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Tourism Development from Its Beginnings to Current Environmental Impacts and Contemporary Governance: Application to the Southern Red Sea, Egypt

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Tourism Development from Its Beginnings to Current Environmental Impacts and Contemporary Governance: Application to the Southern Red Sea, Egypt

By

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University of California, Berkeley

Committee in charge:

Professor G. Mathias Kondolf, Chair
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Abstract

Tourism Development from Its Beginnings to Current Environmental Impacts and Contemporary Governance: Application to the Southern Red Sea, Egypt

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Through the ages, traveling through the world through tourism has familiarized the foreign. Unknown frontiers become urbanized; travel pathways coalesce around human evolution in spaces; and governance structures harness the power that such exploratory opportunities present.

This research navigates the spatial dimension of travel evolution alongside the attendant expansion of urbanization. It defines the nexus between tourism as a global demand and the physical infrastructure that accommodated such a force. The built environment, manifested in both its urban forms and its systems of mobility, has shaped and been shaped by many factors, including tourism. This work explores the historical co-evolution of urbanization and tourism. Egypt, considered one of the world's oldest tourist destinations, is used here to demonstrate the interlocking relationship of tourism and urbanization; it is difficult to separate these two phenomena because the evolution of tourism through time is not only attributable to demand, but also to the shape and form of the destination and the transport systems available in each era and locale.

This research focuses on the contemporary Egyptian era because it is dynamic and replete with diverse forms of tourism. Both professional and academic literature has widely discussed the concept of ecotourism as an important, and growing, subset of the tourism industry. Nevertheless, no accurate definition of ecotourism has been agreed upon. This research compares ecotourism to conventional or mass tourism along the Red Sea coast of Egypt. It systematically examines the tourist establishments in the study area based on identifiable environmental parameters, including swimming pool surface area, distance from mangrove patches, conflict with flood plains, extent of lawn area, and means of access to deep water. The investigation finds that ecotourism establishments are not significantly different from typical tourism resorts and that they create comparable stress on ecological resources. The research concludes that ecotourism is a self-proclaimed designation in this rapidly developing international tourism zone. The study recommends that future ecotourism operations be modified in two key ways. First, on the planning level, the regional master plan created by the central government tourism authorities must be modified to recognize the

unique environmental characteristics of specific sites, and these plans must guide development with specific requirements designed to protect the region's unique environmental resources. Second, on the site design level, significant improvements to design approval processes must be introduced in the build-out process to ensure compliance with environmental requirements and minimize stress on local environmental resources. After examining the Egyptian case study, the research explores the governing rubric for tourism development and land use in that area.

Despite being one of the most important revenue sources for Egypt, tourism development remains a byproduct of a very complex governing system. Although current tourism development causes much environmental degradation along the Red Sea coast (scholarly work has delineated its footprint), little has been written on the governance of this tourism development and its implications for the enduring environmental footprint of tourism along the Red Sea. This piece defines the various institutions responsible for tourism development and explores the relationship between institutions and development modes on their specific land jurisdictions. It concludes that tourism development will likely continue to create more adverse impacts if the governing agencies responsible for shaping its development do not overhaul their operating paradigms to take into account the attendant holistic and discrete ramifications of their appropriation choices.

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Acknowledgments

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Thanks to Wadi el-Gimal park rangers whom hosted me and made my Red Sea fieldwork an enlightening and enjoyable experience.

Dedication

I dedicate this work to the loving memory of my father
Hossam Gohar,

To my beloved mother
Safaa El-Sweify,

To my loving and encouraging daughters
Mariam and Hajar Gohar

And

To my supporting brothers
Kareem and Hady Gohar

You have successfully made me the person I am becoming

1. Chapter One: Introduction

1.1 Overall Perspective

This research aims to unfold the complex process of tourism development and the processes by which it is shaped. It starts by exploring the nexus between tourism evolution and urban evolution to understand their mutual influence upon one another, both historically and today. In the modern era, environmentally sound tourism has given rise to much tourism development terminology with vague definitions, such as ecotourism and sustainable tourism. The research investigates whether these specific types of environmentally friendly tourism are actually "ecological," as is asserted by the literature and their own managers/owners. Lastly, the research examines the existing governance system and explores the forces and energies that shape tourism development in Egypt. The diagram below (Figure 1) constitutes the main components of this work.

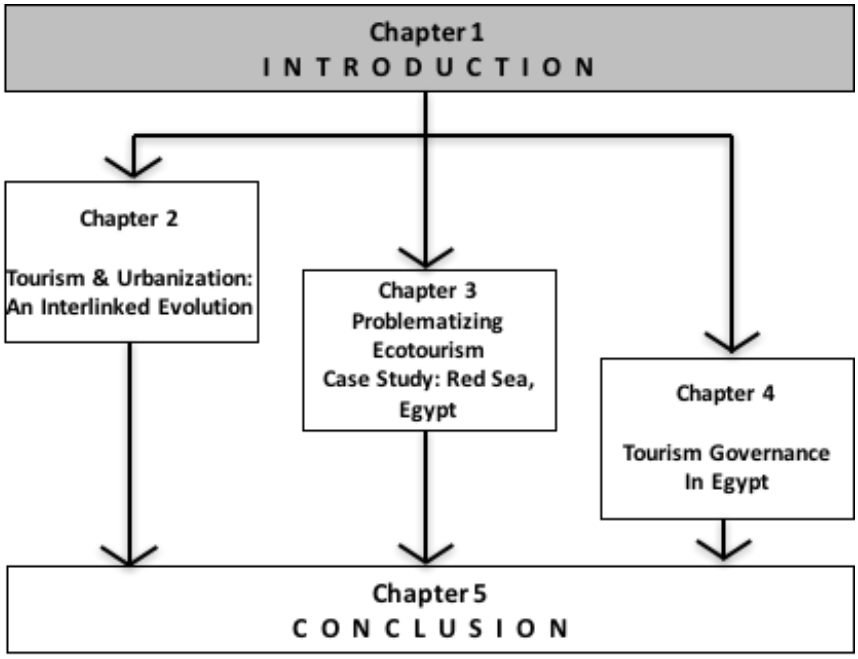

Figure 1. Overall layout of the study.

1.2 What Is Tourism?

Tourism is a significant source of revenue for most countries and is globally a growing industry. Over the centuries, tourism has experienced continued growth and increasing diversification to such an extent that is has become one of the fastest growing economic sectors in the world (UNWTO, 1999). It has also branched into so many types and forms that it is difficult to place it within a systematic typology, and the study of tourism therefore requires an interdisciplinary approach.

Tourism has multiple definitions, and too many of these definitions do not enrich our understanding of it. In "Destination USA," a 1973 report to the U.S. President and Congress, the National Tourism Resources Review Commission devoted considerable attention to defining tourism as an activity that is associated with pleasure travel. However, a tourist has been more broadly defined as "someone traveling for any purpose except commuting to and from work" (Hunt & Layne, 1991). Later, a distance threshold for the travel was added to the definition: "a tourist is one who travels away from his home for a distance of at least 50 miles (one way) for business, pleasure, personal affairs, or any other purpose except to commute to work, whether he stays overnight or returns the same day" (Hunt & Layne, 1991)

According to Hunt (1991), Suzanne Cook stated in 1975 that, although the definitions vary, the following aspects inform the understanding of the definition of tourism: (1) geographical restrictions, (2) purpose of trip, (3) distance traveled, (4) time away from home, (5) mode of transportation, and (6) a combination of operational limitations. She points out that the word "tour" was more closely associated with the idea of a voyage, peregrination, or circuit (as in the case of a theatrical tour) than with the idea of an individual being temporarily away from home for pleasure purposes—now a significant connotation of the term (Burkart & Medlick, 1974)

Tourism is also defined as a social and cultural phenomenon that has developed into a significant economic enterprise in cities and regions throughout the world (Jamal & Robinson, 2009). The most common definition is one given by the United Nations World Tourism Organization (UNWTO): "Tourism comprises the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited."

These definitions offer an overview of how the tourism industry can be defined from the travel perspective. These well-established definitions, however, do not take into account the characteristics (i.e. shape and form) of the built environment in the destinations themselves, or of the different kinds of tourism facilities that host the tourists, and it is important to take a critical survey of the environments in which tourists are hosted.

Throughout history, tourism has grown in direct relationship with the built environment and with people's curiosity. Therefore, we must understand the evolution of tourism to understand how tourism development occurred and how destinations were influenced.

1.3 Evolution of Tourism Development

Tourism is an economic activity that cannot be separated from other development processes. Throughout history, humans have altered their environments to travel and settle. Although the evolution of tourism is well documented, the evolution of tourism and the evolution of urbanization have not been thoroughly explored in relation to each other.

Mullins (1991) makes a distinction between tourism urbanization[1] and industrial urbanization. He argues that industrial urbanization, for example, was accompanied by an infrastructure of production, such as factories, canals, and railways; tourism urbanization is supported by an infrastructure of consumption, made up of theme parks, casinos, hotels, convention centers, condominiums, golf courses, and so forth.

While this distinction is largely valid, it does not take into account the dynamic interaction between the two types of urbanization. For instance, it undermines the importance of railway development or canals in serving tourism activities and vice versa.

Thurot and Thurot (1983), Cohen (1988), Wang (1999), and Graburn (2001) all argue that tourism evolved through time, and that it was interlinked with class, socioeconomic status, education, purpose, political power, and personal motivations. Here, the "evolution of tourism" refers to the gradual change or development of tourism activities from the past to the present (and perhaps into the future). The following historical eras represents periods in which there were noticeable shifts in tourism activities:

- Ancient Civilizations, 4500 BC
- Roman Road Network, 300 BC
- Pilgrimage, 1200
- Grand Tour, 1660
- Railroad Transport and Industrial Revolution, 1820
- Commercial Car Available for Public, 1890
- WWI and the British Empire, 1920
- WWII and the Jet Era, 1945
- Environmental Friendly Tourism (Contemporary), 1983

The next chapter will give more detail about each of these eras and will demonstrate how urbanization, mobility infrastructure, and tourist curiosity have been alternately leading and influencing tourism urbanization, with the alternations occurring so gradually that the transitions are difficult to see.

In addition to these dynamics informing tourism urbanization, tourism sites also evolve in response to tourism: the shape, form, land use, and many other characteristics of sites change. For example, Pearce (1995) discussed the development of tourism activities that occur within the same site. In observing coastal resorts, he maintains that the changes caused by tourism are not only physical (adding rooms to the tourist zone) but also affective; tourism raises the level of engagement of local people and local businessmen who help cater to a higher social class, and this, in turn, transforms resorts. This latter transformation is described by Butler (1980, 2011) in six stages: exploration, involvement, development, consolidation, stagnation, and rejuvenation or decline. And whatever the form of tourism, these elements interface with the environment to create the evolutionary arc of the tourism site.

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[1] Tourism urbanization is defined as the process by which tourism becomes a major urban industry, but one that is subordinate to other industries.

As a result of this evolution, the contemporary typology of tourism has proliferated and produced numerous classifications: according to purpose (cultural tourism, spiritual tourism, nature-based tourism, and religious tourism) or according to the built environment's shape, form and density. The latter classification is the main focus of this research, which examines tourism's relation to urbanization and the built environment.

When studying tourism, it is critically significant to clearly understand what each kind of tourism signifies. This research, which focuses on the spatial location of contemporary tourism establishments, will examine mass tourism, ecotourism, and sustainable tourism.

1.4 Main Types of Contemporary Tourism

While some tourism is categorized by its type, others are described based on their physical footprint on the environment. With the environmental degradation of recent decades, new tourism models have evolved. This research discusses the three primary current forms: mass tourism (MT), sustainable tourism (ST), and ecotourism (ET). Some are praised, while others are roundly criticized; the following is an attempt to step back and understand the primary differences between these three main forms.

1.4.1 Mass tourism.

The United Nations World Tourism Organization (UNWTO), the central repository for academic research in the field, does not propose a unified definition for MT; neither does the World Travel and Tourism Council (WTTC). There is not yet any specific measure to distinguish MT from other forms of tourism, in part because of it pejorative connotation and in part because of its amorphous nature that varies form a context to another.

Despite their inability to articulate a clear, measurable definition of MT, scholars and environmental advocates have been critical of it. According to travel magazines and independent research, cities such as Palma de Mallorca, Cancun, Pattaya, and Hurghada are commonly referred to as destinations with a massive influx of tourists (Dobias, 1989; Frihy, 2001; Gracia & Servera, 2016; Shriner, 2016; R. Smith, Owens, & Walton, 2006), but not much is mentioned about the exact impact of these numbers and whether that impact is due to the number of people, the management practices of those destinations, or the surrounding land uses. To date, all efforts to more precisely define MT have been qualitative. According to Fink (1970) and Vanhove (1997), MT is that form of tourism that includes: (i) participation of large numbers of visitors; (ii) collective organization of travel; (iii) collective accommodations; and (iv) integration of the holiday-maker in a traveling group. The picture in Figure 2, a heavily populated tourist beach, is an example of MT.

Figure 2, Photo showing the influx of tourism on a beach in China. (Source: C. Geography UK)

1.4.2 Sustainable tourism

Unlike MT, sustainable tourism (ST) has received more scholarly attention, and there are several definitions of ST; however, each of these definitions frames it uniquely. For example, Hunter (1997) defined ST as tourism that satisfies (i) the needs and desires of tourists; (ii) the needs and desires of both private and public tourism industry; and (iii) the needs and desires of the local host community. ST is also defined as development that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future (UNEP-UNWTO, 2005). Another attempt to define ST is Gunn's (2002) consideration of the ethics of ST, which he compares to MT as shown in Table 1.

Table 1
Comparison Between MT and ST

MASS TOURISM (MT)	SUSTAINABLE TOURISM (ST)
Individualism, selfishness	Interdependence, community
Shortsightedness, now-oriented	Farsightedness, future oriented
Greed, commodity based	Altruism
Material, consumption based	Nonmaterial, community based
Arrogance	Humility, caution
Anthropocentrism	Kinship

Despite its initial attractiveness, ST presents a few problems. Liu (2003) argues that the reality of sustainable development doesn't take into account intergenerational equity or sustainable futures. Theng, Qiong, and Tartar (2015) assert that MT is defined by the volume of tourists compared to the local population density of the concerned territory; Wheeler (2004) has suggested that the fundamental problem of ST, as a global phenomenon, is the sheer volume of visitors implicated. Effectively, at the extreme of the ST spectrum, ST becomes MT. Unless attempts to solve the ecological ravages of tourism address concerns about the volume of tourists, he asserts, any answers to the problems of tourism would be misleading. In addition, he believes that because ST is more recently evolved, its disadvantages have not yet been fully understood or realized. Furthermore, Hunter (1997) and Hall (2015) contend that the

reason ST appears less problematic than MT is that it has become isolated from the dilemmas of sustainable development, although it has assumed all its inherited problems.

1.4.3 Ecotourism

The term "ecotourism" (ET) was coined by the Mexican architect Hector Ceballos-Lascuráin in July of 1983; the term was adopted by the International Union for Conservation of Nature (IUCN) in 1996. Ceballos-Lascuráin stated that ET "involves travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects" (Ceballos-Lascuráin, 1993, 2008) and (Sander, 2010). The term has since evolved and now has multiple definitions. Weaver (2001) defines ET as a form of nature-based tourism that strives to be ecologically, socioculturally, and economically sustainable while providing opportunities for appreciating and learning about the natural environment or specific elements thereof.

Nelson (2009) adds different elements to the definition for ET:

- ET is a subset of tourism that rely on natural resources, a form of tourism in which conservationist and tourist interests work together to preserve environmental quality while mutually protecting tourism.
- ET is purposely focused on enhancing and maintaining natural systems through tourism. It is a contemporary strategy that is vital to the maintenance of healthy ecosystems.
- ET, narrowly defined, is a nature-oriented tour program based on nature and archeological resources. In a broader sense, it would include indigenous or local culture as a natural resource.
- ET, a new tourism strategy that balances development and economic gains, is a new force that can benefit both nature and developing destinations.

Therefore, ET does not happen in mega-hotels, crowded groups, or congested cities; situs alone distinguishes it from the other forms of tourism.

Using the above definitions of MT, ST, and ET, the diagram in Figure 3 shows the conceptual location of each type of tourism according to the footprint it generates:

Figure 3. ET is shown to be a green practice, while ST and MT are on the other side of the spectrum. ST is only a bit better than MT in its management practices (i.e. using power savers, solar heaters,… and towels re-use)

Sustainable tourism and ecotourism as completely different concepts

Some scholars do not place ET and ST on a spectrum, instead seeing them as separate types of tourism. Dolnicar (2006) makes the distinction based on the supply and demand argument, as follows:

a) ST is a supply-driven notion characterized by industry regulations; a supply-side perspective defines the ecological component of the sustainable management approach, where the environmental compliance of the tourism establishment is guided by corporate goodwill.

b) ET is a demand-driven concept limited to nature-based tourism; the ET approach represents nearly an opposite viewpoint. It is market-driven by its very nature. Tourists are self-selected: nature tourists are those interested in experiencing and learning from nature. This self-selection principle is a very powerful market driver because it offers high profits to a sub-segment of the tourist industry (ecotourism) while at the same time minimizing the attendant ecological footprint. Conceptualizing this on the supply-demand continuum, ST and MT both equally fall on the supply side and ET falls in the other side of the continuum, as shown in Figure 4.

Figure 4. ET is a demand-driven industry, while both ST and MT are supply-driven industries.

Sustainable tourism as a step forward from ecotourism

Another optic from which to view this distinction is to conceptualize the ecological footprint based on the quality of management and operation. Ruhanen (2008) and Nelson (2009) view ST as a step forward for ET because corporate policy regulations are greener than ET standards. However, Ruhanen (2008) maintains that most applications for ST have not been effectively diffused by those who plan and manage tourism activities to the destination level where it is actually needed (Figure 5).

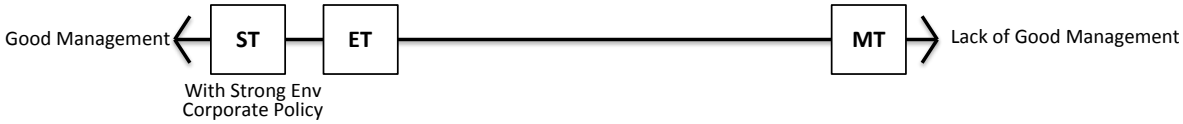

Figure 5. When ST has stringent requirements regarding reducing impacts, it at times exceeds the ET environmental compliance.

Therefore, ecotourism and sustainable tourism are self-defined businesses that can be viewed from varying angles. Although they can be loosely defined and thus distinguished from one another, no common agreement exists that clearly delineates the difference between ET and ST.

When combining these conceptual models that place tourism establishments on different continua, we find that MT and ET are consistent; ST can vary according to the nature of its specific operation and from one context to another. As such, ST, depending on the context in which it is found, can travel the ET–MT spectrum, as shown in Figure 6.

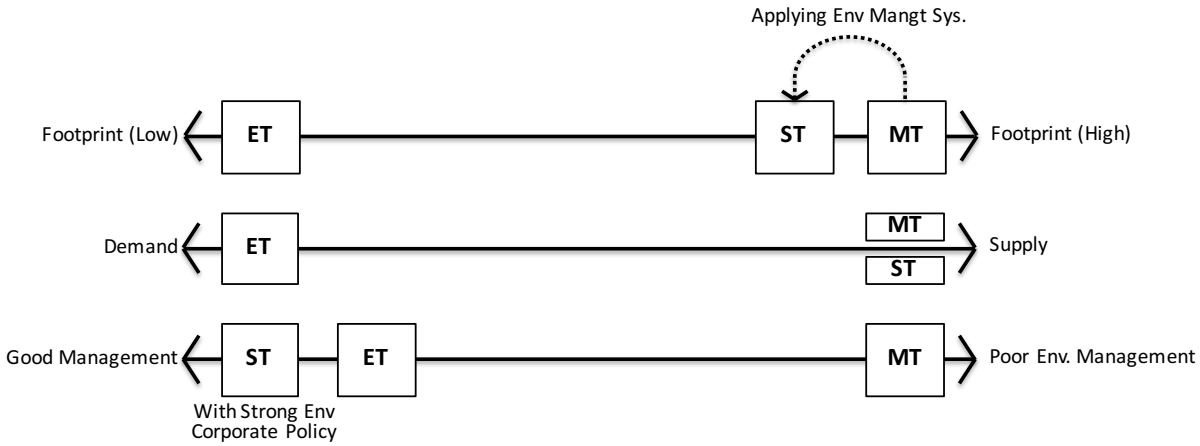

Figure 6. Combining the different continua of ET, ST and MT.

Contemporary tourism in Egypt.

Tourism creates problems, even though it may have tremendous economic and social benefits. Thus, most people will tolerate or even actively support the concept of alternative tourism (Butler, 1990, 1992). Increasingly, developing countries are turning toward alternative tourism as a seemingly benign alternative to mass tourism, which has myriad adverse economic, sociocultural, and environmental impacts (Cater, 1993). Cultural heritage attractions offer income-producing opportunities to some of the poorest (and some of the richest) communities in the world (AlSayyad, 2001). Egypt is a prime example of this. It is blessed with multiple layers of tourism attractions, such as breathtaking deserts, magnificent oases, an incomparable marine environment for scuba diving, historic built environments, antiquities, and numerous cultural sites. Tourism represents one of the most important sectors of Egypt's economy. In 2008, approximately 12.8 million tourists visited Egypt, providing revenues of nearly $11 billion. The tourism sector employed about 12% of Egypt's workforce.

The sustainable management adopted within MT and ST resorts puts both types of tourism on the same end of the tourism continuum. This case study of tourism in the Red Sea context will address MT and ST as one group and ET as another group, with a comparison of the two arenas.

Table 2

The Two Mainstream Tourism Types Along the Red Sea Coast

Type (1)	MT	Represents the typical coastal resort that does not consider the environment and generates typically high environmental impact.
	ST	A variation of MT, similar in planning and design but incorporating some sustainable management elements.
Type (2)	ET	Low-intensity camps that claim to generate a greener, lighter impact.

The classifications given in Table 2 represent the two mainstream types of tourism along the Red Sea coast that will be discussed in detail in the next section of this paper.

Figure 7. MT is on one side of the continuum and ET initiatives are on the other.

Whether or not these environmentally friendly tourism models are effective and/or replicable, they must be embedded in the institutional framework of the country to guarantee their sustainability.

1.5 Governance of Tourism

Experts in tourism planning and governing must be experts in the administration of tourism in order to be able to plan or offer critical judgments on such an applied discipline. Figure 8 shows where tourism might fall within the relevant institutions. These are not mutually exclusive categories because tourism falls into all of them, albeit with different weights.

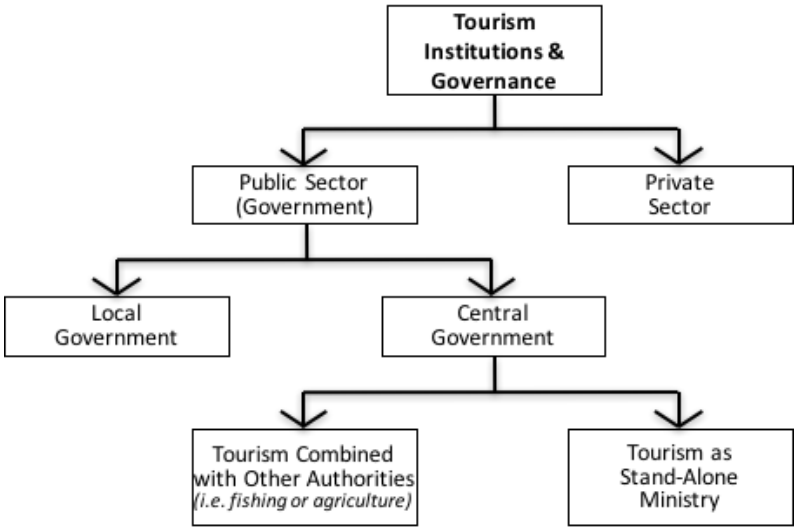

Figure 8. Tourism institutions and governance.

1.5.1 Tourism in public versus private sectors

The tourism industry is attractive and financially rewarding for both the public and private sectors. Healy (1994) contends that governments should set the agenda for tourism, because the private sector remains driven by market forces and will always be less focused on the public good. Ikeda (1996) and Gunn (2002) believe that, although the intentions of corporate initiatives toward greener tourism are debatable, these initiatives can play a pivotal role in reducing the negative impacts of tourism.

1.5.2 Tourism in central versus local governance

The balance of administration between central and local governments may vary significantly from one location to another. For example, the comprehensive administrative role played by the Chinese national government leaves very little responsibility to local governments. According to Zhang *et al.* (1999), the Chinese national government fulfills all the following roles: (i) *operator*, involving ownership and provision of the infrastructure for tourism development and operation of tourism business activities; (ii) *regulator*, involving formulating and implementing regulations to control tourism business; (iii) *investment stimulator*, involving the stimulation of tourism investment through the provision of financial incentives; (iv) *promoter*, involving spending money on the promotion of tourism in the international market; (v) *coordinator*, involving the coordination of the activities of different government departments with respect to tourism; and (vi) *educator*, involving the establishment of a system for institutions that provide tourism education and training programs.

Even in less controlled settings, national governments play a role in providing the infrastructure that serves as the foundation for a vibrant tourism industry and in undertaking activities that encourage and support tourism in the area (Yüksel, Bramwell, & Yüksel, 2005)

1.5.3 Tourism as a stand-alone government sector versus combined sector

Tourism activities led by the public sector vary in their levels of governmental involvement from one country to another, as they depend extensively on the government's

structure. In some countries, such as Egypt, tourism operates through a ministry of tourism that plans, implements, and develops touristic operations throughout the country without much reliance on local government (Abdelwahab, 1996).

Other, less centralized, systems, such as that in the Netherlands, have no specific ministry of tourism; recreational activities instead fall under the Ministry of Agriculture, Nature Management, and Fisheries, the body responsible for setting policies that are implemented by local municipalities (Ashworth & Dietvorst, 1995).

A third, extremely decentralized structure is that in the United States, where the United States Travel and Tourism Administration (USTTA) operates the country's official travel and tourism offices worldwide. The USTTA was closed down in 1996 on the grounds that it duplicated promotion being done by the private sector. Currently, there is in the United States no ministry responsible for tourism or tourism planning; relevant policies are managed at the state level.

No one government structure is necessarily better for tourism than another, but without a comprehensive understanding of how tourism is governed and maintained, policymakers will have very little to do with shaping tourist destinations, and tourism will be either underutilized or overwhelmingly degraded.

In the coming chapter, I explore the evolution of tourism in relation to the built environment to better appreciate its changing function from ancient times to the modern day in Egypt, the world’s oldest tourist site. In Egypt, physical infrastructure was built to absorb the swell of tourism throughout the ages, and this redefined the locale; thus the transportation systems and the form of the tourist destination itself effectively transform as tourism changes.

