new developments through advertisements. If the ecological standpoint was as widely communicated and as frequently discussed and encountered in everyday discourses, it would have helped in reshaping the identity of the Egyptians and prepare them to be more resilient in coping with the new ecosystem. On the contrary, the current atmosphere is not allowing the public to perceive the environmental change that is taking place in their surroundings.

This research is ringing the bell for the adverse effects of economically driven projects and their advertisements on the public perceptions of environmental change. Their impacts are not only ecologically

insensitive but also socially, and culturally destructive. This is even more dangerous, as culture is an important driver of landscape change (Bürge, et al., 2004; Nassauer, 1997; Rockwell, 1994), so when the culture of the whole community would be illusioned by these westernised utopias, it would certainly drive the landscape to change in a very dangerous trend. In addition, these practices are increasing the psychological distancing of the Egyptians from environmental and climate change consequences, making it more difficult for environmental awareness campaigns to induce behavioral change and so hindering the adoption of pro-environmental attitude.

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