2 Chapter Two: Tourism and Urbanization, an Interconnected Evolution

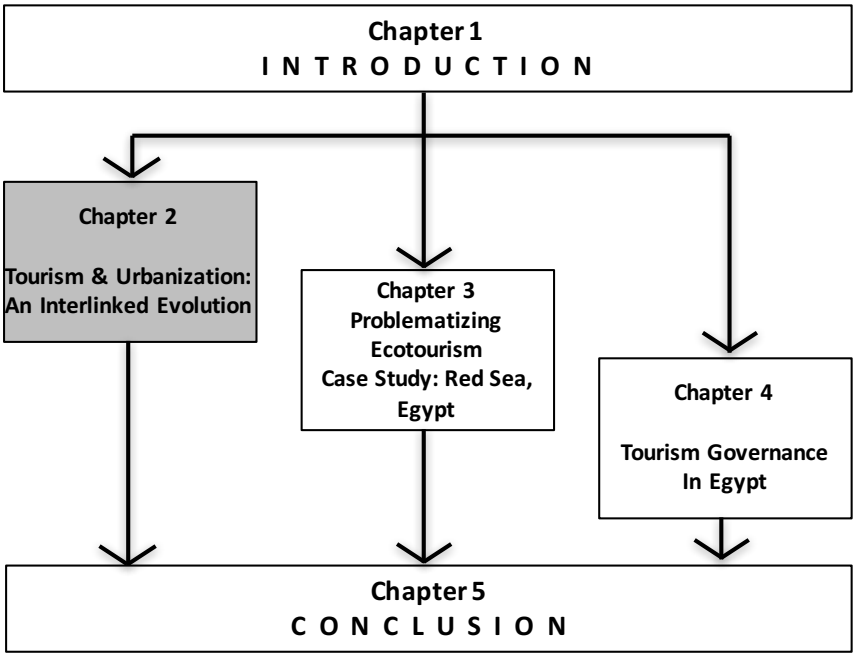

Figure 9 Overall layout of the study.

2.1 Background

Although the urbanization process has been well documented throughout history and the evolution of travel has been studied with equal thoroughness, the connection between those two phenomena remains significantly understudied. This is primarily because many scholars study tourism through various specialized optics: anthropological, social, cultural, economic, business, and hospitality. These discrete approaches to tourism ignore the interconnections between them, which are unpacked in Figure 10.

Tourism in its multifaceted aspects—as a career, as a subject of research, as a field of education, and as a discipline—is studied in schools and academic departments with a narrow lens. Leading universities and research bodies have siloed tourism within departments and schools such as anthropology, cultural geography, forestry, business, hospitality and recreation. Few of these collaborate or share the common platforms that are needed to better understand the relationship between tourism and the built environment. Tourism's real-world, real-time scope dictates widening the aperture.

At most universities, no discipline currently addresses ecotourism as a crosscutting industry, although a handful of departments consider some aspects of ecotourism. For instance, at the University of California at Berkeley, the anthropology department focuses on the tourist, seeing tourism as a sociopolitical encounter and interface; the landscape architecture and environmental planning department focuses on mitigation of tourism's ecological impacts, particularly on coastal development; and the environmental science, policy,

and management department focuses on ecology systems and the rights and "traditional ecological knowledge" of indigenous people that may be threatened or displaced by tourism development. Although the specialized focuses taken by particular disciplines are certainly valid, the study of contemporary tourism (especially ecotourism, sustainable tourism, and community-based tourism) requires broader, more interdisciplinary attention. Within the current structure of university departments and centers, interdisciplinary communication could substantially advance our understanding of the increasing economic and environmental influence of global tourism in general, and ecotourism in particular, and could provide opportunities for further research and instruction in ecotourism.

The evolution of tourism has happened alongside the evolution of the built environment; the history of urbanization, in particular, is an essential aspect of an interdisciplinary approach to tourism.

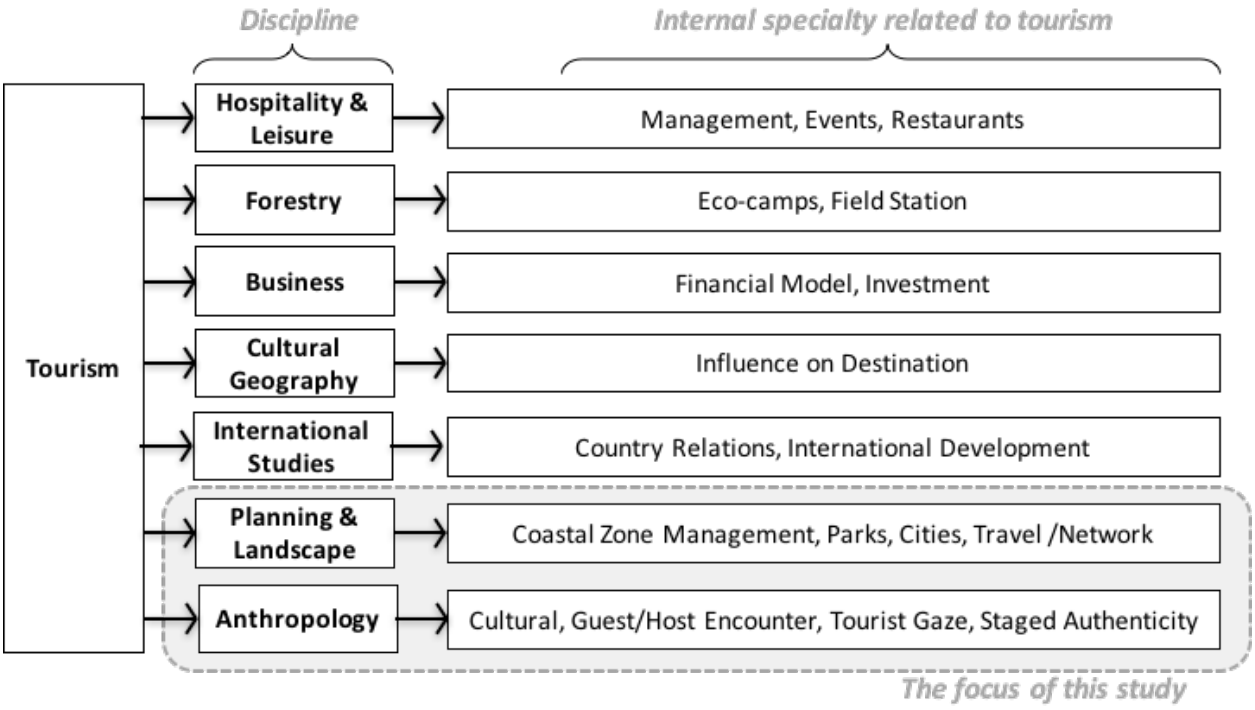

Figure 10. Tourism is segregated into different disciplines rather than considered in aggregate.

This study examines the conjoined histories of urbanization and tourism in Europe and North Africa, with a particular focus on Egypt as one of the oldest and most significant tourism destinations. As an exemplar of the layered influence of various historical eras on the evolution of tourism, Egypt demonstrates milestones in the co-evolution of urbanization and systems of mobility alongside tourism.

It is a mistake to assume that new nomenclature, or the key concepts it seeks to capture, is always indicative of changing eras; new terminologies often emerge to describe age-old phenomena. For example, one cannot claim that there was no "sustainable tourism" before the term sustainable development became part of the lexicon in the early 1970s. Only when practical tradition encounters a larger paradigm shift, such as sustainability, does a substantive, broadly accepted concept materialize. Herein lies the tipping point at which language reflects custom.

In the evolution of urbanization and tourism, scholars agree on some noteworthy milestones as points of noticeable change. These milestones or eras are not necessarily at equal intervals of time (as shown in Figure 11); rather, they highlight the points of significant change in the evolution of both urbanization and tourism.

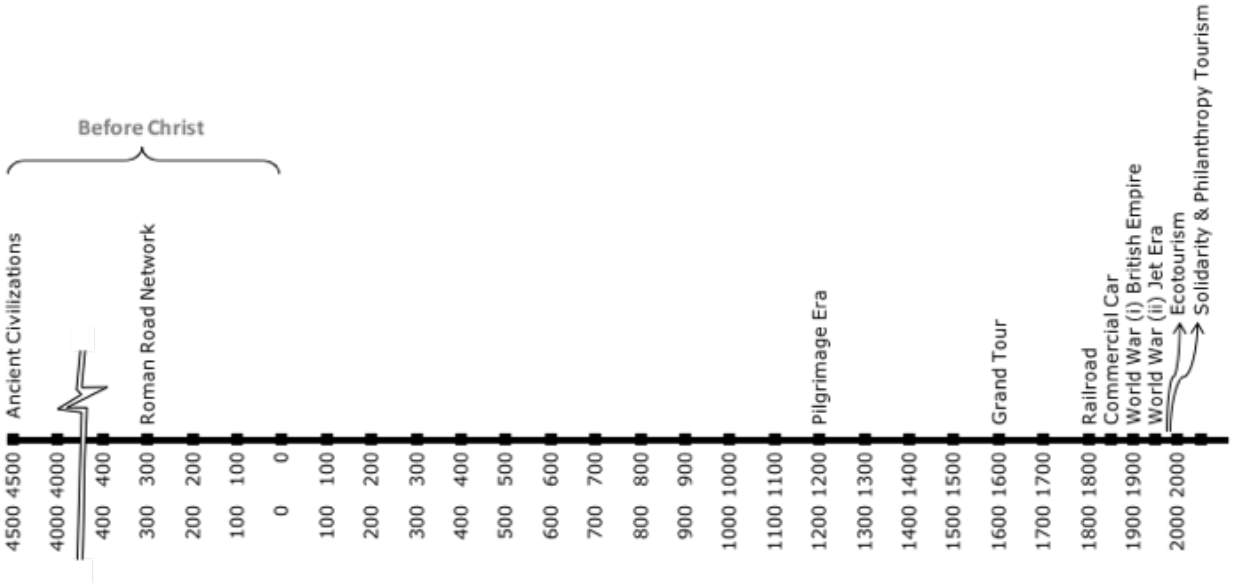

Figure 11. Timeline combining the evolution of urbanization and tourism

2.2 Tourism and Urbanization as Separate Fields

2.2.1 Urbanization

Mumford (1961), Schuyler (1986a), Steiner *et al.* (1988), Kostof (1991, 1992), Tyrrell (1999), Merchant (2007), Steinitz (2008), Castells (1985, 2010) , AlSayyad (2001, 2014), Hall (1998) and Daniels (2009) rank among the urban and landscape historians and theorists who document in depth the evolution of the urban landscape throughout history and who periodize the major transitions from early cities to the current contemporary city. They depict the transformations of cities' shape, form, size, and public sphere, as well as the way in which cities have merged with both natural and man-made landscapes. Their research focuses primarily on land-use dynamics and how the density, shape, form, structure, and importance of city centers and suburbs have been transformed through time.

Newton (1971), Barlow (2001b), and Davis (2005) also investigate the evolution of garden design, parks, and parkways in relation to planning and design, and classify parks according to site, scale, and role in urban milieu.

Scholars and institutions such Tisdale (1942), the National Library of Medicine (1968), Montgomery (2004), Leite and Garburn (2009), Encyclopedia Britannica (2009), the U.N. World Urbanization Prospects report (2014), and the U.N.–Habitat World Cities report (2016) define the urbanization process from slightly different angles based on factors like social habits, size of population, dominating economic activities, and the shape and form of the built environment. Nevertheless, these definitions share the following commonality: they all agree that urbanization entails an increase in the populations of cities and towns and a decrease in the population of rural areas. Although the first cities began during the early civilizations of

Mesopotamian and Nile River cultures and continued and expanded through the Classical, Medieval, and Renaissance periods, urbanization accelerated dramatically during the industrial revolution, when workers, attracted to centralized, largely factory-based labor, gathered in urban manufacturing hubs. This shifted societies from a rural to a primarily urban way of life by the early 20th century.

Depending on the context of their research, scholars reference infrastructure development—that is, the development of structures, mobility systems (paths, roads, and transit systems), public space, and water and power supply-- as an essential component of the urbanization process. In this research project, the use of the term "urbanization" in regards to tourism means "Any changes or additions to the built environment that occurred as consequence of the physical, social and economic forces in tourism development." The term "tourism infrastructure" is sometimes used interchangeably with "tourism urbanization," and both refer to the built facilities, such as resorts, hotels, service points, information centers, airports, travel stations, and tourism ports. This research project, however, makes a clear distinction between the fixed urban infrastructure that serves tourism and the travel mode (ships, trains, care, plane, and air jet) that brings the tourist to the tourist destination.

2.2.2 Tourism

Towner (1988), Towner (1991), Smith (2003) and Walton (2009) have thoroughly investigated the evolution of tourism vis-à-vis class, socioeconomics, unions, labor, and institutions. They document tourism's class-based origins as an activity accessible only to the privileged and wealthy, and examine how the industrial revolution made it possible for the middle class to travel and how the formation of labor unions disseminated tourism among the working class.

E. Cohen (1979, 1988), L. Cohen (2008), Kirshenblatt-Gimblett (1998), Graburn (1997, 2001), and MacCannel (2011) have addressed the cultural dimensions of tourism: the encounter between the guest and the host, the concept of "staged authenticity," the ethics of travel, the influence of socioeconomic class on travel, the commodification of culture, and tourist motivations. Finally, cultural and human geographers such as Law (1993), Harris *et al.* (2002), and Mbaiwa *et al.* (2011) have informed us about tourism in city centers and the attitudes of locals toward visitors, as well as interaction patterns created during the tourist visit.

This research focuses on tourism-related development and the changes it causes in both the natural and the built environments. Table 3 clarifies the components of this study and how it excludes urbanizing developments that were not a result of tourism.

Table 3
Examples of the Tourism Destination, the Travel Mode, and the Tourist

Main category	Subcategory	Example
Destination city	Tourism urbanization	Hotel, resort
	Non-tourism urbanization (Not part of this research)	Government building residential district
	Tourism infrastructure	Airports, harbors
Transportation	Travel mode	Train, air jet, car
People	The tourist	Class, education, wealth

This research focuses on the following subcategories: tourism urbanization and Infrastructure, travel mode, and the characteristics and preferences of the tourist (see Figure 12).

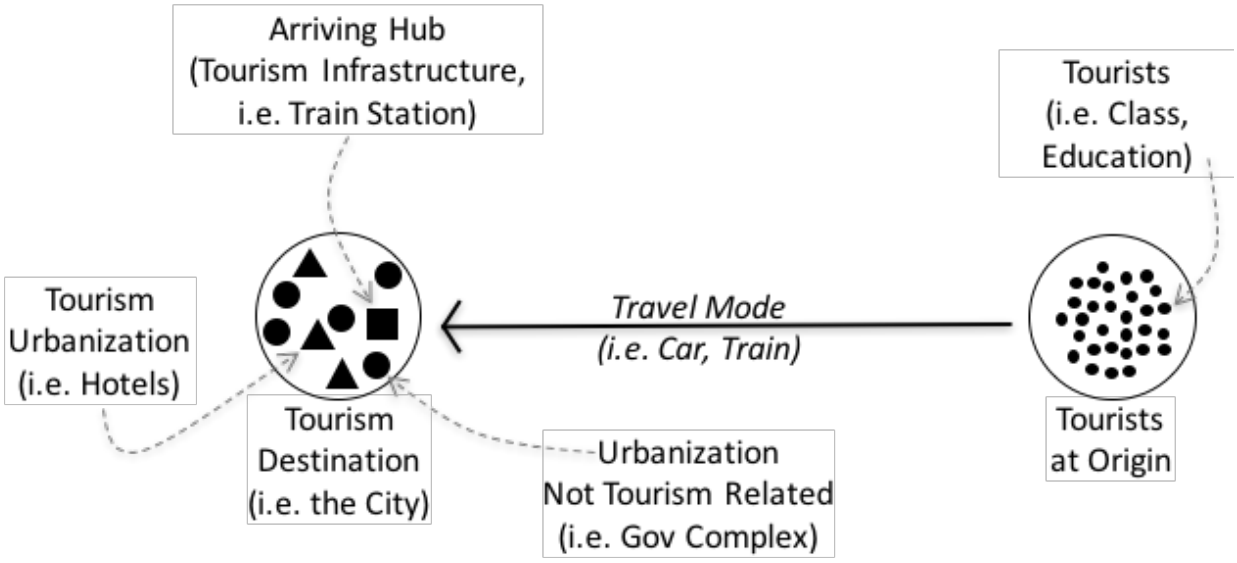

Figure *12.* Conceptual illustrations for the main topics of this study.

2.3 Tourism Development as a Subset of Urbanization

2.3.1 Travel shapes its urban destination

Human and cultural geographers confirm that people, as they live and interact with their spaces and cities, shape both the built forms and the open landscapes of those places. According to Harvey (2008), cities evolve according to the socioeconomic characteristics of their inhabitants, who shape and reshape their built environments (buildings, streets, open spaces, parks, alleys, and corridors). This interaction also influences residents' daily habits and lifestyles. Thus, the relationship between residents and cities is an ongoing, reciprocal one. Tourism destinations are subject to the same forces, but there, the mutually shaping relationship between place and people also includes visitors. Travel and inter/extra-cultural encounters influence and shape the built form.

For example, Mexican travelers to the United States influence their built environment back home. According to Sara Lopez's (2013) research on Mexican immigrants/travelers to the United States, migrants modified their houses in rural Mexico to resemble their U.S. homes after experiencing American domestic architecture; they also transferred capital and knowledge of construction techniques back to their home country, competing with U.S. juggernaut construction companies. Without their travel to the United States, they would not have brought this influence to Mexico. Tourism, therefore, as Fridgen (1991) contends, is one of the important economic activities that shape the urban development process.

Similarly, tourists also influence changes in land use in historic urban centers. Daher (2007) confirms that in many areas of the world, city centers are shifting to accommodate leisure and tourism because of the economic benefits they derive from such activities. Furthermore, Pearce (1987) asserts that tourism development and activities transform cities,

even though the tourism-initiated changes are difficult to distinguish from the changes caused by day-to-day city activities and dynamics. Tourism changes cities' land use, infrastructure capacity, services, and streetscapes (such as signage), as well as underlying urban management governance policies.

2.3.2 Three main pillars of the tourism system

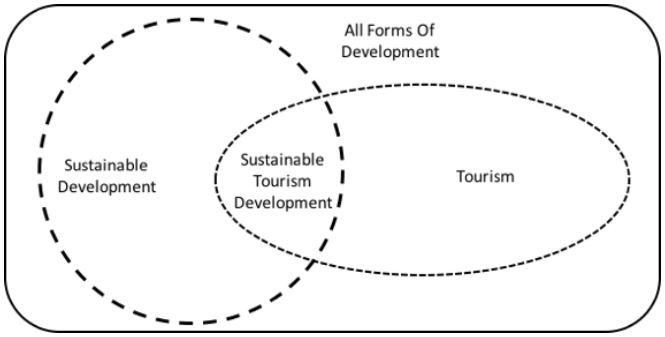

Figure 13. Tourism development as a subset of sustainable development (source: Fridgen 1991).

As Fridgen (1991) maintains, sustainable tourism is a subset of suitable development (see Figure 13). This research focuses on the three main pillars of tourism as a subset of urban development, and makes three primary arguments: first, that the shaping of tourism development is a subset of the shaping of urban development; second, that the characteristics of tourists form a subset of the characteristics of the local residents and city users; and third, that the tourists' travel modality is a subset of the local transportation network (see Table 4).

Table 4
Three Pillars of Tourism as Subsets of the Whole

MAIN CATEGORY	SUBSET
Urbanization	D: tourism destination (resort, hotel, camp, etc.)
Mobility	TM: travel modality (railway, charter flight, car, bus, etc.)
People	T: tourist/ traveler (social class, education, economic status, etc.)

While each of these pillars directly influences and shapes the others, the relationship between them remains fluid and difficult to capture. In each evolutionary era of urbanization and tourism development, the pillar that is most influential changes; in one era, urbanization may be the most influential, and in another era, the most influential pillar may be mobility. Figure 14 demonstrates the relationship between the three pillars, and the rest of this paper examines the connections and influences between Destination (D), Tourist (T), and Travel Modality (TM) throughout history.

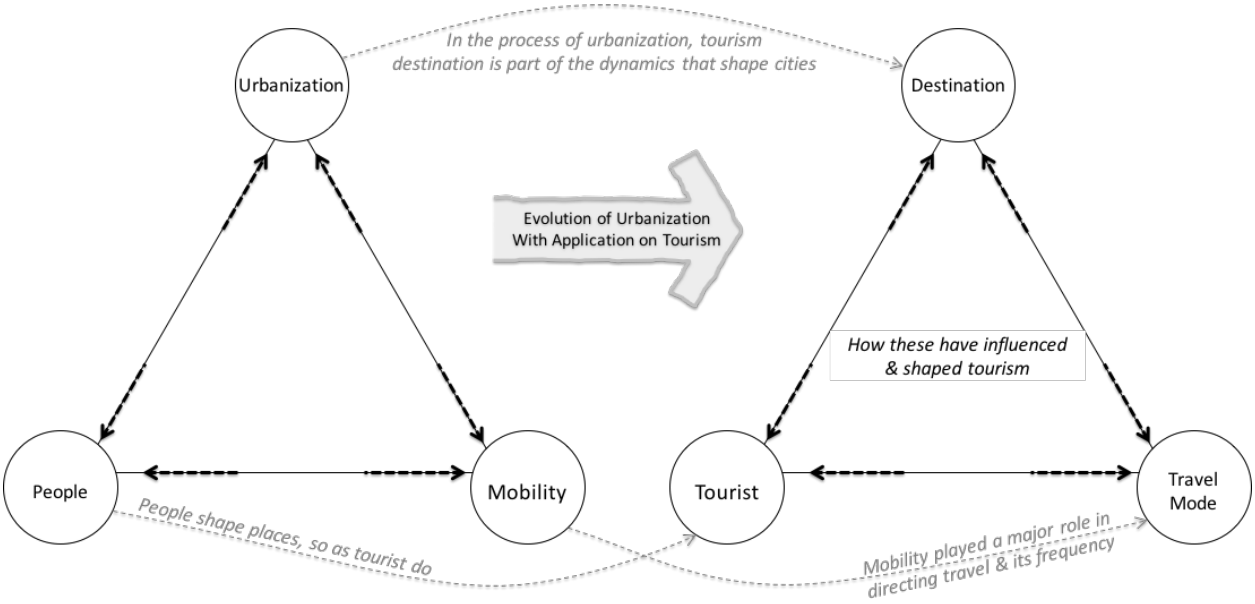

Figure 14. The three connections between the three main tourism pillars.

The destination

The first tourism pillar is the destination (D). As I previously argued, tourism has changed tourist destinations in terms of their shape, form, size, land use, infrastructure, and tourism accommodations (Daher, 2007; Lopez, 2013; Pearce, 1987, 2001). Law (1993) contends that urban authorities invest in tourism to promote their city's image, and that tourism thereby revitalizes and physically regenerates the city, in addition to creating new jobs. Tourist destinations, whether they are coastal or protected areas, city centers, historic sites, or amusement parks, are geared to serve and host the tourist. At the same time, as Gunn (2002) argues, tourism exerts stress on numerous resources, including environmental (water, trees, soil); social (urban infrastructure, transportation); and cultural (historical attractions) resources. It leads to the development of certain activities whose growth might not have been originally incorporated into the planning process.

The travel modality

As the second pillar of the tourism system, the travel modality (TM) has influenced the shaping of the built environment. The modality of travel, which is part of the city infrastructure and exists within the natural landscape, informs and is informed by the tourism industry. Brodsky-Porges (1981), Hunt and Lyne (1991), and Mugerauer (2009) have explained how instrumental the railway was in enabling Thomas Cook to take tourists on packaged journeys, and how increased demand for travel has helped to sustain train service to a variety of destinations. In subsequent sections of this research, the interaction between the travel modality, the built environment, and the tourist throughout the evolution of tourism will be explored.

The tourist/traveler

The tourist/traveler is the third central pillar of the tourism industry in each era of its evolution. This study explores the influence of the tourist's socioeconomic characteristics on tourism, examining aspects such as social class, income bracket, education level, as well as the

tourist's degree of curiosity and learning. The terms "tourist" and "traveler" are used interchangeably in the literature; there is no clear difference between tourists and travelers, although Dunn (2005) and Cohen (2011) draw some distinction between the two, and travel magazines and informal travel journals such as *The Huffington Post , Travel Today, Quora, Bored Panda, and Travel Tips* highlight the following differences:

- The traveler explores the destination more extensively, does not stick to the set itinerary, tends to blend with the local population and interacts with the local culture, focuses on learning, and experiences nature;
- The tourist is new to a place, seeks exotic experiences, sticks to a specific itinerary, is keen on documenting his/her memories, stands out from the local people, and follows guided tours.

Because this narrative examines both the tourist and the traveler through the evolution of tourism, the (T) will refer to the two definitions merged.

2.4 Evolution of Tourism and Urbanization

Capturing the dimensions of human curiosity is impossible; the curious mind finds its way out of any categorical lines that would encircle it. Two major problems preclude clear categorization of the role of curiosity in the various eras of tourism: first, there have always been many types of touristic curiosities, making it nearly impossible to winnow them down to distinct or clearly defined categories. The types of tourism driven by curiosity can encompass various types of tourism: adventure, revolution, sex, altruism, ecology, leisure, history, education, and spiritual pilgrimage (E. Cohen, 1984; E. Cohen & Dann, 1991; Urry, 1990; Urry & Cooper, 1991). Second, it is rare to find tourists who are curious about one type of tourism only. For example, it is rare to encounter tourists who are interested only in medieval churches, say, or only in achieving a perfect tan, and who are not also curious enough to also visit local museums.

As landscape planners, we cannot ignore the importance of a full understanding of the tourism industry. Therefore, I lay out here a basic timeline of tourism that is periodized according to tourism's level of interaction with the natural and built environment in each era.

While Thurot and Thurot (1983), Cohen (1988), Wang (1999), and Graburn (2001) argue that tourism evolved through time and was interlinked with class, socioeconomic status, education, purpose, political power, and personal motivations, scholars have paid less attention to the growth of tourism and its relation to the urbanization process. Although this evolution has occurred gradually, the following milestones (see Table 5) capture major phenomena that signal a direct interface between tourism and the built environment. These milestones are not necessarily linked to a single site; they are relevant to several sites, although they have specific relevance to Egypt as an ancient and ongoing destinations for travelers.

Table 5
Eras of Tourism Evolution

ERA	YEAR
Ancient Civilizations	4500 BC
Roman Road Network	300 BC
Pilgrimage	1200 AD
Era of the Grand Tour 1660	1660
Railroad Transport & Industrial Revolution	1820
Commercial Car Available for Public	1890
WWI and the British Empire	1920
WWII and the Jet Era	1945
Environmentally Sound Development	1983
Solidarity, Philanthropy & Pro-poor Tourism	1990

The diagram in Figure 15 will be used to illustrate the leading tourism pillar in shaping the built environment during each particular era. The darker its shade, the more influence it had in comparison to the other two pillars. They will be coded according to their importance: black is primary, grey is secondary, and white is complementary.

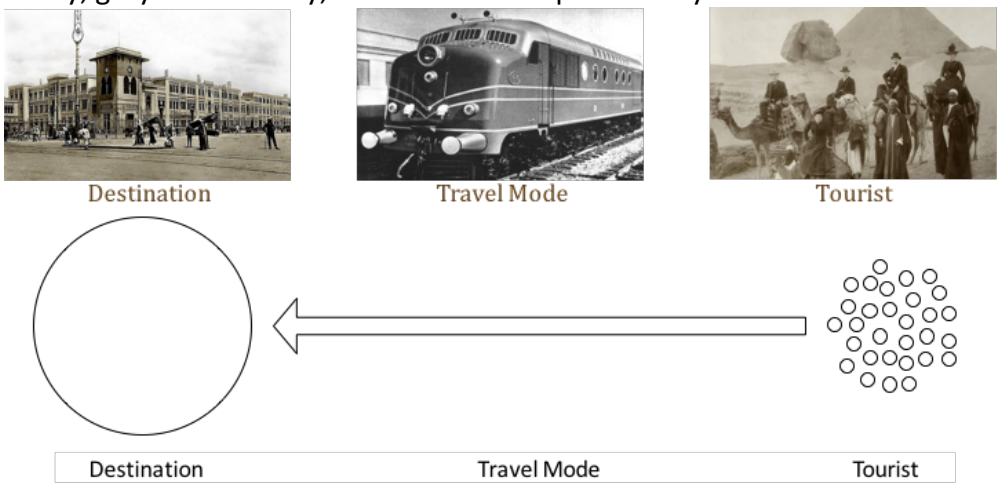

Figure 15. The three main pillars influencing and shaping urbanization in tourism destinations.

2.4.1 Ancient civilizations, 4500 BC

The systematic measurement of tourism began at the outset of the 20th century, when tourism's economic impact became an essential part of national economies (Towner, 1988). The documentation from prior eras is primarily based on historical sources that did not necessarily aim to document tourism-related activities.

Of course, the earliest form of human travel through the landscape was by foot, a travel modality that continues to this day. By at least 7000 BC, hunting and fishing societies used wooden sledges, an early example of a travel modality used to move through the landscape (Gascoigne, 2001). Domestication of cattle and the advent of the Neolithic agricultural revolution encouraged people to settle, bringing the Egyptian and Greek civilizations into existence. These civilizations invited humans to settle there in increasingly large numbers; at

the same time, these civilizations became attractive destinations for travelers seeking economic and cultural opportunities, conquest, leisure, trade, and resource extraction. This era witnessed the invention and use of the wheel and the first four-wheel wagon used for travel (in ancient Greek times, circa 3500 BC). Over time, in order to reduce the weight of the wagon, it was modified to a two-wheel cart (Anthony, 2007; Gascoigne, 2001).

As indicated above, the interaction between the three pillars of travel (T), (D), and (TM) occurred simultaneously; one could argue that people were the main drivers for travel and that tourist curiosity (T) was the main influencer of the tourism triangle during this period (see Figure 16). The main drivers of these ancient civilizations were the desire to find shelter and resource extraction. The destination (D) was formulated and shaped without prior influence by travelers (T), and the travel modality (TM)—wheels and trails—simply facilitated the flow of travel.

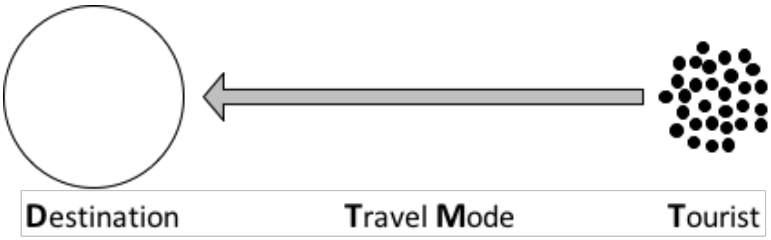

Figure 16. In ancient civilizations 4500 BC, (T) has the largest influence, followed by (TM); (D) was already shaped.

Ancient Egyptians built cities in orderly forms inspired by the gods and influenced by the sophisticated, calculated engineering of this era (Kostof, 1991). According to Casson (1974), Egyptians built the first cluster of cities around the Nile about 3000 BC, and, as a result, new patterns of movement emerged. These new movement patterns included routes that were transited by couriers, by traders traveling between the new urban centers, by state officials traveling in the performance of their responsibilities, and by visitors traveling for leisure. Egypt thus began to experience domestic tourism, primarily inspired by the curiosity of the traveler who moved from city to city. Such tourism was dependent on the transportation modality available at the time: principally carts and sailing ships. Egypt also attracted foreigners who traveled there by cart, camel, chariot, or sledge (Kemp, 2006; Reshafim, 2001; Wolf, 1996) to see and experience Egyptian civilization firsthand or (in the case of travelers from Byblos) to engage in commercial trading. During this era, the main destination locale existed before the advent of tourism and was therefore not created or built to accommodate the tourist in any way. The tourist/traveler (T) primarily initiated the tourism activities, and enhancements to or improvements of pathways and roads occurred accordingly. In this era, the tourist (T) thus affected the travel modalities (TM), and neither had much influence on the destination (D).

2.4.2 Roman road network, 300 BC

During the Roman Empire, the demand for movement increased as the empire expanded. This, in turn, induced the Roman Empire to build an enormous and well-built system of roads, the physical infrastructure most vital to the maintenance and development of the Roman state.

In his book *Studies in Ancient Technology*, Forbes (1955) maintains that, in some areas, the Romans simply improved the inherited system of trails, but in other areas, they built new roads in uncharted territory. Gascoigne (2001) adds that the availability of intensive manual labor (mainly soldiers, prisoners of war, and slaves) enabled the Romans to construct straight, short roads rather than being forced to follow the contours of the terrain. Forbes (1955) confirms that these roads were highly engineered for both drainage and durability. Both accounts note that this complex network of constructed roads facilitated horse-drawn travel for war, trade, tourism, and communication purposes.

Ancient Roman religious' activities such as festivals, rites, and feasts also contributed to the development of travel and tourism. These frequent ceremonies, which were based on specific calendar events or held at regular intervals, stimulated travel across the entire empire (Fridgen, 1991). However, when the Roman Empire fractured into numerous independent states, the Roman road network fragmented as well. The dispersed and variable governance of these states could not maintain such a massive travel network, and the roads began to deteriorate (Casson, 1974).

The travel infrastructure and means of mobility (TM) in this era influenced both the destination (D) and traveler choices (T) (see Figure 17). Roads were created for other purposes and the flow of tourism travel followed—thus the famous motto: "All Roads Lead To Rome."

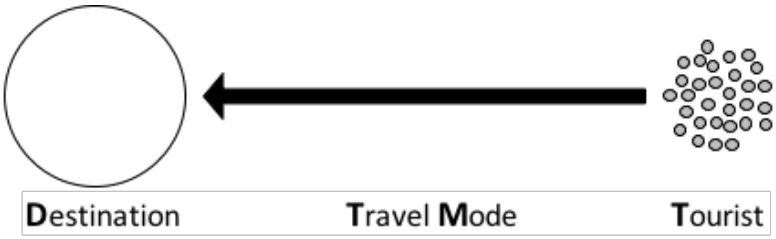

Figure 17. During the Roman empire 300 BC, (TM) facilitated (T), but had very little influence on (D).

According to Lindsay (1965), the Romans held numerous festivals and leisure events that created a need for domestic travel between cities in the Roman province of Egypt. The major cross-border routes were Roman roads that opened up trade routes and newly conquered areas. One example is the Roman road network connecting the Red Sea to the Nile, which still retains its historical value as a tourist route. Krzywinski (2000) and Snyder (2003) assert that this Roman road facilitated mobility between the Far East and Europe before the construction of the Suez Canal. In the Roman era, traders and travelers would unload their boats on the Western shore of the Egyptian Red Sea and take the Roman roads west toward the Nile, crossing the Eastern desert to the river. They would then load another set of boats to sail northward toward Alexandria and finally to Europe through the Mediterranean (see Figure 18). Throughout this journey, specific road systems guided the travelers across the desert and over the Red Sea mountain range.

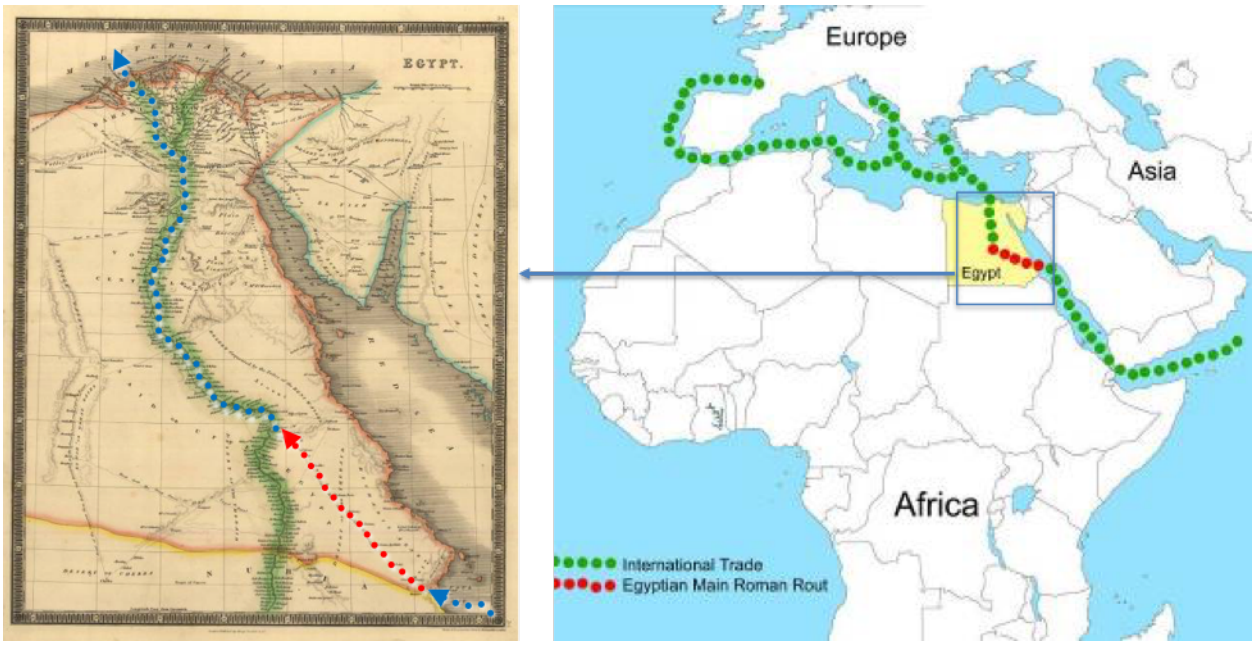

Figure 18. Segment of the Roman Road connecting the Red Sea with the Nile; part of the trade route from Asia to Europe.

2.4.3 Pilgrimage, 1200 AC

According to Mumford (1961), there have always existed ceremonial places that served as pilgrimage goals, and that these pilgrimage sites influenced the evolution of cities. While human performances and rituals are occasional and transient, the edifices or structures that support them are permanent cosmic personifications. Cohen (1984, 1988) identifies pilgrimage as a crucial component of tourism in more traditional societies.[2] Coleman and Eade (2004) assert further that in the Christian, Mormon, Hindu, Islamic, and Sufi[3] traditions, the meanings of pilgrimage are very similar, and that sacred travel is another form of social mobility. Consequently, pilgrimage is not limited to a specific culture or geography. Influenced by the desire to reach their destination, tourists at times used existing routes from previous eras (e.g., the Roman roads) or created their own trails as they journeyed to pilgrimage sites such as Jerusalem or Mecca. Thus the built forms of cities that accommodate pilgrimages, which bring massive pilgrim influxes during the high season, have transformed through the ages. González and Medina (2003) confirm that pilgrimage and cultural tourism have generated new physical spaces and advanced economic dynamics in destination cities. In addition, the rapid urbanization of pilgrimage destinations puts both tourists and locals equally at risk for

[2] Traditional societies are communities with areas of life that are not primarily regulated by economic criteria; they also include sedentary groups in modern societies, such as peasants.

[3] Hindus traveled to Himalayan Char Dham-Badrinath, Kedarnath, Gangotri, and Yamunotri; Christians traveled to Jerusalem and Bethlehem; Mormon traveled the Mormon Pioneer Trail, and Muslims traveled to Mecca.

unplanned growth induced by the influx of visitors. This is evident in sites like Mecca, where the expansion due to tourism pilgrimage exceeded the city's capacities, causing environmental and social problems (Ascoura, 2013). Additionally, when El-Shazli, a Sufi pilgrimage town, experienced the expansion of its guesthouses exceeding the areas suitable for development, areas became vulnerable to flood risks (Gohar & Kondolf, 2016). Two parallel forces influence travel here: the eagerness to reach the destination and the influx of people (T), which shape the landscape, and the built environment in the destination site (D) (see Figure 19). Therefore, the evolution of the destination city cannot be observed in isolation; it can only be measured in conjunction with the extent of travel to the destination and the tourists' interactions in it.

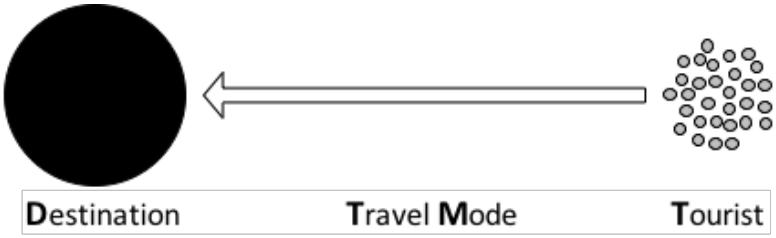

Figure 19. In this Pilgrimage era 1200, (D) is shaped by the influx of visitors (T); (TM) is the least significant pillar in pilgrimage travel.

Muslims traveling as pilgrims from North Africa to Mecca used some trails dating back to Roman times, and they also created their own pathway networks. This North African journey took place on caravan routes that led to the shores of the Red Sea; pilgrims then crossed the Red Sea and journeyed from there to the Holy Mosque of Mecca in Medina (see Figure 20). In the course of this journey, some Muslim travelers, including Sufi leaders, lost their lives because of the dry, harsh environment. Subsequently, devout followers honored these leaders with monumental graves, which in turn generated visitation and became minor pilgrimage destinations. A prime example is the El-Sheikh El-Shazli shrine, which served as a center for the construction of an entire village that included guesthouses.

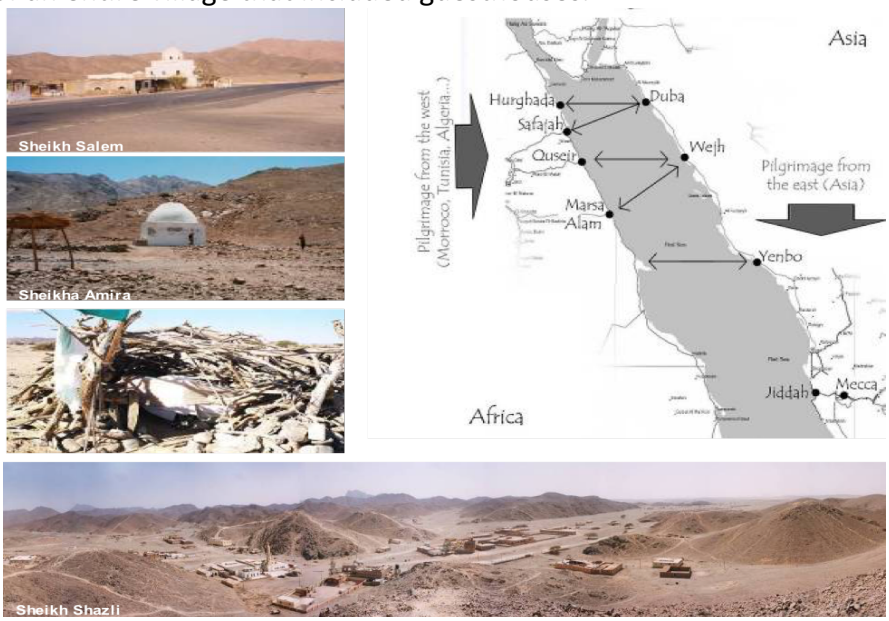

Figure 20. Example of routes for pilgrimage travel from North Africa to Mecca via the Egyptian Red Sea.

2.4.4 Era of the Grand Tour, 1660

Brodsky-Progres (1981), Towner (1988, 1995), Heafford (2006), and Humphreys (2012) consider the connection between upper-class Europeans' travel for education and their travel to enjoy spas and seaside resorts. The custom of upper-class educational tours contributed to the improvement and development of the built environment of the destinations—mainly spas and seaside resorts.

The upper-class mindset of this era regarded travel as an enlightening experience: "All tourists are dear to Hermes, the god of travel, who is patron also of amiable curiosity and freedom of mind." This quotation, attributed to George Santayana, encapsulates this upper-class attitude (Flamm, Giuseppe, & Rea, 2014); the upper classes would send their children on trips from which they were expected to return as accomplished men and women. Cohen (1984) concludes that the route of the traditional Grand Tour provided the geographical backbone from which tourism increasingly expanded into peripheral areas. By this era, carts had been improved into carriages: glass windows were introduced, along with a leather suspension system for an easier ride Gascoigne (2001).

During this era, the connection between tourism and landscaping started to emerge. Two noteworthy British landscape architects, Capability Brown and Charles Bridgeman, were working during this period; both designed estates, known for their naturalistic landscape style and elegance, that were lauded as the pinnacle of fashion. These estates were frequently painted by artists and so appeared in numerous collections. Kostof (1992) confirms that this era saw the advent of parks in within the city for recreational use—a key component of city formation, parks were designed to be enjoyed and experienced by upper-class visitors and travelers. In addition to the parks' role in attracting visitors, land use shifted as a result of tourism during this time. Guesthouses for government officials and upper-class travelers were constructed. Benfield (2013) is one of the few researchers who establishes the nexus between garden landscaping and tourism; while gardens complemented the resorts and spas visited by the elite, they were also places of curiosity themselves. As such, travelers frequented destinations with elaborate and ornate gardens. During the Grand Tour, when travelers made stops between main centers, they would lodge in accommodating homes (similar to Airbnb today) or set up temporary tent camps. In this way, the Grand Tour from Europe to the Orient served as a source of experiential learning for the traveler.

In this era, the curiosity of the traveler or tourist (T) largely influenced destinations (D). Travel modalities and infrastructure (TM) did not significantly change; rather, travel capitalized on routes and means of transport from previous eras (see Figure 21). The primary influencer of the destinations and tourism facilities was the traveler (T) with his/her unique idiosyncrasies (such as class, education, wealth, and specific interests).

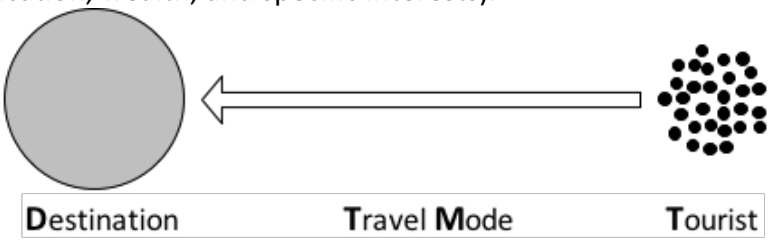

Figure 21. During the Grand Tour 1660, Tourist-driven travel (T) shaped both destinations (D) and travel modes (TM)

The flow of tourism toward Egypt led to increased establishment of guesthouses, resorts, and private estates as the Grand Tour itinerary expanded from Europe to Egypt. Hotels multiplied and Europeans bought estates in many places in Egypt, including Fayoum City. The following excerpt is from a letter sent by a member of the aristocracy who owned an estate in Egypt and was traveling on one of the Grand Tours from Europe.[4]

God willing, expect us to come to you on the 23rd. as soon as you receive this letter of mine, do your best to have the bathroom heated, having logs brought in and collecting chaff from everywhere, so that we can bathe in warmth since it is now winter… See to it that we have everything we need, especially a nice pig for my guests – but let it be a good one, not like the last time, skinny and worthless. And send word to the fishermen to bring us some fish. (Casson, 1974).

The image in Figure 22 is a good representation of this era; it can be found in the McClung Museum as a gift of the Knoxville couple who used it to trace their travels in Egypt as part of the Grand Tour.

Figure 22. Traveling within the Grand Tour, extended to reach Egypt (Source: Evans, University of Tennessee, 2005).

2.4.5 Railroad transport and the industrial revolution, 1820

For nearly 2000 years, the speed of travel had hardly changed; the roads that Napoleon built were similar to those built and used by Caesar (Wolf, 1996). Initially, railways transported commercial products and, later, people; they also certainly shaped both the physical landscapes and the socioeconomic class structures in cities.

Schuyler (1986b), Archer (1997) and Barlow (2001a) articulate the influence of the railways on the growing pattern of built environments. The railway changed the dynamics of travel across classes and across borders. Figure 23 shows the change in land use caused by the

[4] The writer (unknown name) lived in Egypt and the estate he refers to is near Fayoum Lake.

movement of social classes. The elite moved away from the city center to escape congested neighborhoods, which encouraged real estate development in the villages, or "suburbs." The middle class also relocated from the city, causing further urbanization of these villages. Railways brought workers to the city, and these workers brought their social ways of life. There are divergent views as to whether the railway brought the city to the country or vice versa (Cronon, 1992). Nonetheless, it spawned more than a two-way socioeconomic movement; it restructured the entire economy, changing land values, land use, and socioeconomic geographies. Tourism activities were part of this transportation change; for instance, with the invention of the railway, mobility became cheaper and more accessible, permitting larger numbers of people to travel widely for pleasure. This greater ease of travel, paired with the development of parks, inspired the middle class to appreciate their environment and engage with nature (Archer, 1997).

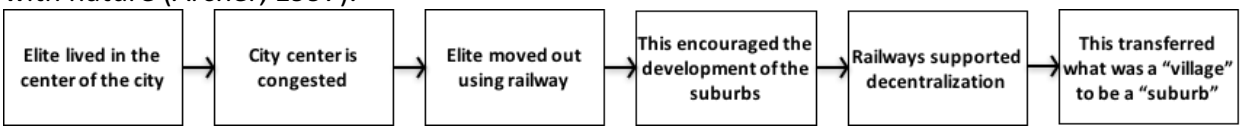

Figure 23. The influence of the railway on the physical landscape and socioeconomic patterns

Walton (2009) describes the evolution of tourism from a class-based activity, limited to elite groups and religious scholars, into a popular pursuit that was formalized in 1830 by Thomas Cook as packaged tourism (a precursor of our modern tourism). Walton remarks that historical records for standardized tour packages (companies' and tour operators' documentation) offer us plausible data about tourism of the era. Nevertheless, these records do not include the undocumented tourism that occurred through non-packaged tours. Towner (1988, 1995) assert that Thomas Cook as an entrepreneur was instrumental in democratizing tourism, which had previously been limited to the upper classes.

In 1896, the Suez Canal was completed. This was an Egyptian achievement of global import, and it serves as a resounding example of how huge projects can influence travel patterns. Fridgen (1991) and Wolf (1996) argue that the Suez Canal shortened voyages between the East and the West and therefore encouraged more tourism from Europe to the East.

Both the nature of the tourist (T) who is curious to see other parts of the world and the improvement of transportation (TM) influenced accommodation facilities, both in quantity and quality. The ability to travel now extended beyond the upper class, and the opportunity to cater to the middle classes via packaged tours made it possible for destination sites (D) to support more resorts and city hotels (see Figure 24).

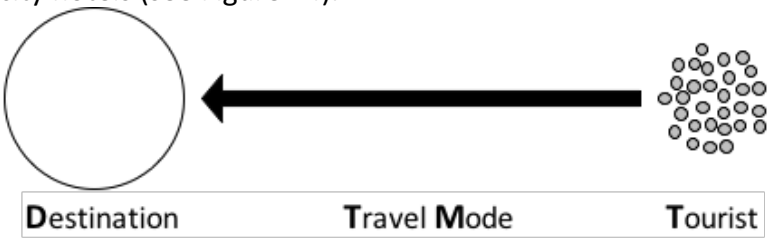

Figure 24. The railroad, 1820, (TM) played a vital role in the tourism boom (T), which affected the destination (D).

Since antiquity, Egypt has been a destination for travelers and immigrants. According to Gregory (2001), Egypt during the industrial revolution was a space for capital accumulation and a place to invest in real estate; since the mid-19th century, when Thomas Cook chose Egypt as the destination for his third group tour outside Great Britain (the first two were to Europe and the United States), it has been a modern tourist destination. Until World War II, members of the British aristocracy would spend a majority if not the entirety of the winter season in Egypt (Abdelwahab, 1996).

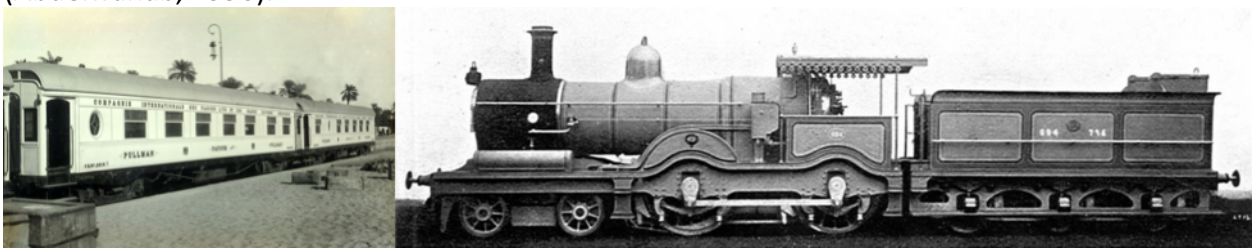

Figure 25. (Left) *Wagons-lits* coaches at the inauguration of a new service between Luxor and Aswan in 1926; (right) Locomotive built by the North British Locomotive Company in Scotland for the Egyptian State Railways in 1905–1906.

Thomas Cook's first trip to Egypt, in 1869, took people via steamboat down the Nile from Cairo to Aswan. Over time, Cook engaged more local people to provide help; he also improved ships and the related infrastructure so that the trip was smoother, quieter, and safer (Gregory, 2001; R. Hunter, 2004). Thomas Cook eventually added train excursions on the Nile connected to his steamer travel packages (see Figures 25 and 26).

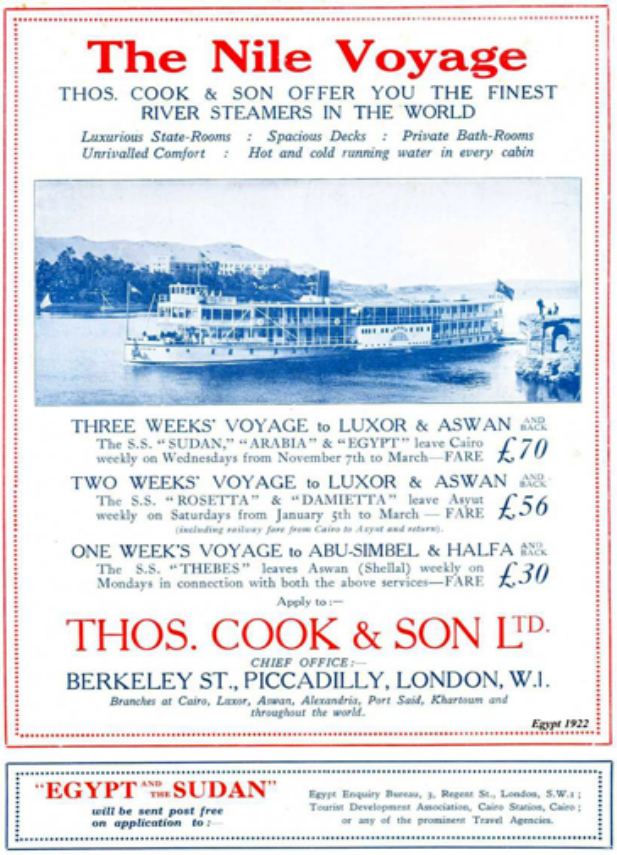

Figure 26. Poster by Thomas Cook & Son advertising trips for British tourists.

2.4.6 Commercial automobile, 1890

Although Nicolas-Joseph Cugnot is widely credited with building the first full-scale, self-propelled mechanical vehicle (a steam-powered tricycle, circa 1769), the car as a means of conveyance for the public entered into use by the end of the 1800s; the first Mercedes, built in 1885, was awarded the patent for the concept. The car was commercialized at the same time that urban public spaces were increasing and parks were being incorporated into cities; thus, day trip destinations and the means to visit them emerged together. Schuyler (1986b), Newton (1971), and Steinitz (2008) confirm that one of the main reasons for the incorporation of parks and recreational open spaces within the city limits was the deterioration of city life as a consequence of the industrial revolution. The objective was to improve quality of life and increase access to public green spaces. Parks changed from hunting grounds for the aristocracy to public areas set aside to preserve a sense of nature in cities and towns and to offer space for sporting activities. The creation of these incorporated recreational areas, together with the availability of means to take short-distance trips, spurred local tourism and caused bed and breakfast–style accommodations to proliferate near popular destinations. These day trips seeded changes in land use in certain areas in the city; these areas changed from housing-only areas to what we now call mixed-use areas containing housing, accommodations, and commercial services.

In this era, the automobile (TM) influenced land use by encouraging hosting facilities to increase in the existing city structures (D); it allowed for more travel by car owners (T) from both the upper and middle class (see Figure 27).

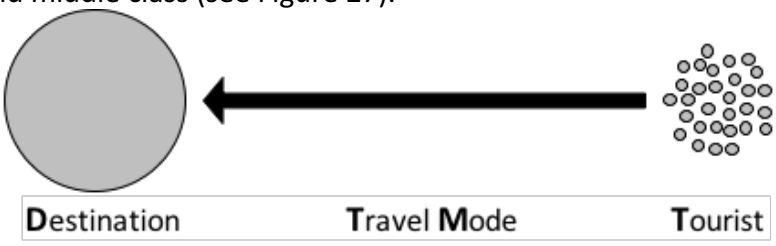

Figure 27. In the commercial automobile era, the private car (TM) influenced tourism and people's curiosity (T), and land-use changes at the destinations (D) followed.

According to Refaat (1997) and Al-Aswany (2015), the first car brought into Egypt was a French De Dion-Bouton belonging to Khedive Ismail's grandson, Prince Aziz Hassan (see Figure 28). In 1904, accompanied by two friends, the prince made a historic 210-kilometer journey from Cairo to Alexandria in over ten hours, despite the hundreds of difficulties resulting from the absence of roads and bridges. At the end of 1905, there were approximately 110 motorized vehicles in Cairo and 56 in Alexandria, as well as 50 motorcycle sidecars and two Dietrich-type omnibuses belonging to the newly formed Cairo Omnibus Company.

Figure 28. Photo of Prince Aziz Hassan's French Dion-Bouton car at the base of the pyramids (Source: Egyptian Gazette, 1904)

The car began to shape tourism and day-use destinations in Egypt after the launch of the Touring Club D'Egypte.[5] This group encouraged local tourist trips and supported international tourism by conveying people from the railway station to other destinations in Egypt's main cities.

2.4.7 WWI and the British Empire, 1920

At the end of WWI, the signing of the Treaty of Versailles heralded the formation of new nations and inspired curiosity for exploration and learning (Kirshenblatt-Gimblett, 1998). Tourism in this era was predicated on an eagerness for self-improvement; travelers wanted to learn new languages and cultures during vacation travel (E. Cohen, 2011; Gyr, 2010). Imitating mind-stimulating activities, travel now banded together people with specific, shared interests. Tent-camping expeditions, for example, were organized to destinations that heightened awareness and knowledge of wilderness areas, or that focused on natural, cultural and ethnic attractions in remote areas. The demand for such niche experiences created markets that catered to these interests, and specific trails in wilderness areas started to form (E. Cohen, 1974). Winter (2011) asserts that WWI cemeteries also generated visits from travelers related to or interested in perpetuating memories of those buried there.

During the period of British colonization, tourists were part of the growing numbers of Westerners, missionaries, teachers, traders, developers, professionals, messianic dreamers, and empire builders (R. Hunter, 2004) who traveled to the ends of the empire. These Western travelers influenced Egypt's built environment in many ways—for example, this era witnessed the formalization of the planning process in colonized countries. Cities like Cairo and Alexandria started to show the influence of European cities; new buildings were often planned by architects from the United Kingdom. In his book *Architecture and Urbanism in the British*

[5] Tour d'Egypte is a professional road cycling stage race held each February in Egypt. Tour d'Egypte is part of the UCI Africa Tour.

Empire, Bremner (2016) describes Cairo as "Paris on the Nile," and the city of Alexandria commissioned the Scottish architect William H. McLean to devise a new town plan for its expanded port and its surrounding zones.

The post-war tourist curiosity (T) generated interest in seeing and traveling to other nations. Cities in colonized nations were hugely influenced by the European cities—mainly London and Paris. This influence helped these destinations (D) attract visitors. Furthermore, the improvements in the railway and highway networks (TM) facilitated travel. During this era, the three pillars played parallel roles in shaping tourism dynamics (see Figure 29).

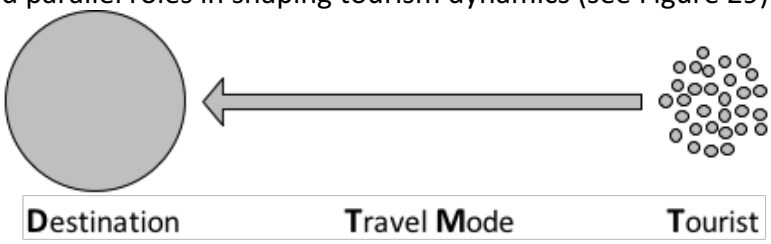

Figure 29. In the WWI era, the three pillars played parallel roles in influencing the built environment during this era.

Although the fledgling air service between London and Paris became popular by the 1920s, the remainder of the journey to Egypt remained time-consuming. Before long-distance air travel was available for the whole route to Egypt, tourists could either journey overland across Europe and then board a steamer to cross the Mediterranean, or they could simply make the entire trip by sea, a journey that took around two weeks (Fletcher, 2011). Upon arriving in Alexandria or Port Said, travelers would take the train to Cairo (see Figure 30, right, for the Cairo train station during this era), and then continue either by train or by ship to upper Egypt to see antiquities and archeological sites. The spectacular discovery of the tomb of Tutankhamen in 1922 brought tourists to Egypt in droves, and as Luxor became a greater tourist magnet, the Valley of the Kings was thronged with visitors hailing from all over the world, each wanting a glimpse of the latest treasure to be removed from the tomb. To accommodate these waves of tourists, hotels, such as the Hotel Cecil in Alexandria, began to develop around attraction areas (Figure 30, left).

Figure 30. (Left) Hotel Cecil in Alexandria in 1920; (right) Cairo, main train station. (Egypt-Through-Time article, September 2013)

The following images (Figure 31) are examples of posters used during this era to advertise for both hotels and Nile cruises.

Figure 31. Examples of posters promoting tourism, 1920–1930.

In response to the increase in tourism during the British imperial era, the tourist destinations changed, especially in numbers of hotels around popular attractions. This change in the built form extended to include main mobile hubs, such as train stations and airports. These establishments' architecture was influenced by European architecture, especially British architecture. In this era, the travel modality (TM) was still undergoing the same rapid transformation as in the preceding era; it primarily developed in response to the colonial demand for non-touristic transportation, but the Nile Cruises, which specifically and exclusively served travelers to upper Egypt, developed in response to tourism's demands.

2.4.8 WWII and the jet era

After the successful military use of jet aircraft in WWII, commercial jet usage servicing the public was initiated. The ease and affordability of air travel increased travel for large segments of the middle class. Mass tourism emerged alongside the growth of the middle class, the democratization of tourism in rich countries, the increase of wages, the improvement of living standards, and the shortening of the work year (E. Cohen, 1984; Mason, 2003; Theng et al., 2015). In response, charter tourism established itself with offers of inexpensive holidays abroad and developed into a flourishing market sector. International tourism first extended to neighboring countries and then to more distant destinations (Gyr, 2010). At the end of the 1960s, with support from multinational companies and transportation amenities, locations at great distances from industrial centers became tourism hubs for thousands of holidaymakers (Lanfant, Allcock, & Bruner, 1995).

The tourist (T) curiosity drove tourists to explore and learn from nature and to use their increased means to travel and see other territories. This increase in curiosity and means, together with the change in travel modality (TM) produced by the charter flights, influenced

tourism in this era (see Figure 32). The destinations (D), however, did not evolve further from the previous era.

Figure 32. Commercial air jet travel (TM) changed tourism dynamics, allowing more tourists (T) to travel.

Tour packages continued to frequent Egypt's main attractions near urban centers; as such, tourism boomed in Cairo, Luxor, Aswan, and Alexandria. Because travelers used, and their hosts maintained, urban structures built in previous eras, tourists made use of local transportation such as the tram, the local railway, and the Nile cruises (Refaat, 1997; Towner, 1995; Towner & Wall, 1991; Wolf, 1996).

2.4.9 Environmentally sound tourism development

While incorporation of environmental factors in urban development began in the previous era, during this period environmental considerations became tantamount, especially after the introduction of environmental legislation in both Europe and North America. The Brundtland Commission, in its 1987 report titled "Our Common Future," popularized the concept of sustainability. The report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," and "sustainable tourism" rose to significance (United Nations, 1987).

According to Briassoulis (2002), in the travel industry, sustainable development requires wise management of natural, built, and sociocultural resources in tourism destination areas. Resources created mainly for tourism are also used by the local population. With the new awareness of sustainability and the increase in environmental advocacy, tourism development began to incorporate environmentally sound development practices. In this context, ecotourism emerged as a tourism brand that is, theoretically, in harmony with local ecological systems. The idea of ecotourism is an old one; it seems to have taken on its modern manifestation in the late 1960s and early 1970s (Nelson, 2009), although the term "ecotourism" was introduced by Mexican architect Hector Ceballos-Lascuráin. In July 1983, he argued that ecotourism "involves travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects". Ecotourism has been touted as an alternative form of tourism with lower impact on local environments and cultures. With the increase of environmental awareness, those seeking to minimize their global footprint have pursued ecotourism. The tourism industry has developed eco-destinations to cater to tourists who consider themselves more environmentally responsible.

Eco-destinations are primarily shaped by environmental principles and legislative frameworks. They are also a direct response to the tourist (T) who is seeking this kind of attraction. Therefore, the eco-destination built environments (D) build camps and lodging

facilities that are environmentally sound. Transportation changes (TM) do not factor heavily into the decision to visit the site; the rigorous trip or the adventurous travel mode is seen as part of the experience. As such, the means of transportation do not inform the flow of tourism to such destinations (see Figure 33).

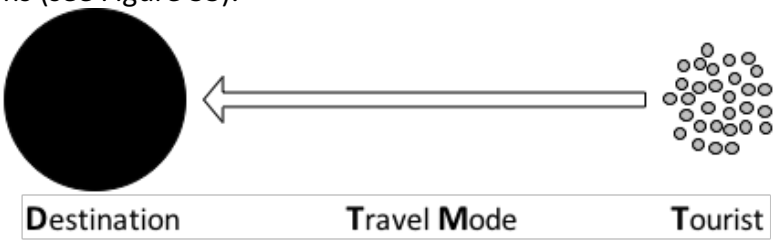

Figure 33. Eco-destinations (D) are shaped according to environmental principles, attracting responsible tourists (T); there are few changes to the travel mode in this era

Egypt has a few examples of ecotourism facilities designed around environmental principles and ecologically sound development practices, though they are not typical.

Before the Camp David Accords of 1978, Egypt's mainstream tourism was concentrated in large cities close to Egypt's rich antiquities, the Nile, and sites of ancient ruins and civilizations. Beach activities were restricted to coastal cities such as Alexandria. Following the peace treaty, many areas in the Red Sea were opened to exploration, including natural and cultural heritage sites that offered germinal opportunities for ecotourism. Ecotourism got its start through the work of a handful of local entrepreneurs who deliberately took the initiative and propelled the movement of travel to undeveloped areas where not many visitors had gone before. Above all, two noteworthy pioneers for this movement are Sherif El-Ghamrawy, who founded Basata Ecolodge in Nweiba'a, Sinai in 1986 (Figure 34), and Hossam Helmi, who founded Shagra Ecolodge in the Marsa Alam area in 1990 (Figure 35).

Figure 34. View of Basata Ecolodge (Source: Naftali Hilger, The Guardian).

Figure 35. Panoramic view looking northward toward the Shagra Ecolodge, Marsa Alam..

Although these ecolodges are located at opposite ends of the Red Sea in Egypt (see Figure 36), it became clear through several meetings and interviews with their owners, Hossam Helmi and Sherif El-Ghamrawy, that the development sites are predicated on shared environmental values and have been spearheaded by individuals who believe in the value of ecological sustainability. These two eco-developers have blazed a path by defining the ecolodge in the Egyptian context. The built form and its ecological footprint are guided by their unwavering sense of responsibility and by their profound respect for the local environment and culture.

Figure 36. Location of Basata in Sinai and Marsa Shagra along the Red Sea.

In present-day Egypt, ecotourism is perceived as an alternative to mass tourism that offers a source of economic progress for the local population. Eraqi (2008) contends that local Egyptian communities can derive socioeconomic value from their indigenous ecotouristic activities.

2.4.10 Solidarity, philanthropy, and pro-poor tourism, 1990

Philanthropy tourism (which is not as systematic as other tourism, relying more on individual interest) also plays a role is influencing local communities, their livelihoods, and therefore their built environments (Ceballos-Lascurain, 2008; Frenzel, 2013; The Center for Responsible Travel, 2014).

In philanthropic tourism, tourists volunteer to perform philanthropic activities supporting other communities: vulnerable areas, forests, rivers, coastlines, and other environmental or cultural landscapes. Travel for the purpose of helping wildlife rangers in Africa, or supporting underprivileged villages in Pakistan, or providing post-disaster relief to disaster-hit areas, are all examples of such philanthropic or solidarity tourism. This type of travel is primarily inspired by the traveler/tourist and his/her desire to make the destination a better place. Tourism literature, as well as literature in other fields such as international development and corporate social responsibility (CSR), have noted the significance and proliferation of this kind of travel activity (Dodds & Joppe, 2005; Eraqi, 2010; Park & Levy, 2011; World Tourism Organisation, 2015).

As Nobel laureate Wangari Maathai commented at a conference in Tanzania in 2008, "Travel philanthropy was born out of the frustration with conventional aid and ineffective philanthropic giving, as a form of development assistance flowing from the travel industry and travelers directly into conservation initiatives, community projects and philanthropic organizations." (Novelli, 2015). A number of organizations and companies provide responsible tourists and travel companies with the opportunity to "give back" to the communities they visit. In so doing, many of these organizations also give their own financial resources, time, and talent to improve the well-being of local communities (The Center for Responsible Travel, 2014).

According to Ashley and Hayson (2006), there are potential business benefits to serving in the pro-underprivileged[6] tourism sector; these include enhanced social licenses to operate and/or increased corporate brand recognition. The authors also show that successfully implementing a pro-underprivileged service approach depends on the company's context and circumstances. Dodds and Joppe (2005) assert that both government and non-governmental organizations (NGOs) have helped create and promote protocol and policies around both sustainable tourism and CSR. Corporations and nonprofits have also sponsored projects aimed at supporting local communities through volunteer travel; many of these trips have helped to preserve natural areas or empower post-disaster communities. According to Park and Levy (2011), the highest-performing CSR initiatives tend to be popular environmental practices focused on energy, waste, and water management. Hotel executives reported that cost savings and branding-related outcomes were the greatest benefits from CSR implementation.

[6] Pro-underprivilaged is a term used to described local people as real persons that deserve the benefits of the system (Sakhuja, 2008)

Philanthropic tourism initiated by the tourist (T) has not played a significant role in building the destination environment (D); rather, it works to improve local environmental and social conditions. The tourist demand for tourism practices that protect the environment also influences the built form. The travel modality (TM) did not play a distinctive role in this era as travelers used a variety of travel modalities to reach to their destinations (see Figure 37).

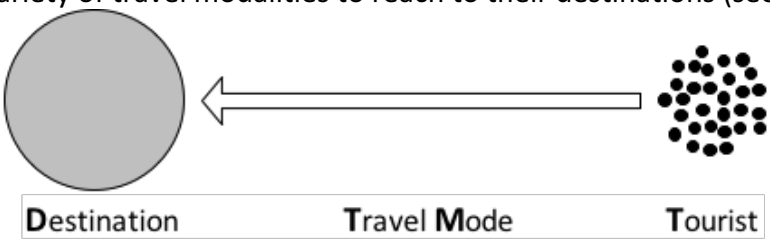

Figure 37. In the Solidarity tourism Era, travelers (T) lead the shift to philanthropic tourism; most are curious about the destination (D), which they shape and reshape. The travel mode (TM) is less significant in this era.

In Egypt, the tourism business sector uses their enforcement of and/or compliance with CSR regulations to gain a competitive edge in tourism markets (Eraqi, 2010). The guided tourism businesses (hotels and tour operators) leverage neighboring local communities by advertising day visits, which offer tourists the chance to experience local food or buy local crafts to support local tribes.

These day trips often slot in neatly to tourist divers' travel schedules. It is suggested that tourist divers wait 12–18 hours after their final dive[7] before flying; however, the longer the time between the final dive and the flight, the more nitrogen the tourist expels from his/her system, minimizing the risk of decompression sickness. Many tourist divers schedule a local-community day trip at the end of their diving vacation. The economic retention of such visits is disputable, as are its impacts on local livelihoods, but there is a philanthropic component—a desire to experience local communities—to such trips from Red Sea resorts. The map below shows the locations of local communities visited during tourism trips (see Figure 38). Some, like the El-Qul'an community, are on the coast; others, such as the Wadi El-Gimal community, are a bit inland; and still others, such as El-Sheikh El-Shazli village, are in the deep mountain range.

[7] After a single no-decompression dive, a minimum pre-flight surface interval of 12 hours is suggested. After multiple no-decompression dives per day, or multiple days of diving, a minimum pre-flight surface interval of 18 hours is suggested. For dives requiring decompression stops, there is little experimental or published evidence on which to base a recommendation; for decompression diving, a pre-flight surface interval substantially longer than 18 hours appears prudent.

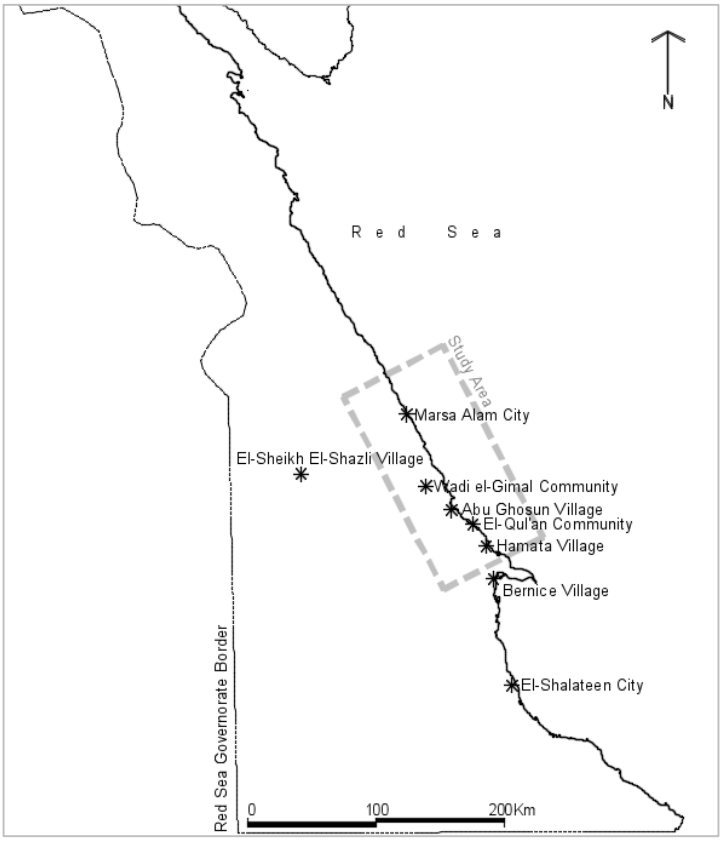

Figure 38. Main local communities in the Southern Red Sea region.

2.5 Findings

The eras of tourism evolution influence the shaping of the built environment, directly or indirectly; the study of tourism and urbanization cannot be separated from one another, because it is difficult to separate their mutual influences. It is thus essential to understand the connection between urbanization and tourism to predict how tourism development can inform the sites where which it occurs and how local development at tourist destinations shapes tourism activities in the area. The three pillars shaping the tourism industry, tourists (T), modes of travel (TM), and destinations (D), are all responsible in various measures for the formulation, shaping, and reshaping of tourism systems. Each pillar's influence is unequal in each era and in relation to different types of tourism. Governments and policy makers need to appreciate the relationship between these pillars of tourism and urbanization, which should influence and inform their daily practices and decisions when managing urban development, city planning, and areas designated for tourism development.

Tourism's global environmental footprint must be studied using this cross-disciplinary approach in which transportation, tourism facilities, and the characteristics of the tourist are thoroughly appraised. The current division that treats these subjects for different disciplines will result in continued faulty perception of what actually happens at tourism sites.

While in some eras mobility infrastructure was created for non-touristic reasons (such as the Roman roads built for conquering lands, or the railways designed to transport mining resources and crops), the systems became strong means of transporting tourists. In other eras, however, where distinctions are less clear-cut, further analysis is needed to appreciate the connection between urbanization and tourism that these findings have illustrated. In these eras, we have determined that, although there is not a direct causative link, the connection nonetheless exists, serving as an invisible bridge to further touristic urbanization.

3 Chapter Three: Problematizing Ecotourism in the Red Sea

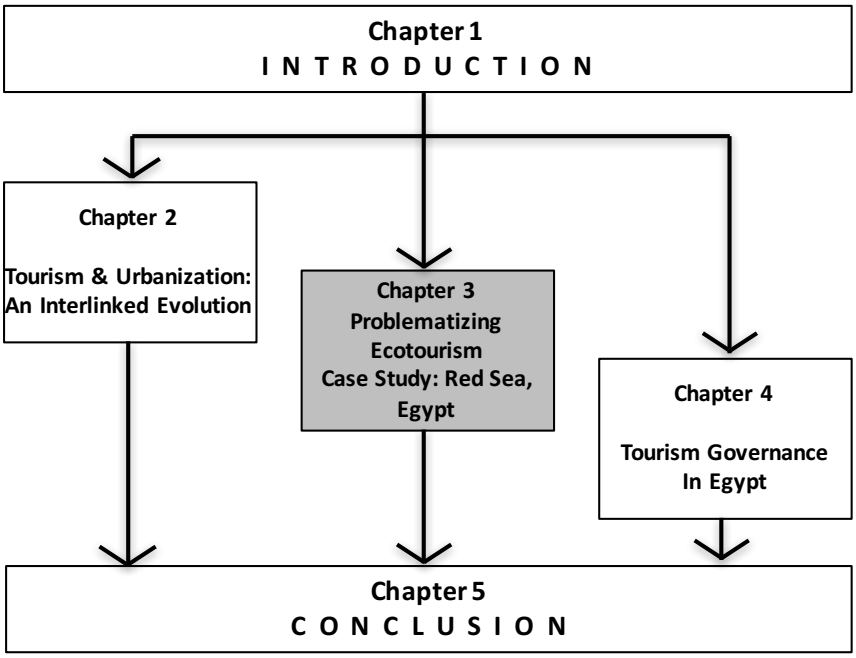

Figure 39. Chapter 3 in relation to the overall study.

3.1 Contemporary Tourism

For many national economies in both the developed and developing world, tourism represents a significant, and rising, source of income. Over the last three decades, tourism has experienced continued growth and increasing diversification to such an extent that it has become one of the fastest-growing economic sectors in the world (World Tourism Organization, 2013). Globally, International tourist arrivals grew by 4.3% in 2014, to $1.133 billion; in the United States, it generated $1.5 trillion in export earnings. The UNWTO forecasts a growth in international tourist arrivals of between 3% and 4% in 2015 (UNWTO 2015).

In spite of the many political and economic challenges the world faced in 2014, the number of tourists traveling internationally grew by 4.4%, reaching a new milestone (World Tourism Organisation, 2015). Most of this tourism is in the form of mass tourism (Poon, 1993). Mass tourism (MT) has the following characteristics: participation of large numbers of visitors; collective organization of travel; collective accommodations; and integration of tourists in a traveling group (Fink, 1970; Vanhove, 1997). As many scholars have discussed, the environmental impacts of MT are significant and include the bleaching of coral reefs, the generation of solid waste, and the destruction of mangrove trees (Burak, Dogan, & Gazioglu, 2004; Hawkins & Roberts, 1994; Jameson, Ammar, Saadalla, Mostafa, & Riegl, 1999; Sherbiny, Sherif, & Hassan, 2006). Construction waste threatens wetlands and places stress on groundwater supplies. As tourism consumers and planners have become increasingly aware of the environmental impacts of tourist development, attempts to formulate environmentally friendly alternatives to MT, such as “sustainable tourism” or “ecotourism,” have emerged.

3.1.1 Sustainable tourism

Hunter (1997) initially defined sustainable tourism (ST) as tourism that satisfies the needs and desires of tourists, the needs and desires of both the private and public tourism industry, and the needs and desires of the local host community. More recently, Gunn and Var (2002) have characterized ST by contrasting it with MT:

Mass tourism	**Sustainable tourism**
Individualism, selfishness	Interdependence, community
Shortsightedness, present-oriented	Far-sightedness, future oriented
Greed, commodity-based	Altruism
Material, consumption-based	Nonmaterial, community-based
Arrogance	Humility, caution
Anthropocentrism	Kinship

Other scholars, such as Dolnicar (2006), address ST from the point of view of supply and demand: ST meets a specific need within the tourism industry and is driven by corporate standards rather than by policy framework. Theoretically, these companies believe that they are protecting the local cultural and environmental resources; the expectation is that the ST concept can guide the tourism industry toward tourism that is more environmentally and culturally responsive, with benefits accruing to both investors and local residents. This means that ST is simply an enhanced version of MT, a claim supported by Cater (Cater, 1993).

3.1.2 Ecotourism

Sanders (2010), Ceballos (1987, 1993, 2006, 2008), and Black (1996) confirm that the Mexican architect Hector Ceballos-Lascuráin coined the term ecotourism (ET) in 1983. He stated that ET "involves travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects" (Ceballos-Lascurain, 1987). The term has since evolved to include other essential characteristics. Weaver (2001) defines ET as a form of nature-based tourism that strives to be ecologically, socioculturally, and economically sustainable while providing opportunities for appreciating and learning about the natural and cultural environment. Nelson (2009) defines ET as a subset of nature tourism in which conservationist and tourist interests work together to preserve environmental quality while mutually protecting tourism. Dolnicar (2006) asserts that ET is a demand-driven concept limited to nature-based tourism, and he defines it as serving a self-selected group of tourists who are specifically interested in experiencing and learning from nature.

3.2 Problematizing Ecotourism

3.2.1 Ecotourism: a critical overview

A number of tourism scholars have critiqued the concept of alternative tourism in the form of ET. Weaver (2001) argues that the success of the ET model, which is based on the use of natural areas, will attract a large numbers of tourists; these large numbers might impact the original nature resource attraction, thereby defeating ET's purpose: to protect sensitive

environmental areas. In addition, Cater (1993) critiques ET in developing countries, arguing that without adequate understanding of environmental factors and without careful planning and management, ET is likely to produce unsustainable outcomes. Lindberg and McKercher (1997) argue that as ET ventures reach a stage of maturity and popularity, they degrade environments; they confirm that ET's advertised benefits are not actually occurring. Weaver (2001) reiterates the adverse outcomes of ET, using the example of the degradation of Yosemite Valley and the Grand Canyon from motor vehicle traffic, intensity of visitation, and impacts from a variety of tourist activities—impacts that have been documented by the National Park Service. Weaver (2001) concludes that ET sites suffer from intense use. Nelson (2009) notes other adverse outcomes of ET, such as a lack of economic retention, lack of education for both guest and host, lack of direct benefits to local people, and stresses on environmental and cultural resources.

3.2.2 Ecotourism: a self-labeled practice

ET, created in the 1980s, has been rapidly gaining in popularity since then (Orams, 2001). A rapidly increasing number of tourist developments have adopted the term to describe their tourist enterprise. While the "eco" prefix seems to indicate an association with "ecology" or "ecosystem," the definition of ET evolves and shifts, and there is no real consensus about what constitutes ET. Deng and Li (2015) assert that because of this fluid definition, participation in ET is a question of self-identification. Their study demonstrates that 22% of tourists labeled themselves as ecotourists, and that these ecotourists were more environmentally concerned and responsible than mass tourists. This study suggests that no specific parameters actually distinguish ET from MT. Instead, ET is a self-adopted designation that has more to do with how the tourism operation wants to be positioned in a global demand and supply tourism market than with particular practices.

3.3 Red Sea Ecotourism

Over the last three decades, Egypt's Ministry of Tourism has fostered extensive tourism development on the Red Sea coast. The Red Sea coast presents an ideal case study with which to examine the actual environmental outcomes of ET, because it offers comparable sites that have been specifically developed, labeled, and marketed as either conventional MT coastal resorts or ET resorts. Since the inception of Red Sea development in the 1980s, the Tourism Development Authority (TDA) of Egypt has designated multiple similarly sized parcels along the shoreline, extending about 400 kilometers from Hurghada in the North to Ras Banas in the South. The configurations of these coastal parcels are essentially identical: each encompasses land between the Red Sea mountain range and the sea. Though (as developers have discovered) the particulars of any given parcel may make it more or less advantageous than other parcels, there is a high degree of comparability in fundamental environmental characteristics between the parcels. As tourist facilities in this area progressed southward along the coast and as ecotourism became more popular, developers have built both conventional MT and ET resorts. The ET resorts start at Port Ghalib and move southward to Ras Banas along a stretch of coast 208 kilometers long (see Figure 40).

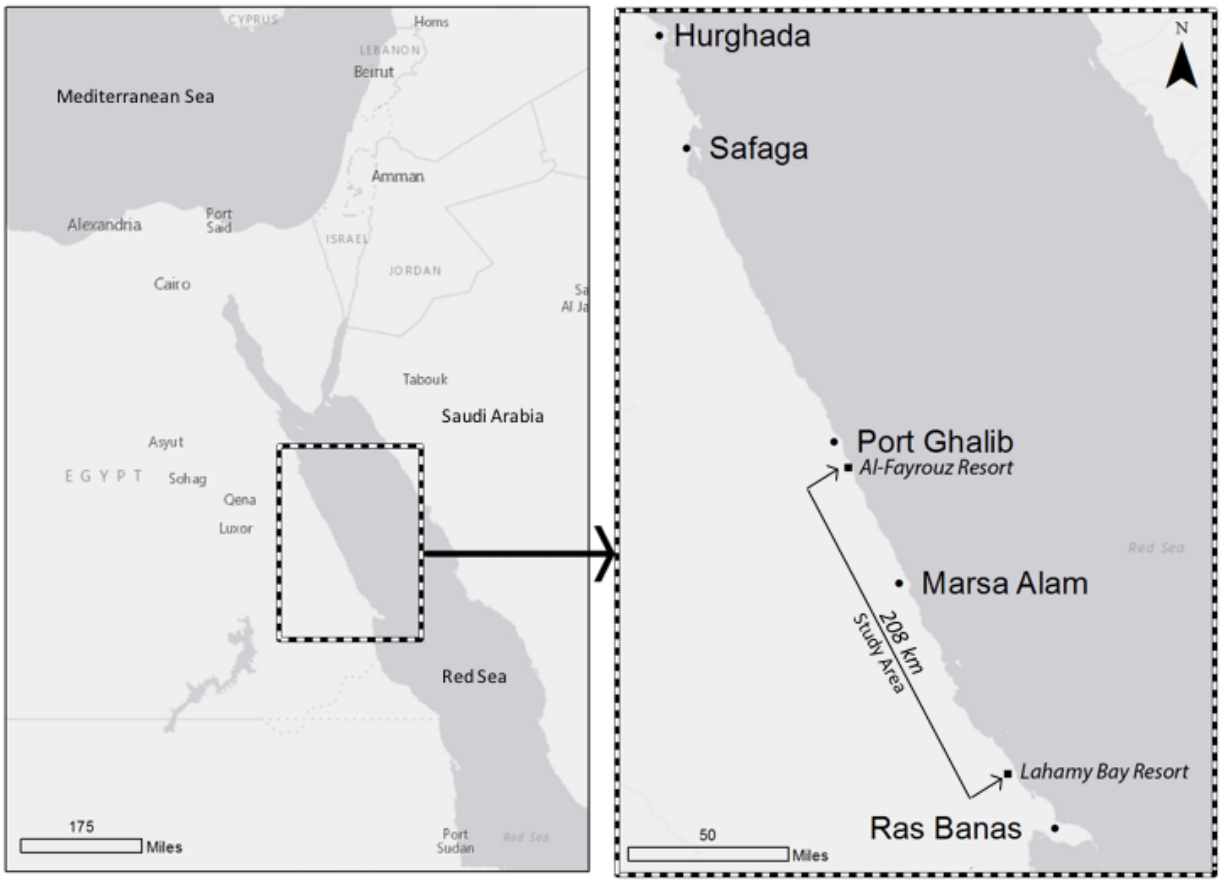

Figure 40. Red Sea tourism development area.

The resorts labeled as ET destinations or as eco-lodges aim to set a new trend in response to a perceived increase in the market segment for this kind of tourist facility. As documented by Shaalan (2005) and the Red Sea Sustainable Tourism Initiative (RSSTI) project (2004), the TDA is encouraging diversification of tourism opportunities throughout the country, and is specifically promoting ET. Beginning just over a decade ago, some investors with a high level of environmental awareness introduced ET into the typical land-parceling pattern along the Red Sea coast. The stated intention of ET development in this zone is to achieve higher compatibility with the inherent environmental characteristics of the sites. For example, in the pioneer investor Hossam Helmi's project Marsa Nakari, the resort's huts and tents are placed away from the salt marshes and on higher ground out of the flood plain (see Figures 41, 42).

Figure 41. Marsa Nakari ecolodge, an example of one of the leading ecotourism initiatives in the study area (photo by Habi Girgis, 2016).

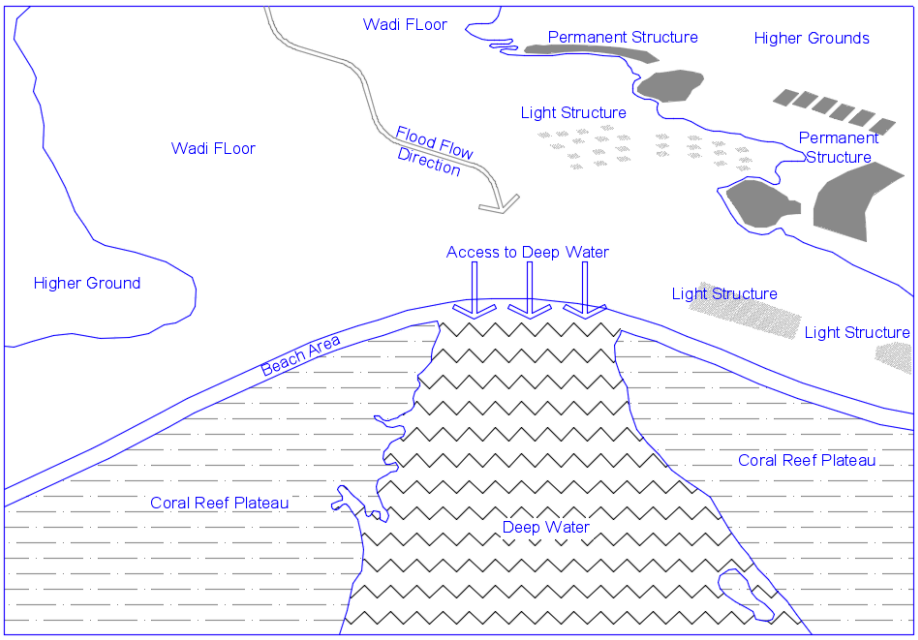

Figure 42. Illustrative diagram showing the permanent structures on high ground; only light structures are in vulnerable areas.

As discussed in the first chapter, this research distinguishes MT from ET based on the environmental outcomes of the resorts' planning and design (see Table 6). It assumes that MT facilities' site planning, design features, and building patterns generate high environmental impacts. A subset of MT, sustainable tourism (ST), produces similarly detrimental environmental impacts due to the build-out characteristics, but ST incorporates management regimes that reduce the ongoing environmental impacts of the development. Conversely, this research also assumes that ET facilities have demonstrably lower environmental impacts than MT resorts because of their lower-intensity build-out patterns.

Table 6

The Two Mainstream Tourism Types Along the Red Sea Coast

Type (○)	Mass tourism	Represents the typical coastal resort that does not consider the environment and generates a typically high environmental impact
	Sustainable tourism	A version of mass tourism that is similar in planning and design but incorporates some sustainable management practices
Type (★)	Ecotourism	Low-intensity camps that claims to generate lower impact

3.3.1 Case study

The case study comprises 37 functioning lodging facilities along the 208-kilometer stretch of Red Sea coastline from Al-Fayrouz Resort, 75 kilometers north of Marsa Alam City, to the southernmost resort on the coast in Egypt, Lahamy Bay Resort (Figure 43). Nine of these are labeled eco-lodges or eco-camps and represent ecotourism (★); the remaining 28 more typical resorts represent mass tourism (○). The study documents the specific development characteristics of each resort to ascertain their environmental performance—essentially to determine how "eco" each resort is.

Figure 43. The 37 tourism establishments in the southern region of the Red Sea.

Table 7 gives the names of all the tourism establishments in the study area; (○) is a mass tourism resort and (★) is a self-labeled ecotourism resort.

Table 7
The 37 Cases Studied from Al-Fayrouz to Marsa Wadi Lahmy

1. ○ Fayrouz	11. ○ Equinox	21. ★ Emy Camp	31. ○ Fantasia
2. ○ Tulip A	12. ○ Elphinstone	22. ★ Badaweyya	32. ○ Gorgonia
3. ○ Tulip B	13. ○ Solitaire	23. ★ Aquarius	33. ○ Shams Alam
4. ○ Shony Bay	14. ○ Oasis	24. ★ Deep South	34. ★ Kite Village
5. ○ Nada Resort	15. ○ Kahramana	25. ★ Nakari	35. ○ Azur
6. ○ Concord	16. ○ Habiba	26. ○ Laguna Beach	36. ★ Wadi Lahmy Ecolodge
7. ○ Happy Life	17. ★ Shagra	27. ○ Dream Lagoon	37. ○ Lahamy Bay Resort
8. ○ Hilton	18. ○ Blue Reef	28. ○ Blue Reef	
9. ★ Abu Dabbab	19. ○ Brayka	29. ○ Emirald Resort	
10. ○ Malika	20. ○ Oriental	30. ○ Gemma Resort	

3.3.2 Environmental compliance factors

While a wide range of factors can be used to measure the environmental impacts of tourism establishments, this research uses three categories, each of which is discussed below: locational factors, design, and management. This research assesses each resort in relation to these clusters of factors based on environmentally significant aspects of the Red Sea region. This allows for the systematic comparison of the environmental effects of conventional MT resorts and ET resorts.

Locational factors

This group of factors relate to the location of tourism facilities and their spatial adjacency to environmental resources. As stated above, land parcels along the Red Sea coast have been subdivided by the TDA for allocation to developers; these parcels, roughly similar in scale, all encompass upland areas, a coastal edge, and access to the water. The tourism investors and their advisory teams choose which available parcels to acquire from the government, which means that early purchasers have more options. Therefore, the two major principal stakeholders—the government, which lays out the parcels, and the developers, who choose particular parcels for their tourism investments—shape the tourism built environment along the Red Sea coast.

In order to thrive, tourism must integrate with and consume nearby resources in the hot region (Harris *et al.*, 2002; C. Hunter, 1997). In the Red Sea context, the key resources for tourism are upland areas for resort buildings, the beach area, water access, and the coral reefs for snorkeling and deep sea diving. Each parcel's location in relation to environmental components and resources must be known in order to identify the environmental impacts of a particular resort and to compare how traditional MT sites and ET sites impact their environments. In the Red Sea coastal zone, mangrove forests, salt marshes, and coral reefs are critical components of the local ecosystem that could be compromised by result of tourist development (Hawkins & Roberts, 1994; Marshal, Marshal, Rouphael, & Abulla, 2010; Zahran, 2010). In addition, the floodplains, or wadis, that extend from the Red Sea mountains to the shore occur at regular intervals all along the coast and form ecotones between fresh and brackish water; these ecotones could be disrupted by development (Gohar & Kondolf, 2016). Therefore, on the Red Sea coast, the locational factors of environmental significance are the following: conflicts with floodplains; distance from mangrove patches; building within, filling, or disturbance of salt marshes; and disturbance of coral reefs for water access, snorkeling, and diving.

Design factors

The spatial configuration and geographic distribution of tourism developments are fundamental to the sustainability of tourist facilities (Pearce, 1987, 2001). These designs are based on the preferences of their owners and of the planners, engineers, and architects who design the development's specifics. The planning and design of the resorts (the layout of the permanent components of the resort or camp) shape the details of the resort's built environment and its interaction and impact with the environment. The critical factors in comparatively evaluating the Red Sea resorts are: the extent of land consumption, represented by building footprints and other resort structures; water-consuming features, such as swimming pools and lawns; and features that impact the coral reef, such as the number and form of marinas and jetties. Figure 44 is a conceptual demonstration for the typical Red Sea resort layout.

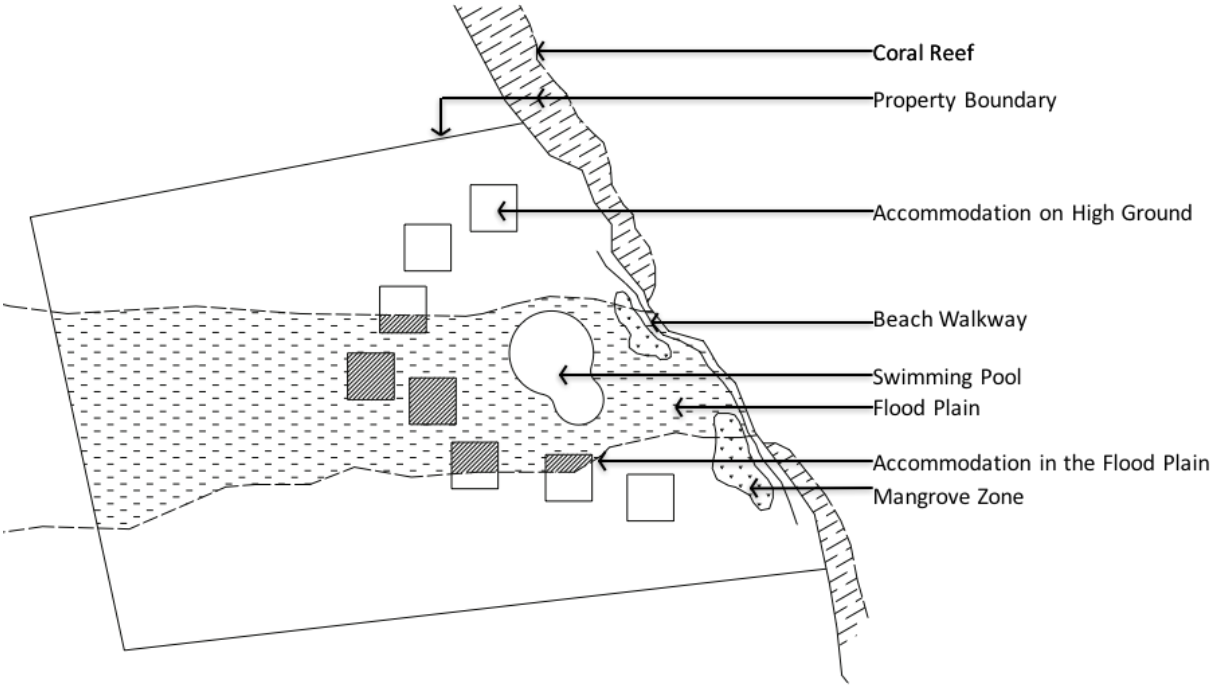

Figure 44. A conceptual diagram showing the typical site layout of a tourism establishment.

Management factors

The ongoing management of a tourist facility determines much of its impact on the local environment. Tourism produces additional externalized burdens on local infrastructure (water supply, energy, and solid waste disposal), with concomitant environmental impacts. A variety of standard-setting organizations across the world offer environmental certifications to new developments, including tourist resorts. Abdalla *et al.* (2011) compared different environmental assessment tools, including Green Globes, Green Calc, Eco-profile, Building Research Establishment Environmental Assessment Method (BREEAM, UK), Leadership in Energy, Environmental Design (LEED, USA), Sustainable Building Tool (SBTool, international), Green Star (UK), and NABERS National Australian Building Environment Rating System (NABERS). Abdalla *et al.* (2011) compared the certification received with the actual buildings' performance, and they found a huge gap between the certifications and the real performance of the buildings.

Along the Red Sea coastal study area, all the resorts (traditional MT sites and ET sites) rely on the same systems to deal with water supply, energy, and solid waste disposal. Two main freshwater pipes from the Nile provide the water supply for the northern part of the Egyptian Red Sea (north of the study area); the southern part of the Red Sea coast, which includes the study area, relies on desalination and water trucking (Abou Rayan, Djebedjian, El-Sarraf, & Khaled, 2003). This makes water difficult to obtain, and it is a valuable resource to preserve. Similarly, resort owners, managers, and heads of engineering and maintenance confirm that all resorts adopt the exact same practices in dealing with solid waste management, power generation, transportation from/to the airport, and graywater handling. Hurghada Environmental Protection and Conservation Agency (HEPCA) collects the solid wastes from all resorts for dumping at the disposal site in Marsa Alam, shown in Figure 45. Fieldwork shows

that, for economic reasons, all resorts use some sustainable management practices (such as using water-saving devices, water tables, and solar water heaters). Since they are not on the power grid, all resorts use diesel generators as an energy source. Because these externalities are essentially the same for all the resorts, this research does not consider management factors in assessing the differences between ET and MT resorts in the study area.

Figure 45 Marsa Alam city with the location of HEPCA Soild Waste facility

3.4 Methods

Field survey

This research systematically mapped and surveyed each and every functioning resort in the study area and classified each one, measuring built area, pool area, lawn area, and (if present) constructed jetties on the reef. The following matrix of plans (Figures 46 and 47) shows the layout of all the facilities in the same scale. The research findings were normalized using the number of rooms (the capacity of the resort) in order to capture the relevant footprint of each development. By comparing the actual land use to the number of rooms in both mass tourism and ecotourism resorts, we can see the relative impact of each type of resort—information that can be used to guide future tourism development in the area.

Interviews

Interviews with both resorts owners, hospitality managers, technical engineering unit managers revealed that all the resorts both typical mass tourism and self-labeled ecotourism uses adopt the same environmental management system. The remoteness of the region dictates that all of the tourism resorts rely on trucking fresh water in, trucking their solid waste to the nearest treatment facility (in Marsa Alam city), to use best environmental practices when it comes to basic saving techniques such as using water savers, power savers in the rooms, and towels re-use scheme.

Examine TDA land parceling

This research examines the land subdivision allocated by the Tourism Development Authority in relation to locational factors: conflict with flood plains, having access to deep water, adjacency to the mangrove patches, and building on salt marshes. These are the locational factors identified to have the most significant impact along the entire study area. The land parcels obtained from the TDA were super-imposed on the flood paths extracted from the several hydrology maps, and the areas of conflict were identified, traced and measured. These were confirmed and photographically documented through field observation during the field survey.

Figure 46. Tourism establishments from Al-Fayrouz plaza north to Marsa Shagra. (Note: some of the boxes above include more than one resort to maintain all in the same scale)[8]

[8] Blow-ups for individual maps is available in the appendices

Figure 47. Tourism establishments from Blue Reef to Lahamy Bay Resort South. (Note: some of the boxes above include more than one resort to maintain all in the same scale)[9]

[9] Blow-ups for individual maps is available in the appendices

3.5 Results

Of the 37 resorts in the study area, self-labeled ET resorts made up 20% of the total and MT resorts comprised 80%. Given the "eco" designation, the expectation might be that the ET sites would prove to be in better compliance with both the planning and design factors.

3.5.1 Locational factors

These are the factors related to the facilities' location, land subdivision planning and their environmental setting such as floodplains and marshes. The "locational" setting is decided by the central government's land parceling and allocation system. Incremental land purchase by developers has, over time, produced the current development pattern; developers who purchased land for tourism projects in the early 1980s had more open lots to choose from than do developers who are purchasing land two or three decades later.

While the overall pattern shows that small tourism establishments with fewer rooms have smaller footprints, the footprint measured relative to the number of rooms in particular developments often violate this proposition. The entire set of self-labeled ET (ecolodge/eco-camp) resorts in the study area show similar or higher pressure on or interaction with ecological resources than do the typical MT resorts.

Conflicts with floodplain

In order to understand the extent of the conflict with the flood plain, we overlaid the flood path on the map of tourism resorts map in the study area. The following typology is observed (see Figure 48):

1. Typical resort, located away from the flood plain (ex: Shams Alam Resort)
2. Typical resort, located within the flood plain (ex: Lahamy Bay Resort)
3. Ecolodge or camp, located away from the flood plain (ex: Deep South camp)
4. Ecolodge or camp within the flood plain:

4a. located on a flood plain, but built to avoid the flooding area (ex: Marsa Shagra Ecolodge)
4b. located and built on the flood plain (ex: Abu Dabbab camp)

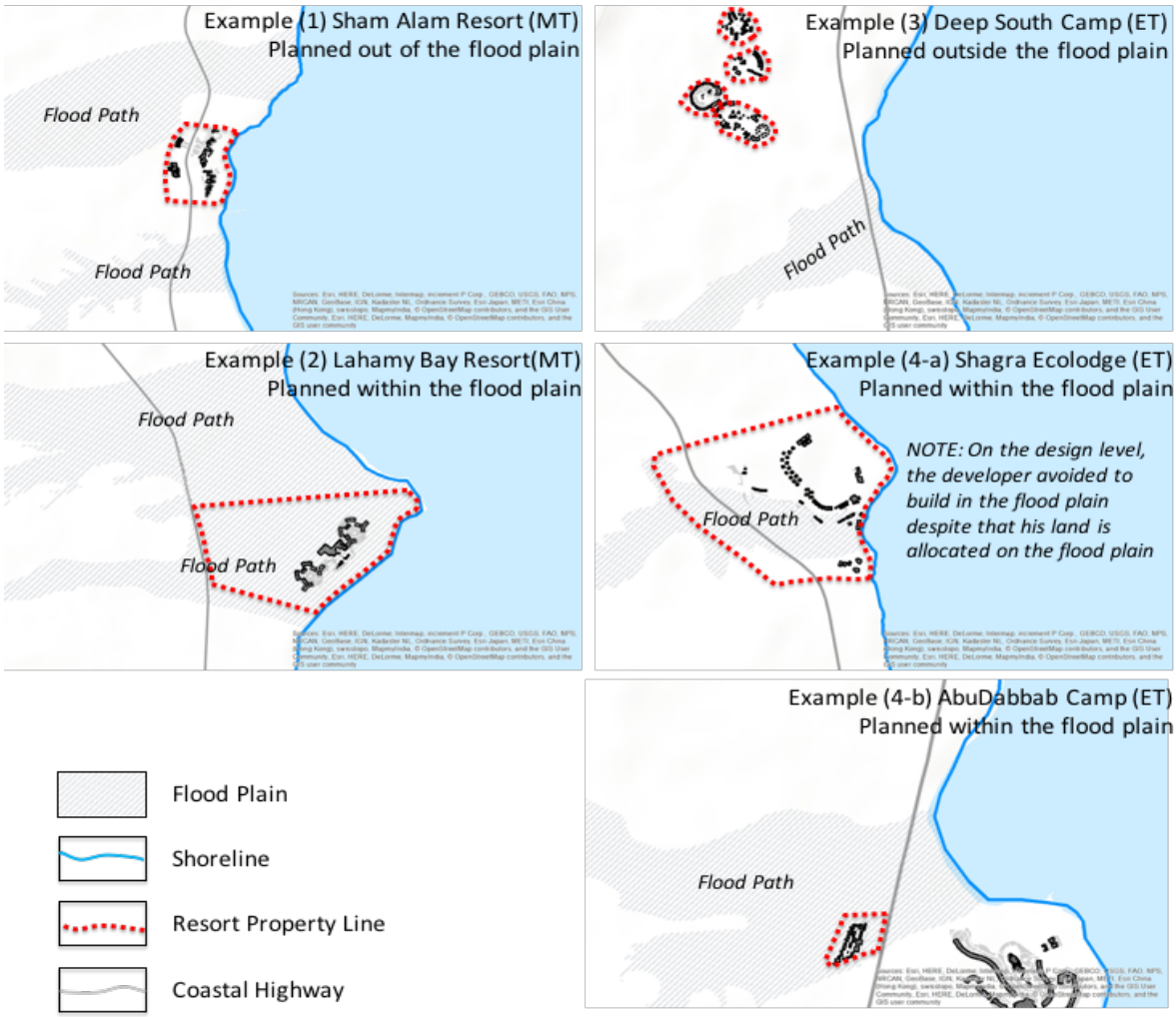

Figure 48. Four examples of resorts in relation to the flood plain; the red line shows the property boundary and the grey hatch shows the flood path

At Malika resort (Figure 49), the developers avoided buildings concrete structures on the flood plain, building only light structures, likely easily replaced, in that area. However, the overall site facilities are located within the flood plain, which constitutes a risk to people and tourism investments. Also, the activities around these light structures are in conflict with the other environmental factors such as the wetlands.

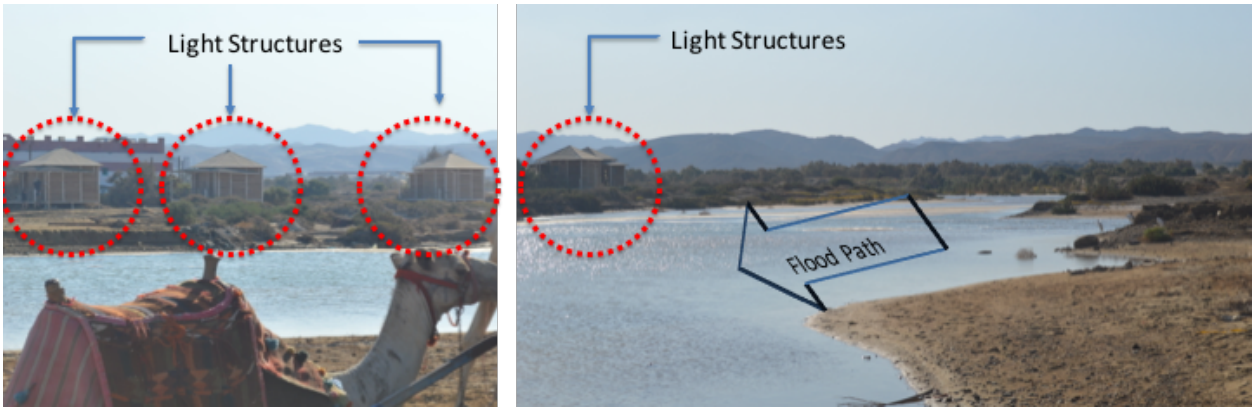

Figure 49 Malika Resort (MT) is situated on the flood plain, where only light structures are built.

Overall, within the entire case study zone, four out of nine of the ET resorts are situated on the flood plain while only eight of the 25 MT resorts are on the flood plain (see Table 8).

Table 8

MT and ET Resorts' Relation to Flood Plain

	Total Number of Tourism Establishments	Within Flood Plain	%
Mass tourism	25	8	32%
Ecotourism	9	4	44%

Distance from mangrove patches

As discussed, mangroves are a unique part of the ecosystem in this area. Distance between existing mangroves and tourism resorts is critical to maintaining the health of the mangrove forests—the greater the distance, the healthier the mangrove trees will remain. Egyptian law protects mangroves and prohibits construction within mangrove patches; however, in practice, as Zahran (2010) and El-Sherbini (2006) have shown, other tourism activities near the mangroves also undermine the connectedness of the ecosystem. The Egyptian law does not provide a fixed buffer area; it varies from 50 to 400 meters between the buildings and mangroves. However, this buffer does not apply to other tourism activities, such as boating, leisure, and beach activities. This study documents the actual distance of the resorts from mangrove patches and whether or not appropriate distances to ensure the health of the mangroves have been implemented. The chart (Figure 50) shows that, on the planning level, buffer distance from mangroves has not been taken into account.

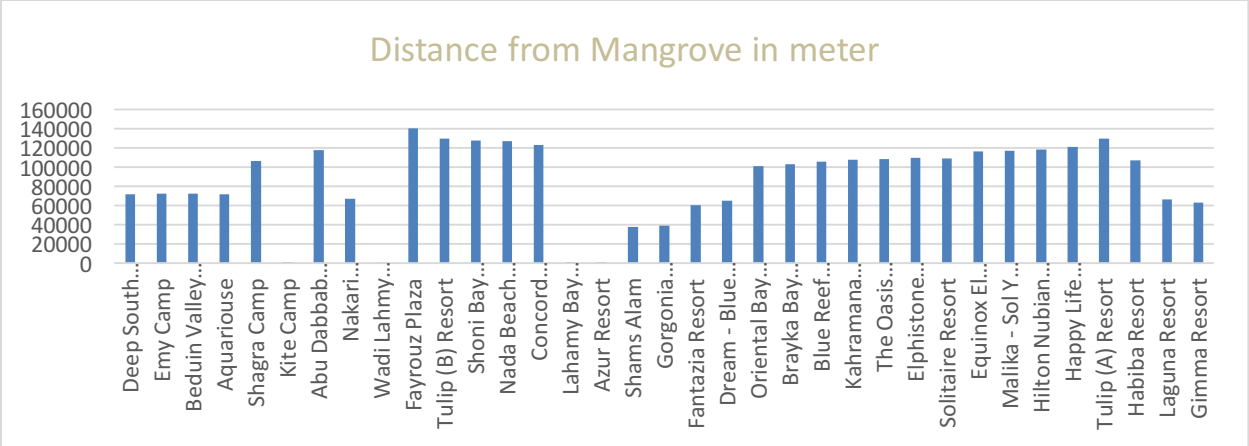

Figure 50. Distances from mangrove patches.

The survey shows that two out of nine ET facilities (22.2%) are built in the vicinity of mangrove patches (Wadi Lahamy camp and Kite camp); only two out of 25 (8%) of the MT resorts are within the mangrove zone. ET resorts are more likely to ignore the location of mangrove patches in their design and building; MT resorts thus have less impact on mangrove systems in the study area.

Construction on salt marsh wetlands

Field survey of the study area shows that 44% of the ET facilities are located on former wetland areas while only 11% of the MT resorts are located on former wetlands. Significantly fewer MT resorts have altered or destroyed wetland habitats.

The following images (Figure 51) show two cases of tourism sites (an ET facility, Abu Dabbab camp, and an MT facility, Lahamy Bay Resort) built directly on salt marshes. Abu Dabbab camp is located in the middle of salt marshes; according to eyewitnesses, the construction of Abu Dabbab camp required filling the marsh with between 1.5 and 2.0 m of soil to complete the foundations.

Figure 51. Tourism facilities built on salt marshes and wetlands in both ET and MT.

The field survey also found that initiatives by educated developers preserve both the salt marshes and the flood path by guiding the design team to situate development on the upland portions of the sites, as shown in Figure 52.

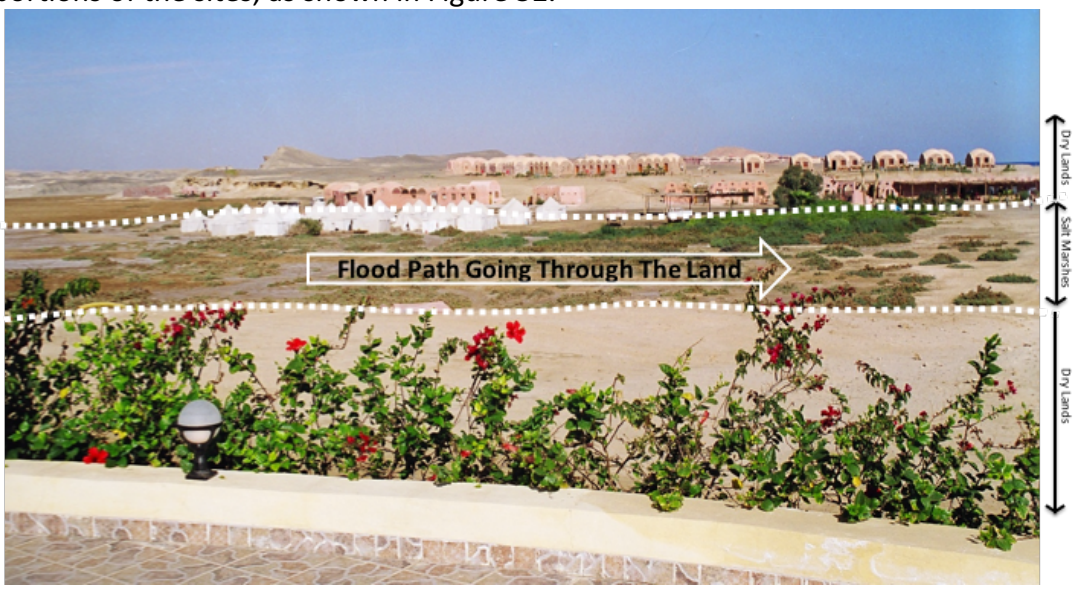

Figure 52. Example of avoiding construction on salt marshes even when the allocated land is right on the marsh

Access to deep water

Boating, diving, snorkeling on the outer reef, swimming, and many other recreational activities that are crucial to tourism along the Red Sea coast require access to deep water. Both ET and MT rely on attracting visitors to a water-based destination. However, the characteristics of the coral reef coast present challenges to developing access points along the water's edge. Happy Life Resort (Figure 53) is an example of a resort that is on the Red Sea coast but has no direct access to the water because the rocky ledge prevents easy access.

Figure 53. Example of a resort that is on the Red Sea coast but has no access to the Red Sea water.

The images in Figure 54 show examples of two tourism establishments. To the left, Azur Resort, which has no beach access, uses a jetty constructed over the coral reef to provide access to the coral reef lagoon (visible as the patch of light blue in the image) and to deep water. To the right, Brayka Bay Resort has natural access to deep water, allowing recreational swimming, snorkeling, boating, and diving without the construction of additional features in the water.

Figure 54. (Left) Azur Resort, with no access to water; (right) Brayka Bay with its natural harbor.

Only 28% of the case study MT sites have natural access to deep water. Those sites that do not have deep-water access need to accommodate the tourists who traveled all the way to the Red Sea to use it. Therefore, the remaining 72% rely on other options: marinas, jetties, neighboring beaches, crossing highways to get to the water, and shuttling tourists to nearby areas with water access (see Figure 55). The use of marinas, jetties, and other water-based constructed access points all significantly degrade the coral reef edge. Half of the ET facilities suffer from the same problem and accommodate their tourists' needs via similar solutions with similar high environmental costs.

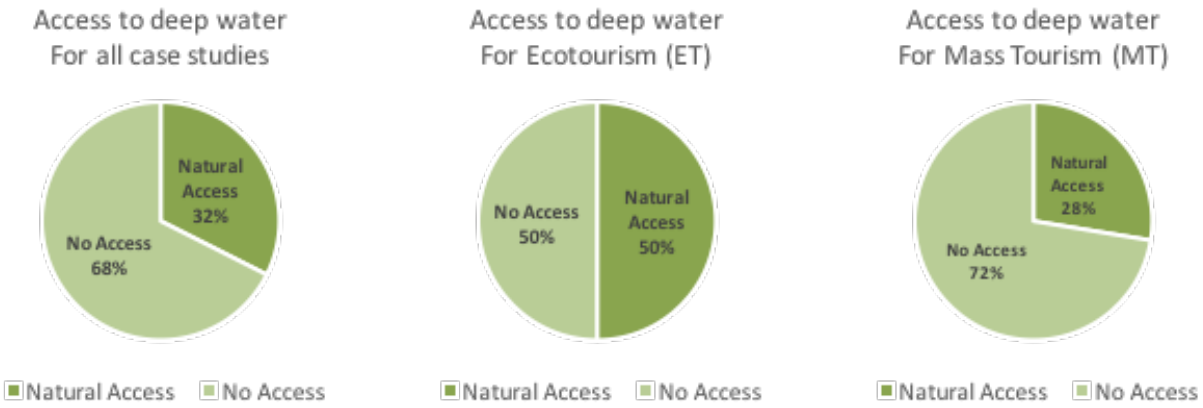

Figure 55. Ratio of MT tourism facilities with access to deep water to ET facilities with access.

Since 50% of the ET facilities in the study area have sea access points, in this category, ET resorts have somewhat lower environmental impacts than the 72% of the MT resorts that require engineered access to deep water. Nevertheless, the ET resorts do use a high number of engineered access points with impacts on the coral reef.

3.5.2 Design factors

The study investigated the design factors that are under the control of the resort owner/developer/architect and are the most significant to the Red Sea region.

Building footprints

While the MT resorts have larger environmental footprints and more buildings, they also host larger numbers of tourists. For instance, the total built area for the MT resorts is 377,910 m^2, accommodating a total number of 6,615 rooms with an average area of 57 m^2 per room; the average built area of the group of ET sites (eco-lodges and camps) is 31,481 m^2, accommodating 422 rooms with a ratio of 74 m^2 per room. While the total built area per resort is lower in the ET sites, the built-out area per room (and therefore per guest) in the MT resorts is much lower (see Table 9). Stated another way, if the ET site accommodated as many guests as the MT sites, they would occupy significantly more land, further disrupting this sensitive and interconnected ecosystem.

Table 9

Built Area Versus Number of Rooms in MT and ET

	Total Built Area (m^2)	No. Rooms	Ratio
MT	377,910	6615	57:1
ET	31481	422	74:1

Areas of lawn as major water consumers

Because the region is so arid, all tourism establishments across the study area struggle to maintain green lawns throughout the year. Both individually and collectively, ET lodges have less total green area; MT lodges have more lawn area per room than ET lodges. The total lawn area for the typical MT resort is 729,392 m^2, with a ratio of 110 m^2 per room; at the ET sites, the lawn area per room is 18 m^2 (Table 10).

Table 10
Lawn Area Versus Number of Rooms in MT and ET

	Total Lawn Area (m^2)	No. Rooms	Ratio
MT	729,392	6615	110:1
ET	8,331	422	18:1

Areas of swimming pool surface

ET resorts' use of swimming pools is also more ecologically sound than that of MT resorts. Local ET camps and ecolodges have focused more on diving activities than on recreational swimming. Therefore, each room in the region's ET resorts is served by only 1.1 m^2 of pool area; in MT resorts, the overall ratio is 5.6 m^2 per room, considerably more (Table 11).

Table 11
Swimming Pool Surface Area Versus Number of Rooms in MT and ET

	Pool Surface Area (m^2)	No. Rooms	Ratio
MT	9,650	6615	5.6:1
ET	394	422	0.9:1

Lengths of constructed marinas and jetties

Resorts with no direct beach access shuttle tourists out to the nearest natural sea access or have them walk to neighboring resorts with natural access, a jetty, or a marina to offer guests access to boats and snorkeling at the outer edge of the coral reef plateau. The construction of jetties and marinas has a direct impact on the coral reef system, and the ongoing use and maintenance of jetties and marinas cause permanent coral damage. The constructed jetties vary in length based on the spread of the reef plateau: from small, light jetties (such as the one in Nakari Lodge, 13 m in length) to the constructed marina, 670 m long, in Tulip Resort (see Table 12). Figure 56 shows a comparison between the largest and the smallest jetty in the entire study area, represented in the same scale.

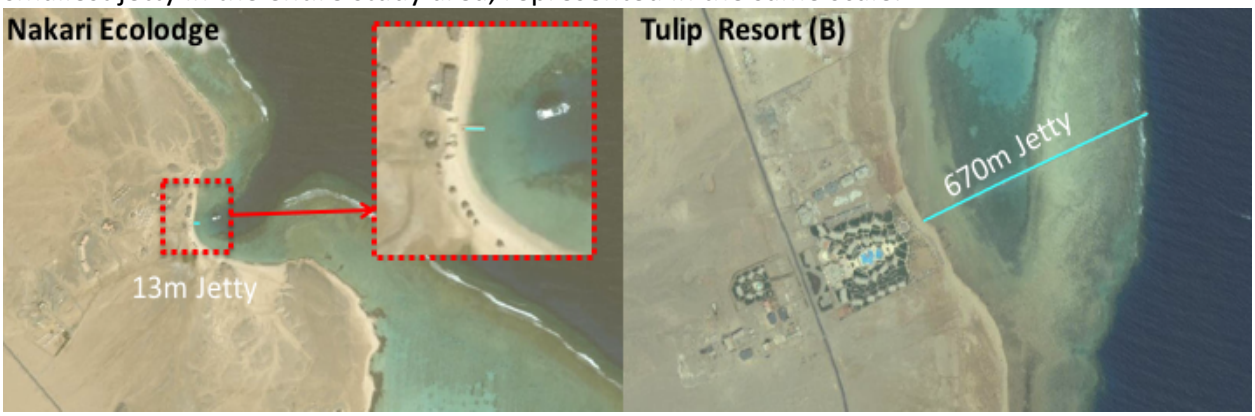

Figure 56. (Left) Nakari Ecolodge jetty; (right) Tulip Resort jetty, presented in the same scale.

Table 12
Total Length of Jetties Combined Versus Number of Rooms in MT and ET

	Total length of jetties combined (m)	No. Rooms	Ratio
MT	1,900	6615	28:100
ET	13	422	3:100

The following table, which combines the results of all the factors measured, is useful in comparing the broad environmental impacts of MT resorts to those of ET resorts (Table 13).

Table 13
*Overall comparison between MT and ET; the more environmentally sound choice is in **bold***

Factor	Mass Tourism	Ratio to total rooms (6615)	Ecotourism	Ratio to total rooms (422)
Total Built Area (m2)	377,910	**57m2/room**	31,592	74m2/room
Total Lawn Area (m2)	729,392	110m2/room	8,331	**18m2/room**
Total Pool Surface Area (m2)	38,692	5.8m2/room	419	**1.1m2/room**
Total Length of Constructed Jetties (m)	1,711	25m/100rooms	13	**3/100rooms**
Percentage of cases situated on salt marsh	**11%**		44%	
Percentage of cases with natural access to deep water	28%		**50%**	

3.6 Conclusion

While the overall pattern shows that self-labeled ET establishments with fewer rooms have smaller overall environmental impacts, the per-room and/or per-guest environmental impacts are often higher than those of MT resorts; the environmental advantages of ET are thus much less clear when considered on a per-room basis. In fact, all self-labeled ecolodges and eco-camps in the region have the same or higher pressure/interaction on ecological resources as the study area's MT resorts. ET does perform better than typical MT in two dimensions: their spatial locations more often allow access to deep water without additional construction, and the length of constructed jetties per user is smaller. In all other planning and design factors, MT seems to have smaller impacts when those impacts are normalized over the number of rooms. The following are specific findings.

a) The fieldwork showed that it is inaccurate to generalize environmental problems and how they are handled. When building in the flood plain, it is crucial to identify accurate, properly scaled diagnoses of the problem. For instance, some tourism facilities that are located apart from flood path are badly designed, and others that are located in conflict with the flood path have design that takes into account environmentally significant factors.
b) ET is not necessarily more environmentally sensitive than MT in all aspects; the way resorts' environmental sensitivity is measured varies according the tourism planning pattern and the environmental sensitivity of significant ecosystem components. This research identified the sensitivity of specific factors of the ecosystem that are relevant to the Red Sea coast, such as the mangrove trees and the reef system. The environmental factors that are significant in one region might not be equally significant in another region. Therefore, similar evaluations should be based on accurate identifications of the particular environmental parameters and vulnerabilities in the study area.

c) As demonstrated in the discussion, a single ET facility might generate unnoticeable impacts because of its size, but these seemingly insignificant impacts accumulate when there are multiple T facilities, and the total impact can be comparable to or exceed the impacts of MT.
d) In the Red Sea context, the characteristics of the developer and architect make a significant difference; in this region, site settings are similar and all tourism establishments are subject to similar policies and regulations.
e) The single policy framework shaping and regulating tourism development standardizes attempts to develop tourism accommodations, whether they are labeled as ET or as a typical MT resort.
f) The classification used in this research combined sustainable tourism (ST) with MT because in this specific region they are almost identical. The research also showed that ET is a self-designation, not an objective one based on environmental outcomes.

4 Chapter Four: Tourism Governance In Egypt

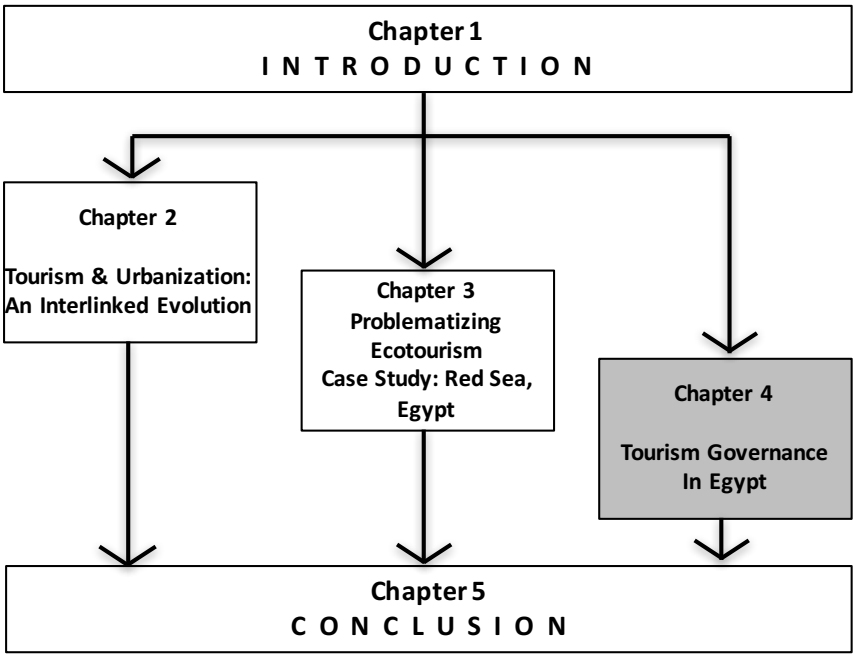

Figure 57. Chapter 4 in relation to the overall research project.

4.1 The Concept of Governance

4.1.1 Evolution

Finer (1997) lays out the history of the principal forms of government: “the first unambiguously attested states yet known emerged round about 3200 BC in the Nile Valley and southern Mesopotamia; the ancient states of Sumer, Egypt, Persia and Assyria; the classical states of Greece and Rome; the Byzantine and Caliphate empires of the near East; the Han, Tang and Ming regimes of China, Tokugawa Japan; and the emergence of the so-called “modern” states of Europe and North America”.

4.1.2 Contemporary definition

Social scientists and public administration scholars make clear distinctions between government and governance, and they explore the relationship between the two concepts. For instance, (Fasenfest, 2010) argues that government is the office, authority, or function of governing; governing is having control or rule over oneself; and governance is the activity of governing. In a more recent definition is by UNESCO, governance refers to structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation (UNESCO, 2016).

4.1.3 Government and governance

Weil (2015) asserts that government is only one arm of modern society and that it derives its legitimacy and powers from its taxes, spending, laws, and regulations. The other two arms of modern society are the business/for-profit sector, which derives its power from creating jobs and paying taxes, and the nonprofit sector, which serves the public interest without profit.

Because these three facets of civil society were never explicitly trifurcated, the distinctions between them are oftentimes porous. Such blurred lines apply to overall governance and sector-specific governance (such as the governance of tourism), and governance must be considered in order to fully understand tourism development.

4.2 Governance and Tourism

Effective governance is a key requirement for implementing successful tourism development (Bramwell, 2011; Bramwell & Lane, 2011; Connelly, 2007; Erkus, 2011; Yüksel et al., 2005). The expansion of tourism development along the Red Sea has had well-documented effects from the construction of resorts, hotels, diving centers, tourism services and related infrastructure (Shaalan, 2005; Sherbiny *et al.*, 2006), including solid waste, coral reef destruction, mangrove degradation, building in flood plains, displacement of wetlands, changes in the shoreline, and threats to turtle nesting sites (El-Gamily, Nasr, & El-Raey, 2001; Frihy, 2001; Salas, 2014; Sherbiny et al., 2006).

Such impacts are often blamed on the players who are responsible for the final shaping of this built environment: designers, planners, owners, and managers of tourism resorts. However, these players operate in the final stages of a lengthy process that is premised on a strong centralized governance system. To diminish ill effects from future tourism development, and to effectively redefine the pattern of future development, it is crucial to highlight the role of the entire governance system that defines tourism's built environment.

In describing the Egyptian government, Sims (2012) uses the following phrases: "strong regime," "weak state," "political vegetables," "lame leviathan," "neglectful rule," and "soft state," and this variety of terms shows how difficult the system is to unpack and understand. This research project investigates the current tourism governance systems and their direct influence on shaping tourism development along the Red Sea. It elaborates on the roles of institutions responsible for tourism governance and their real manifestations on three scales: regional, planning, and design. The research project examines the public versus the private sector, central versus local government, and tourism versus non-tourism authorities. It then examines the process of tourism development, beginning with the decision to designate a region as open to tourism development and following the process through to the actual footprint of a tourism resort on the ground. Figure 58 shows the three scales that will be examined in relation to the major institutions shaping tourism development.

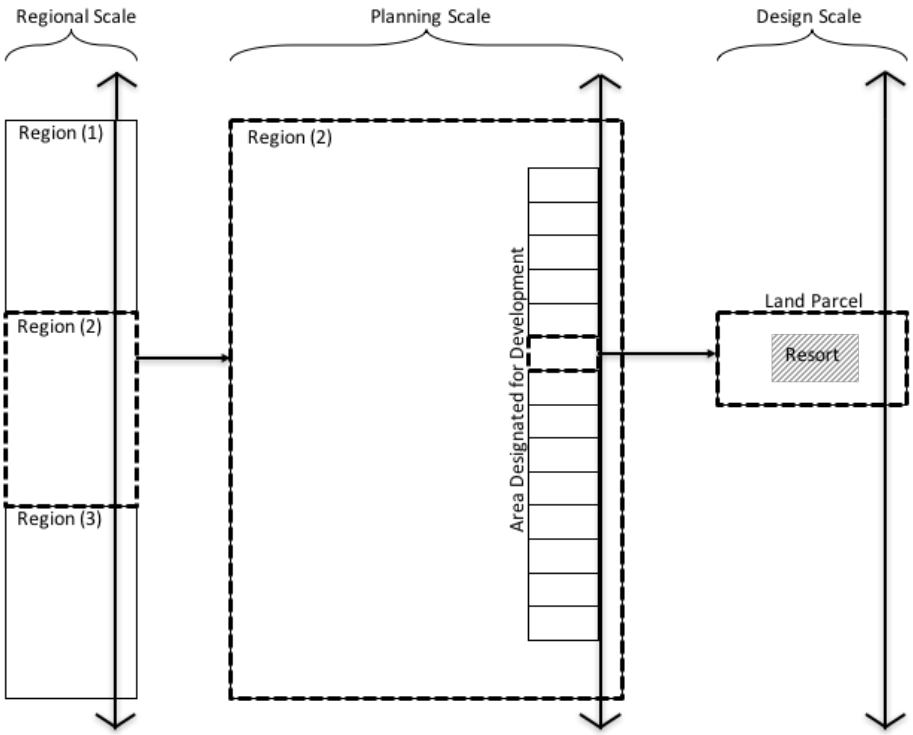

Figure 58. Three scales of tourism development processes in the Red Sea.

4.3 Governance of Tourism in Red Sea, Egypt

4.3.1 Unpacking tourism vis-à-vis central government

In the comparison given earlier in the introduction, tourism is represented in central government in various ways. In highly centralized countries like Egypt, tourism falls under the purview of a ministry of tourism that plans and implements touristic operations and development throughout the country without much reliance on local government (Abdelwahab, 1996). In somewhat centralized countries like the Netherlands, no specific ministry of tourism exists. Instead, recreational activities fall under the Ministry of Agriculture, Nature Management, and Fisheries, which is responsible for setting policies that are implemented by local municipalities (Ashworth & Dietvorst, 1995). In extremely decentralized countries like the United States, there may be no centralized tourism governance at all; in the U.S., the now-defunct United States Travel and Tourism Administration (USTTA), which once used to operate the official global travel and tourism offices, has been dissolved. There currently exists no ministry responsible for tourism or tourism planning; instead, relevant policies are managed at the state level for the private sector reasons previously cited in the Introduction (see Figure 59).

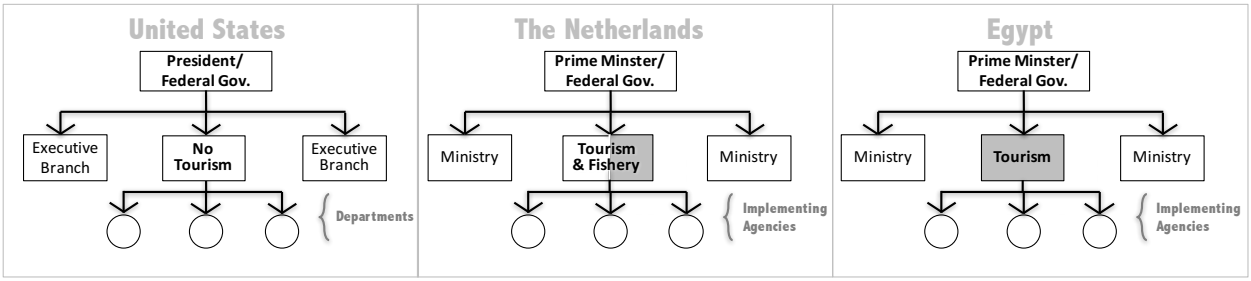

Figure 59. Tourism management is present in Egypt's federal/central government, combined with local government in the Netherlands, and doesn't exist in the U.S.

Figure 59 compares these various systems of tourism oversight at the country scale. To further appreciate how the government shapes and influences the built environment along the Red Sea (i.e. coastal hotels and resorts), one needs to further understand the Egyptian model of governance (Figure 60).

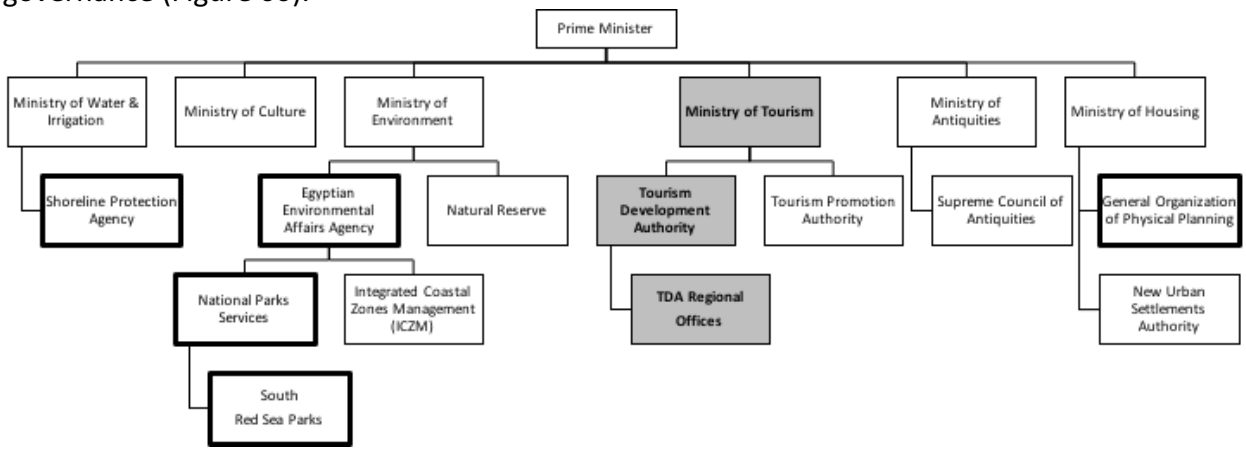

Figure 60. Selected authorities in the Egyptian government: the gray are tourism and the black-bordered are other.

The diagram in Figure 60 makes clear which authorities influence tourism development in Egypt. The institutions in grey boxes are directly under the main tourism authority, and the ones with bold black borders are institutions that influence tourism development despite falling under different authorities with alternative mandates.

The tourism authorities' mandate is to build more resorts and increase the number of rooms, and they are often criticized for this aggressive tourism development.

Tourism development authorities

Egypt's Ministry of Tourism, which is part of the Cabinet of Egypt, is the leading authority responsible for the development, promotion, and branding of tourism across the entire country. The TDA, a subordinate authority under the Ministry of Tourism, is the main organization under the Ministry of Tourism that is responsible for planning and zoning designated regions for tourism with specific focus on coastal areas. According to Egyptian law, the TDA (2005) is the authority responsible land for development, land parceling, and land allocation for developers. It has regional offices along the Red Sea to supervise and follow up on tourism projects' construction.

Non-tourism authorities: shaping tourism by antagonism

The primary central governmental authority that intersects with this clear tourism development mandate is the Ministry of Environment. Formed in 1997, this ministry oversees the national parks, and is specific responsible for protecting environmentally sensitive areas such as mangroves, coral reefs, salt marshes, and other fragile ecosystems. It functions through its implementing agency: the Egyptian Environmental Affairs Agency (EEAA). Egypt's legal basis for the environmental impact assessment (EIA) requirement was established by Law No. 4 of 1994, the Law on Protection of the Environment. This law is implemented through Executive Regulations issued by Prime Ministerial Decree No. 338 of 1995. These regulations came into full force in 1998. (Manchester University EIA Centre, 2000). According to an interview with Assem El-Gazzar, a former EIA specialist with various environmental and tourism authorities, the Egyptian Environmental Affairs Agency was established in 1997 and Law No. 4 was implemented in environmental departments with the help of other authorities.

Tourism developers, designers, and planners must obtain environmental approvals for their coastal tourism projects. There are two other central non-tourism governing authorities that are key stakeholders: the Shoreline Protection Authority, which falls under the ministry of water irrigation and controls, and which monitors and maintains the shoreline integrity and the beach buffer zone (setback) on which no construction is allowed; and the General Organization for Physical Planning (GOPP), which falls under the Ministry of Housing and Infrastructure and is the main organization responsible for infrastructure for tourism development within municipal areas.

4.3.2 Tourism in local government

Within the municipal boundaries, the actual day-to-day tourism on the ground is is governed locally. Whether it is a city or a village, resorts within municipal boundaries fall into the governor's authority. The diagram in Figure 61 lays out a model of municipal boundaries (cities and villages).

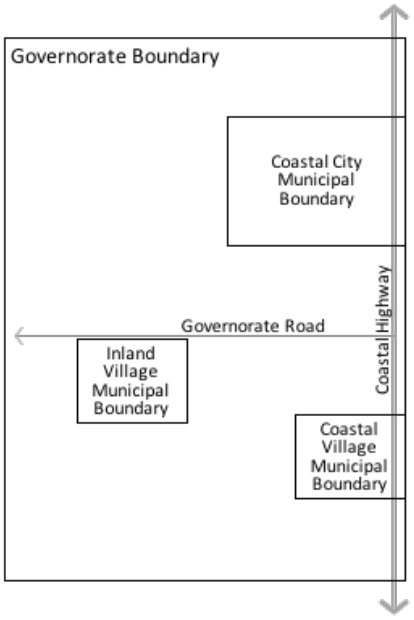

Figure 61. Village and city municipal boundaries are within the governorate authority and land jurisdiction.

Unlike the central government tourism authorities, which attend only to tourism activities, the local government is responsible for and concerned with all activities and land uses in the area. The master planning of the city or village is conducted to accommodate housing, urban services, infrastructure, urban facilities, and tourism.

Table 13 lists the major differences between tourism resorts that fall within the municipal boundaries of city or village and tourism resorts that fall outside the municipal areas and are thus under the direct supervision of the central government, such as the TDA land in the Red Sea.

An interview with Dr. Fahmy, a tourism-planning specialist in the Egyptian TDA for two decades, revealed the fundamental differences between parcels allocated for tourism development within the TDA and the Municipal Governorate (see Table 13).

Table 14

Main Differences between Tourism Resorts Under the TDA and Under the Red Sea Governorate (Municipal Boundaries)

	Resorts under local government	**Resorts under central government**
Land jurisdiction	Municipality jurisdiction	TDA jurisdiction
Lead agency	City mayor	TDA local office manager
Connection to utilities	Resort connected to grid	Not connected to grid (use diesel generator)
Connection to water	Using water pipes	Using local desalination units
Price per square meter	Higher price per m^2 (40 EGP)	Bidding processes
Setback from the beach	50 meters	200 meters
Time to develop the project	According to approved documents	3 years for projects less than 500Km^2 and 10 years for projects over 1 million m^2
Number of rooms	More than 30 rooms per feddan	Less than 25 rooms per feddan
Built up area	More than 3 floors	Up to 3 floors
Thematic functions	Hotels	Resorts and waterfront

4.3.3 Non-governmental influence (community and private sector)

In a rather cartelized governance system, the role of non-governmental organizations becomes minimal; however, the NGOs' influence is easily distinguishable from that of government organizations. Fieldwork in the southern region of the Red Sea shows that the influence by non-governmental organization on the built environment is primarily exerted through the roles played by nonprofits and local communities and by private and/or corporate interests.

Nonprofits and local community

The few nonprofits in the area have little influence on the tourism market. Some focus on mangrove protection, cultural resources, and solid waste management. The most influential one is Hurghada Environmental Protection and Conservation Association (HEPCA), a nonprofit based in the capital of the governorate with branch offices in Southern Red Sea Egypt. HEPCA's

trucks collect waste daily along a 200-kilometer stretch of coastline and transport it to the material recovery and recycling facility in the center of Marsa Alam. The waste is separated into organic and non-organic waste and processed appropriately.

Outside the municipal boundaries of cities and villages, local communities have sometimes built shelters situated within the TDA land jurisdiction that are often displaced or removed because of tourism development. However, two small settlements that have built their shacks and settled near the shoreline have been able to remain: the Wadi el-Gimal settlement and the El-Qul'an settlement. The first is located west of a tourism resort (Shams Alam Resort) and the second is located in El-Qul'an bay on the coast further south.

Private corporate

Private corporations and investors have very little opportunity to shape the final product, which they do either by using an environmentally friendly appearance or by adopting a sustainable management style (usually as part of a corporate policy—Hilton, for example, requires this). These are adopted on a voluntary basis, however, rather than being required by central or local government mandate.

4.4 Unpacking Governance Across Scales

4.4.1 Regional scale

The scale at which decisions are made on the ministry level usually ignores several site-specific details. In the context of the Red Sea, for example, the Ministry of Petroleum has designated a northern stretch of the Red Sea for oil extraction, an important economic activity. But oil extraction undermines the spectacular potential for adverse effects on potential tourism on the north coast—effects on both marine and terrestrial destinations. The stretch further south, which is dedicated to tourism and led by the Ministry of Tourism, also has quarrying and mining activities, seeking gold and other minerals. The third stretch, even further south, is under the administration of Ministry of Defense; it is a politically sensitive border segment and is not ready for development. These rough divisions are based on central decisions rather than on contextual attributes. Figure 62 shows a schematic diagram for the three stretches of coast; it magnifies the middle (tourist) stretch to show the influence of governance at the planning level.

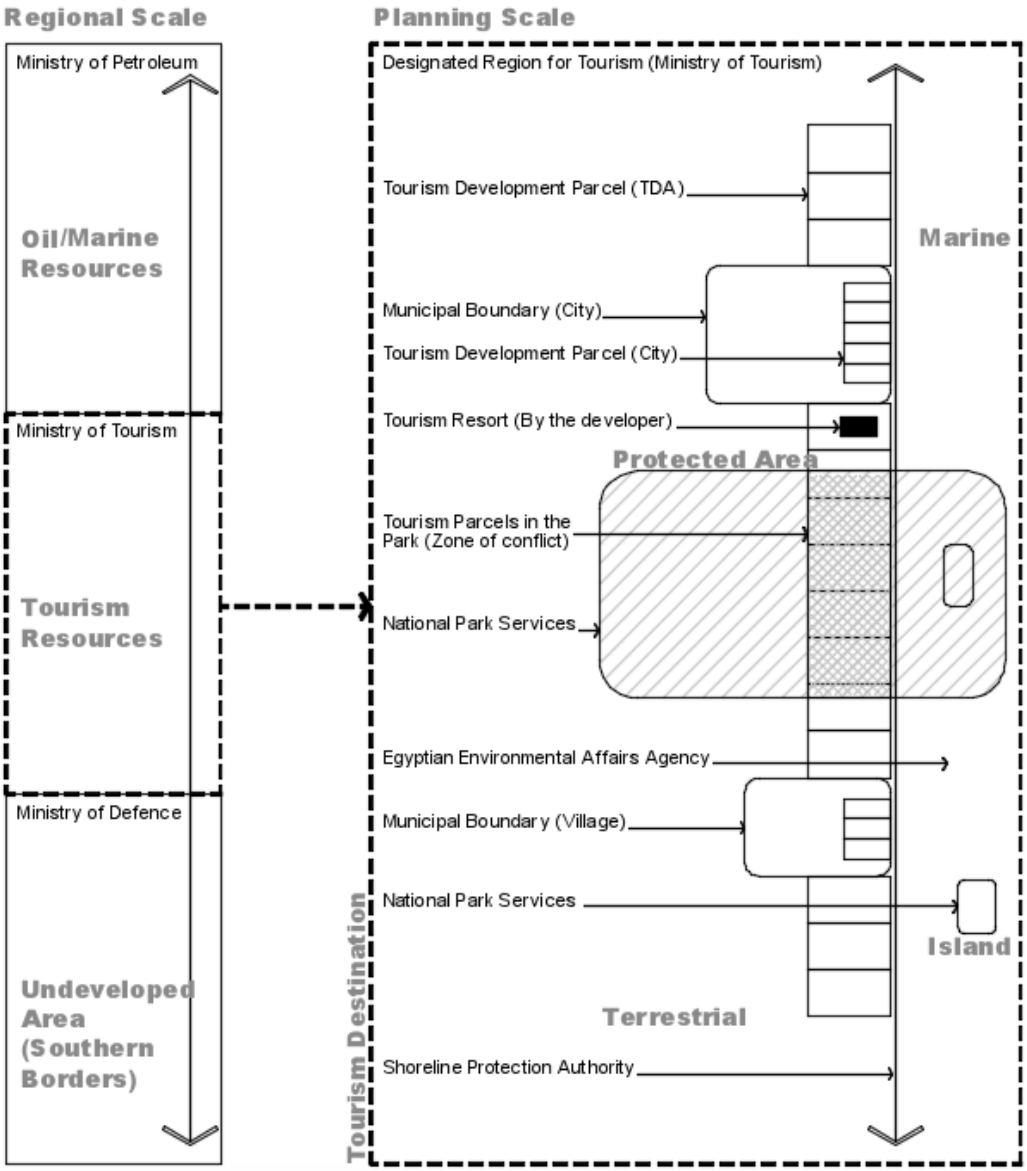

Figure 62. Regional and planning land designation and its influence on patterns of development.

4.4.2 Planning scale (land parceling)

Decisions and policy at the planning scale are the most complex ones. The vertical structure of the government is found to have different authorities that are, by-design, have conflicting mandates. Similarly, the central and local governments have land jurisdiction issues. The patterns of land parceling and attributes of development (shape and form) at this scale are guided by the following authorities:

- The TDA manages the 5-kilometer stretch from the coast and is authorized to develop land subdivisions and allocate land for investors. Therefore, the size of the tourism project, its number of rooms, and the footprint are all physical manifestations of the decisions made by the tourism authorities.

- The Egyptian Environmental Affairs Agency (EEAA) is responsible for protecting sensitive lands such as mangroves, wetlands, and islands. These environmental resources are commonly in conflict with tourism development because they are themselves attractions.
- The Nature Conservation Sector (NCS) influences development near and within national parks.
- The City Municipality designates coastal areas for tourism in addition to other urban services; the overall shape and form of the built areas are different from the tourist developments that are governed by the TDA.
- The village authorities follow the Red Sea governorate and allocate the land parcels for tourism projects according to the city and the governorate policies.
- The Shoreline Authority is responsible for the shoreline buffer and the type of "light structures" permitted along the coastline, such as shades, pergolas, or wooden snack bars. The shoreline buffer in the Southern Red Sea region varies from 50 m to 200 m across parcels, as per the tourism development project agreements.

Local communities are largely ignored in these processes; parcel planning on this scale often comes into conflict with small local settlers on the coast. The developments of the southern Red Sea region fall into one of the following three patterns of relationship with local communities: (i) the resort is not in conflict with local tribes; (ii) the resort adjacent to a community has blocked their sea access but has compensated by providing power and water, and (iii) the resort forces local communities to relocate. The following conceptual sketches illustrate the three existing relationships between resorts and local communities (Figure 63).

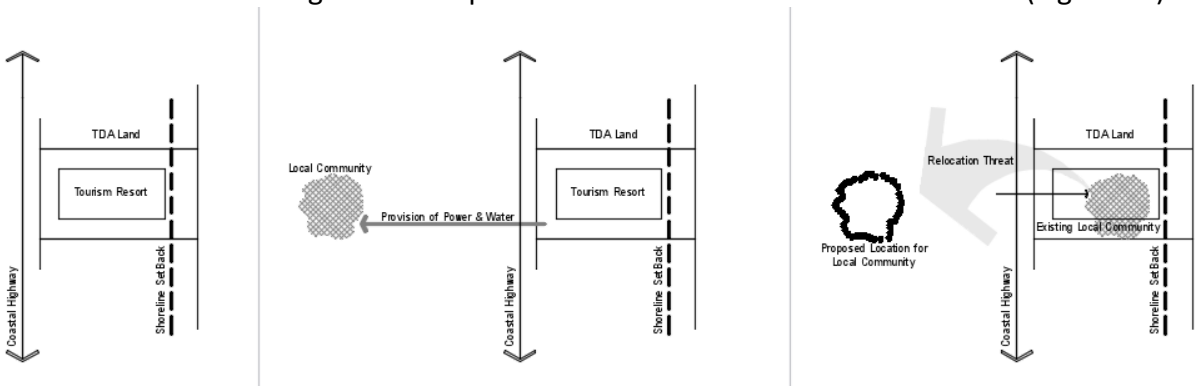

Figure 63. (Left) a land allocation with no local community conflict; (center) interaction with local community; (right) a threat to relocate the local community.

4.4.3 Design scale (resort)

On the level of the parcel system, the given policy and environmental constraints leave the architect with little room to innovate and customize because the variations in the tourism sites are not taken into account. As such, tourism developments, as architected, are typically in direct conflict with environmental requirements such as flood plan, coral reef, mangrove zone, or shoreline modifications.

4.5 Discussions and Conclusion

Government is the largest influence on tourism in Egypt. Tourism authorities, non-tourism authorities, and even the nature of the conflicts between central and local government play a role in identifying the final pattern of tourism development.

Tourism is shaped by tourism development forces that are guided by tourism authorities (i.e. designating lands for development and shaping them at all scales. Tourism is also shaped by other non-tourism authorities (i.e. shaping by antagonism).

It is not news that there is an inherited conflict between authorities in central and local government (Mayfield, 1996). There is also a financing conflict that faces government institutions during the budgeting and planning processes (EzzAlArab, 2004). Seif ElNasr (1999) asserts that the local administration can advocate that a new governor be put in place if they think he is acting against local interests. The governor's mandate can also be in conflict with that of the minister of tourism if the tourism directorate in the cities is not functioning well. Seif ElNasr also confirms that, in times of conflict, individual personalities and leadership, in addition to institutional structures, influence the locals' responses to their governorate (Figure 64).

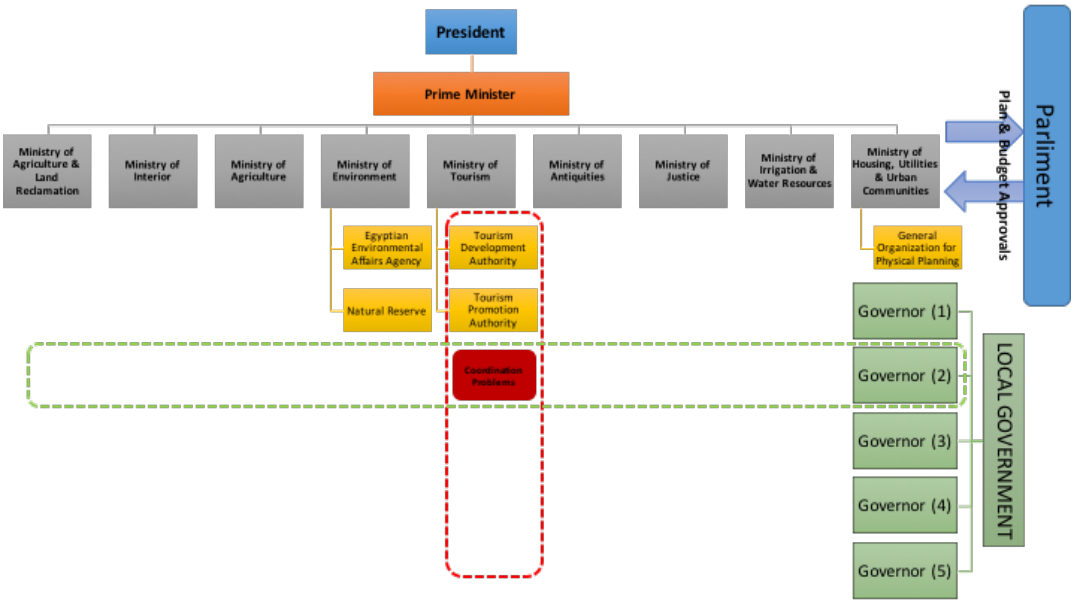

Figure 64. The red box represents the area of conflict between the tourism authorities in central government and the administration in the local governorate.

Tourism cannot happen separate from governance; governance is the necessary predicate for the effective, intentioned and orderly evolution of tourism. Specifically, three possible factors compete to shape tourism locales: (1) a governmental mandate to stimulate tourism development; (2) a governmental dictate to stifle tourism development (e.g., from environmental protection authorities); and (3) an absence of the necessary governmental mandate, which results in unplanned tourism development.

5 Chapter Five: Conclusion and Recommendations

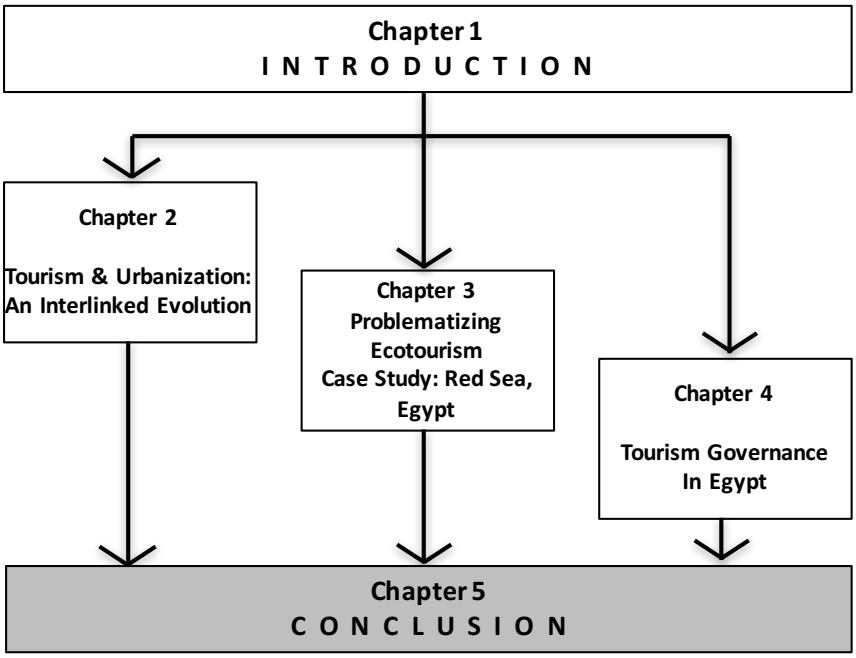

*Figure 65. C*hapter 5 in relation to the overall research project.

5.1 Tourism and Urbanization

The three pillars of tourism (destination, travel mode, and tourist) work together to influence tourism development. Unlike other economic activities, global and local tourism are also largely impacted by other non-touristic factors (e.g., war, trade, and industry).

Egypt, with its particular geography, location, resources, and context, has witnessed each stage of the evolution of tourism. In Egypt, the pillars of tourism have been alternating in a dynamic way for thousands of years. There has constantly been urbanization around tourism attractions and modes of transportation. Egypt is unique because it experienced a fluid synergy between the three modalities (see Figure 66).

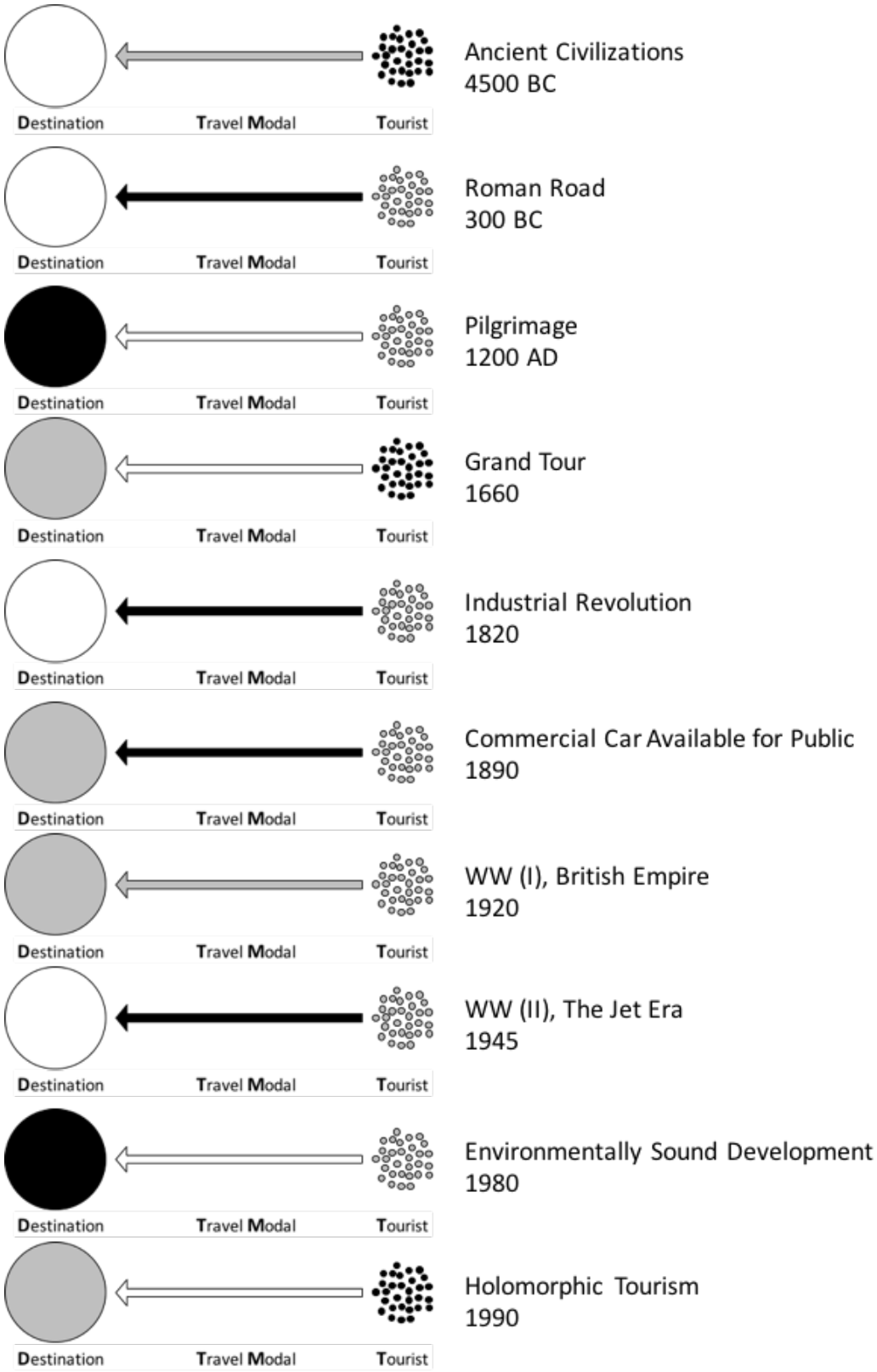

Figure 66. The three pillars of tourism, (D), (TM), and (T), in all eras combined.

Future research needs to investigate the interlocking connections between tourism and urbanization throughout the ages across disciplines (e.g., anthropology, sociology, economics, urbanization, and infrastructure). Further investigation is needed to discern how one of the pillars becomes the primary influence, overtaking the other pillars, in any given location and era.

5.2 Ecotourism May Be a Mythical Solution

Professionals and scholars should be more cautious when dealing with self-labeled ecotourism; they must understand that few actual environmental observations legitimate the "eco" component of the term.

The larger national or regional context might not serve the intention to develop ecotourism. For instance, spatial planning should be incorporated into the development and assessment of ecotourism establishments; one should not take for granted that lands allocated for ecotourism are actually suitable to develop ecotourism establishments. The experiment conducted on the Red Sea is replicable and generalizable in other regions after taking into account the significance of the environmental factors used in the comparison between ecotourism and mass tourism establishments

The evaluation of ecotourism compliance should not be based on a single camp or ecolodge, but rather on the entire set of ecotourism operations in a specific destination. Only with a broad viewpoint can ecological disturbances be measured.

The assessment of further ecotourism facilities should always be on two scales, the planning scale and the design scale. Some are located in the right place, but are badly designed; others are located in a wrong place, but the design takes into account the environmentally significant factors.

The government as a regulator should develop different laws for mass tourism and ecotourism rather than leaving the designation open to developers of individual ecotourism initiatives. The laws regulating the designation should assure a minimum level of protection for the environmental resources.

In other regions, there might be a greater distinction between mass tourism and sustainable tourism, and therefore one might need to collect data based on triple anchors and on a different typology from the double-anchor Red Sea–specific typology that is used here.

Future research on ecotourism can discover further innovative solutions for developing ecotourism facilities, rather than being bound by existing environmental constraints.

It is very difficult to determine whether a specific facility is ecotourism or mass tourism. The fewer variables studied, the more quantitative and decisive the results are; the more integrated and cross-disciplinary the research is, the more difficult it is to capture the reality of the tourism establishment. Therefore, the most appropriate and significant environmental parameters required to define the tourism product should be identified and agreed upon up front.

5.3 Governance of Tourism

Tourism is better governed when all stakeholders are engaged, including both local communities and the private sector. The current top-down planning approach will compromise the integrity of tourism resources and create more environmental damage.

Governance in Egypt is fundamental to tourism development. It is almost impossible to improve tourism in the absence of good governance of such a complex phenomenon. It is also obvious that tourism authorities' institutional structure cannot be fixed outside of the context of national reform. Non-tourism authorities seem to be vital to the tourism business and can also be incorporated.

The Shoreline Protection Agency, which is a key authority in influencing tourism development, can provide better planning solutions if it is consolidated with the Ministry of Tourism. Futures research should investigate the institutional implications of such restructuring upon other authorities.

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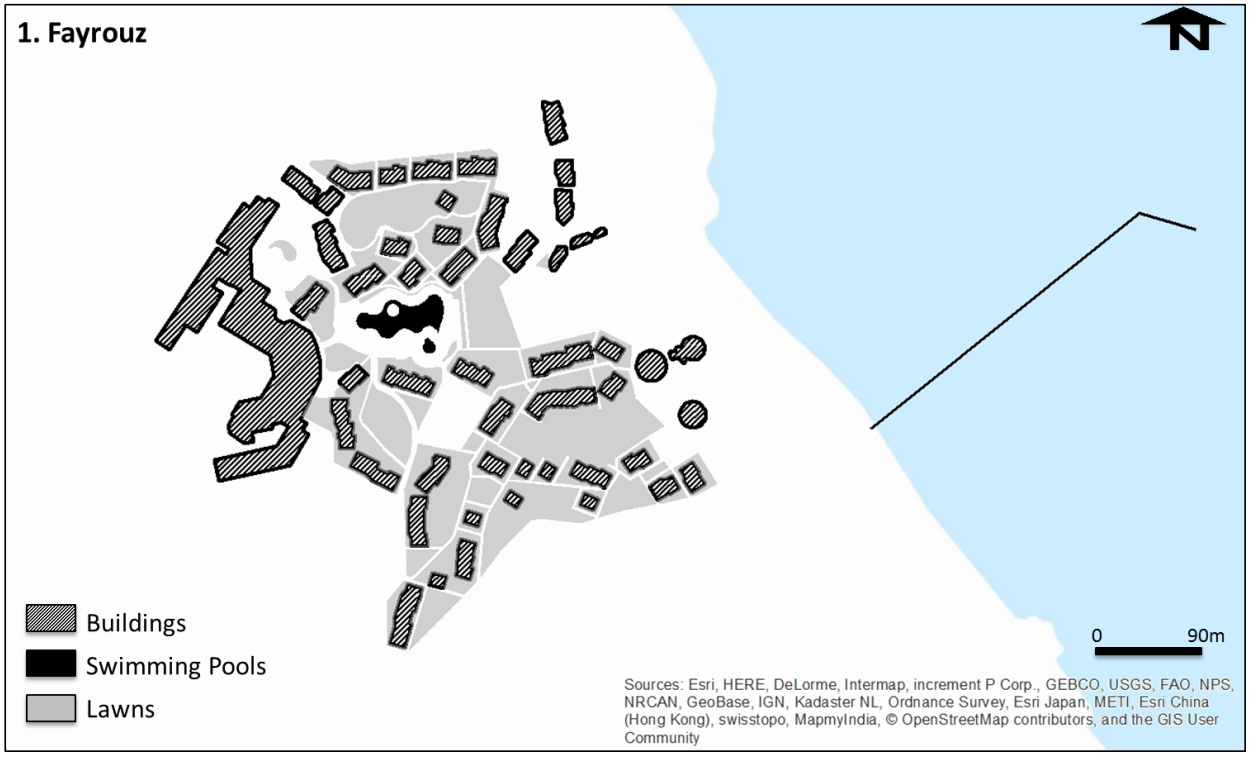
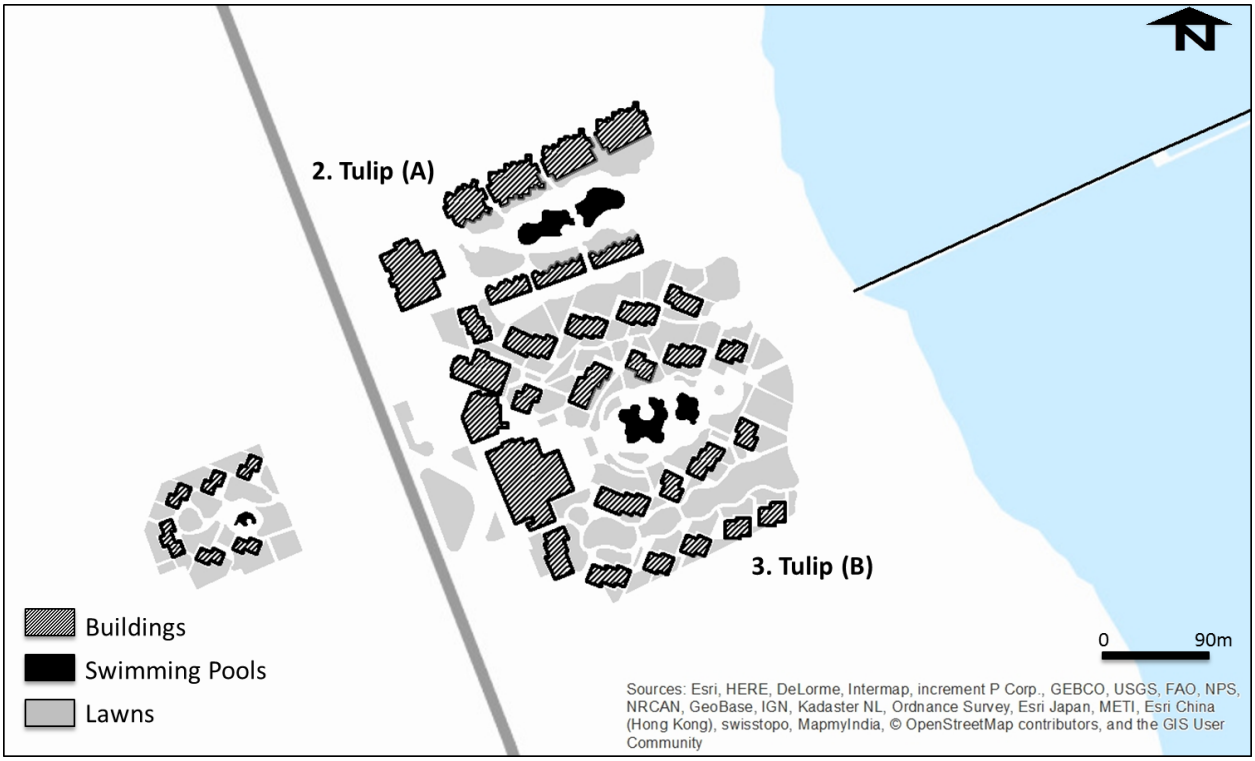
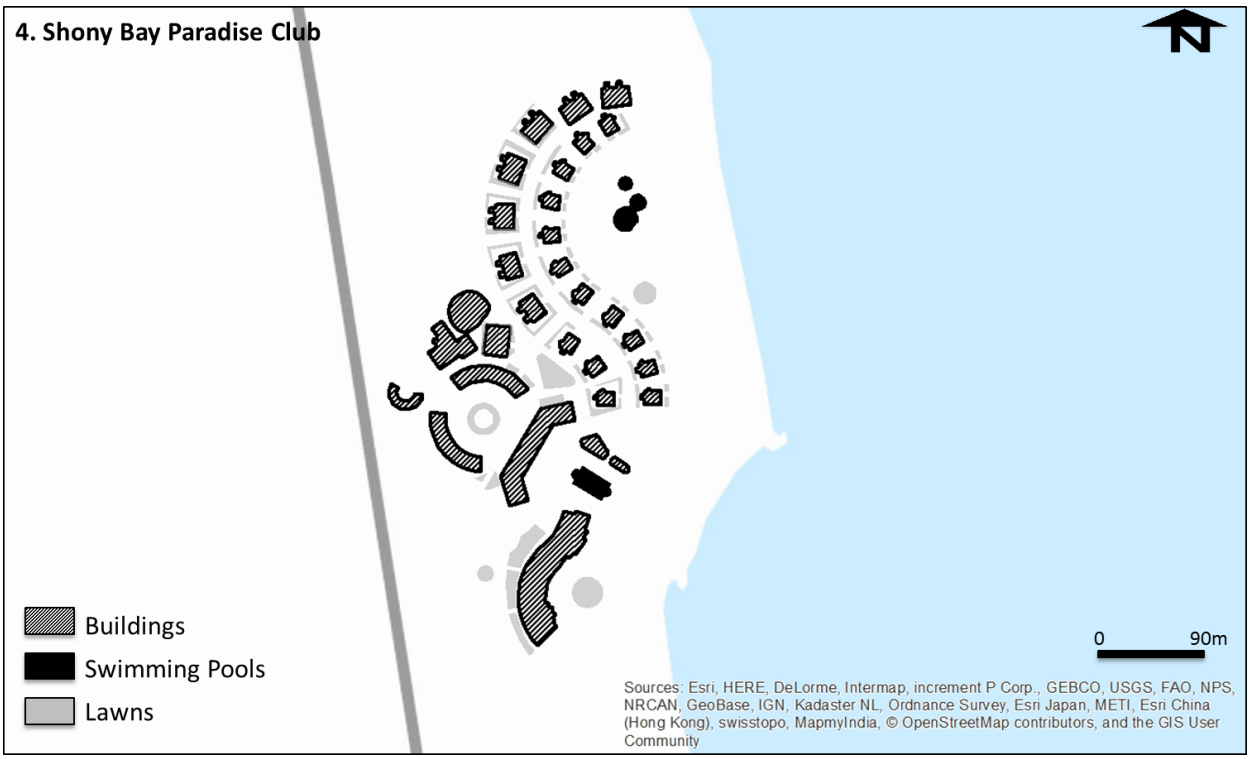
Appendices

(a) Individual Maps of the Resorts Examined






4. Shony Bay Paradise Club
Buildings
Swimming Pools
Lawns
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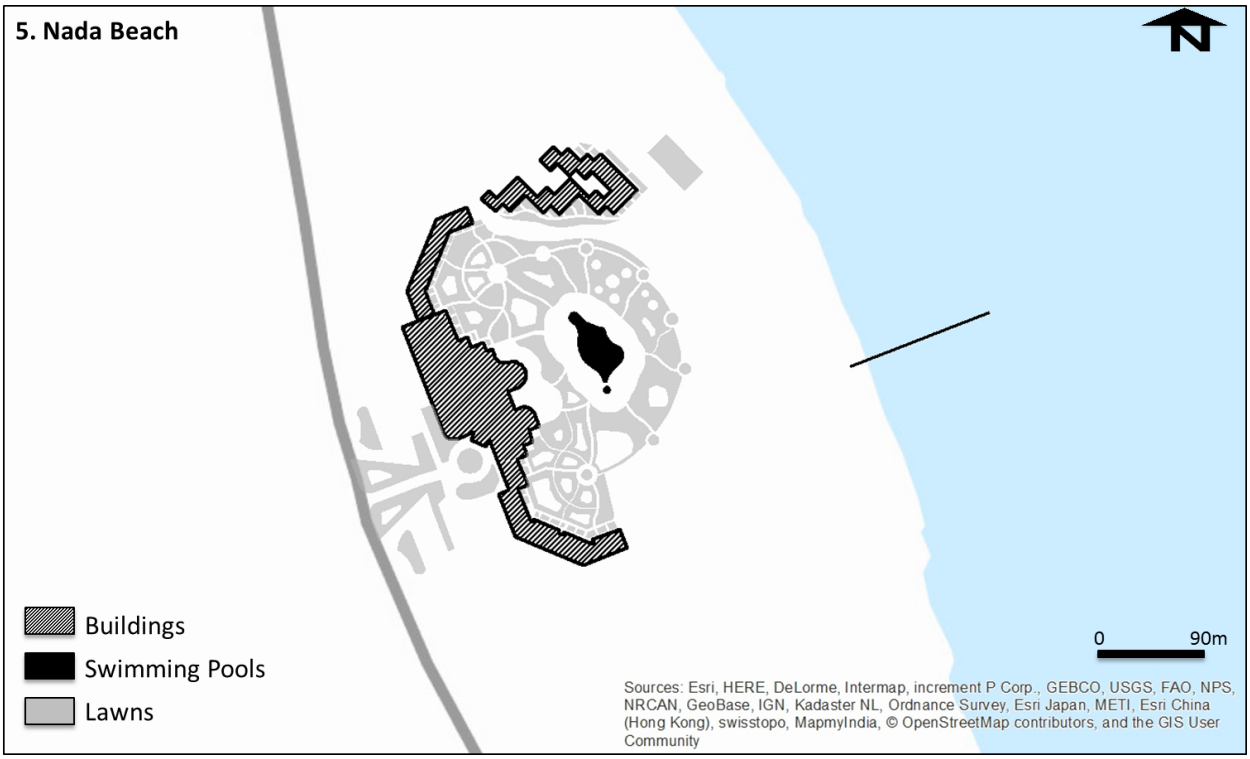
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


5. Nada Beach
Buildings
Swimming Pools
Lawns
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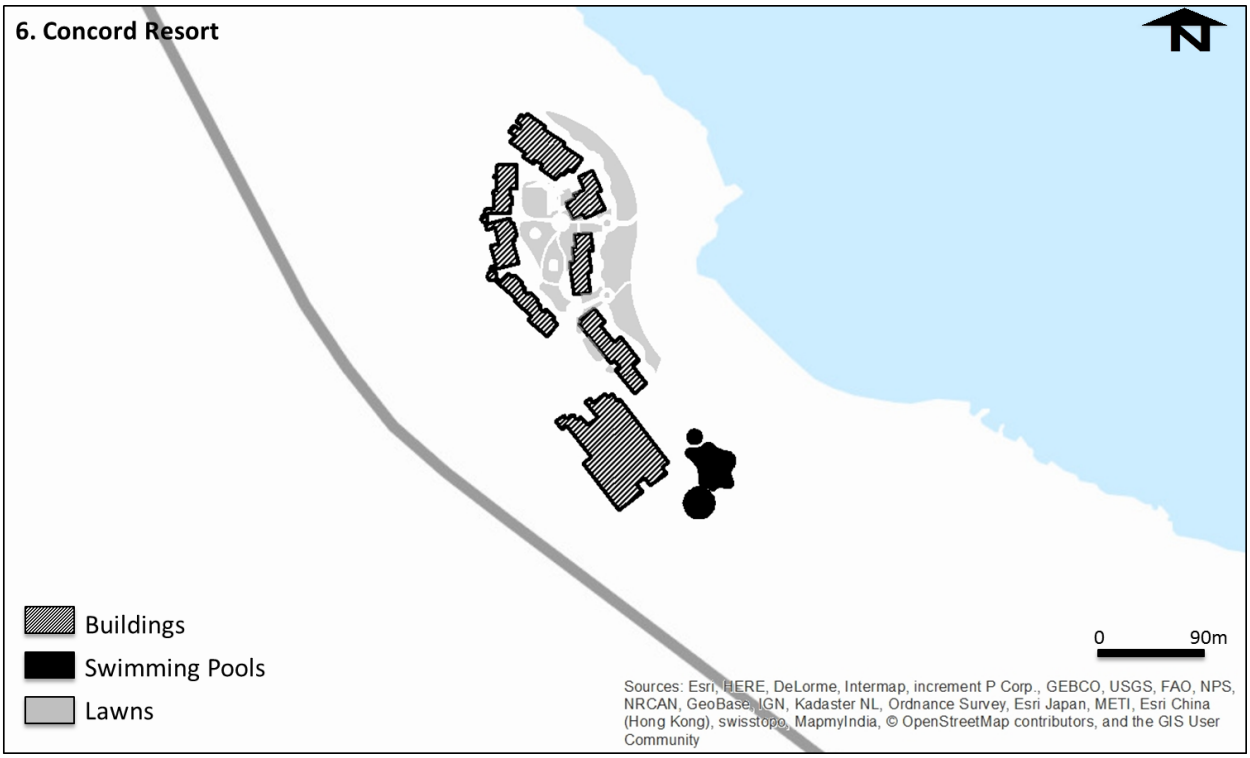
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


6. Concord Resort
Buildings
Swimming Pools
Lawns
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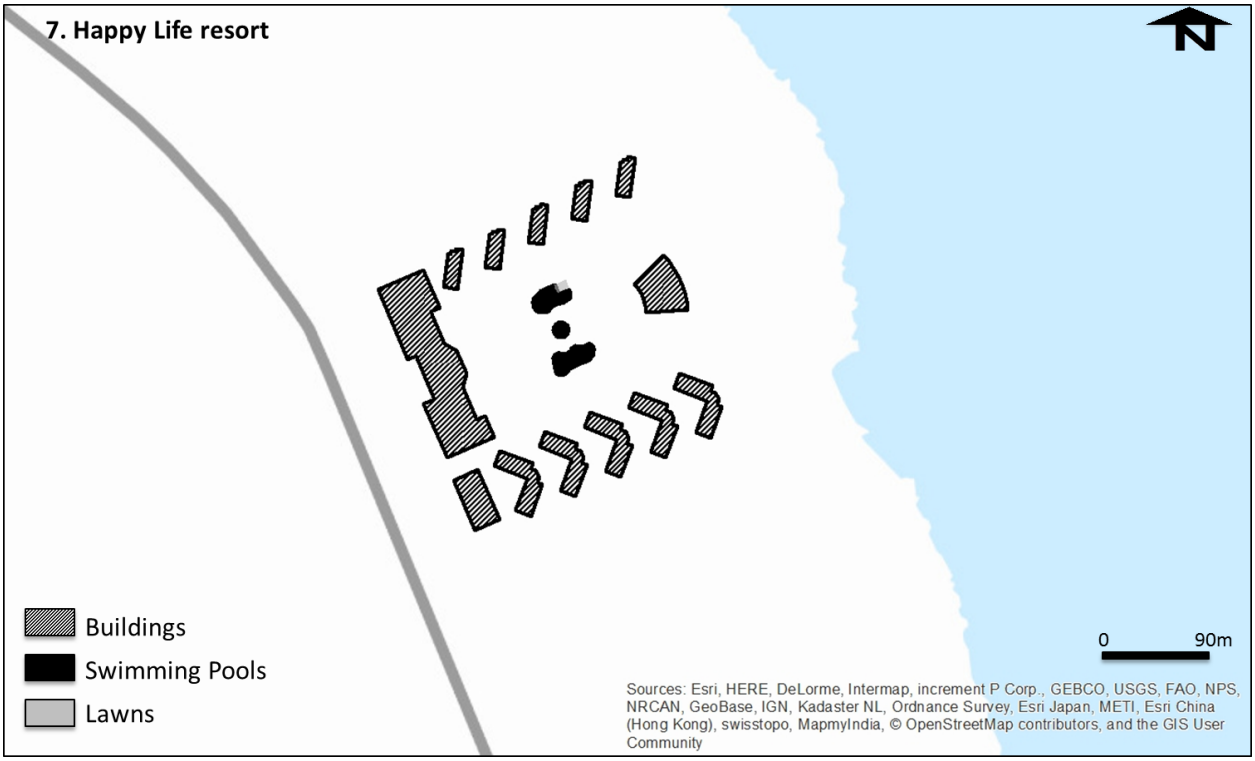
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


7. Happy Life resort
Buildings
Swimming Pools
Lawns
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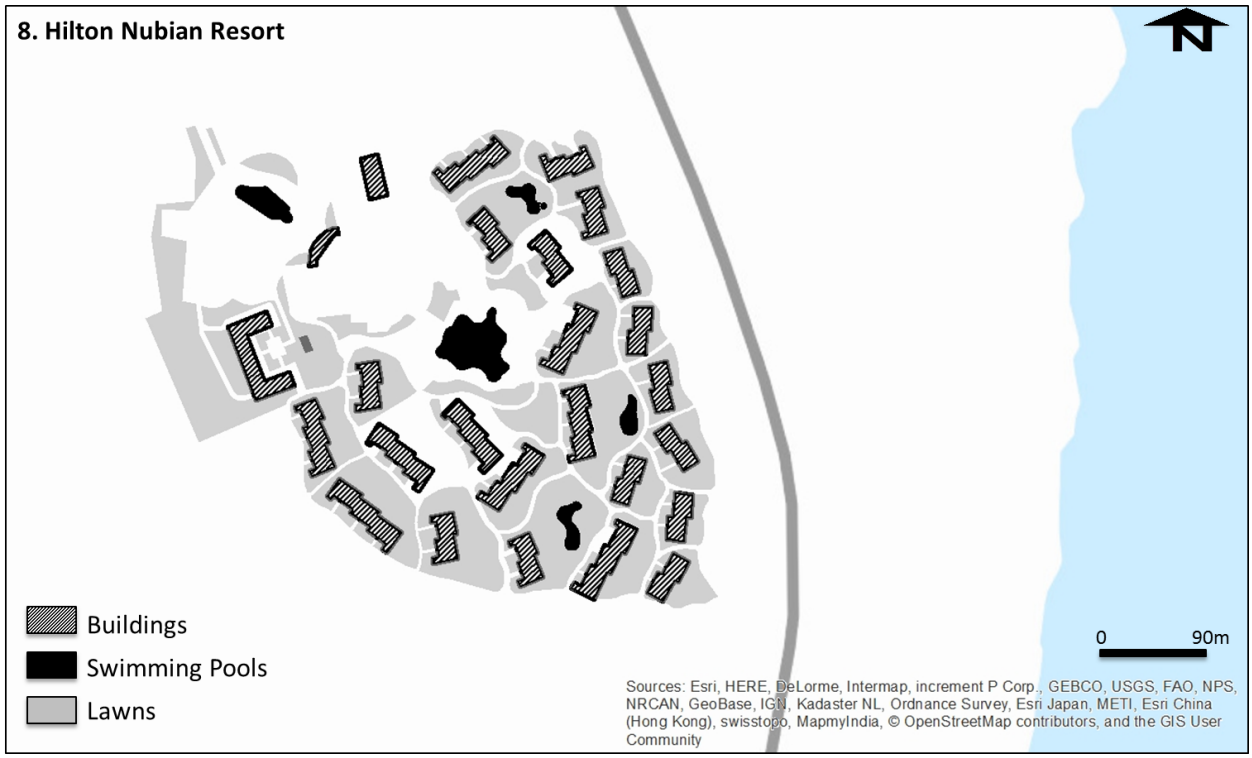
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


8. Hilton Nubian Resort
Buildings
Swimming Pools
Lawns
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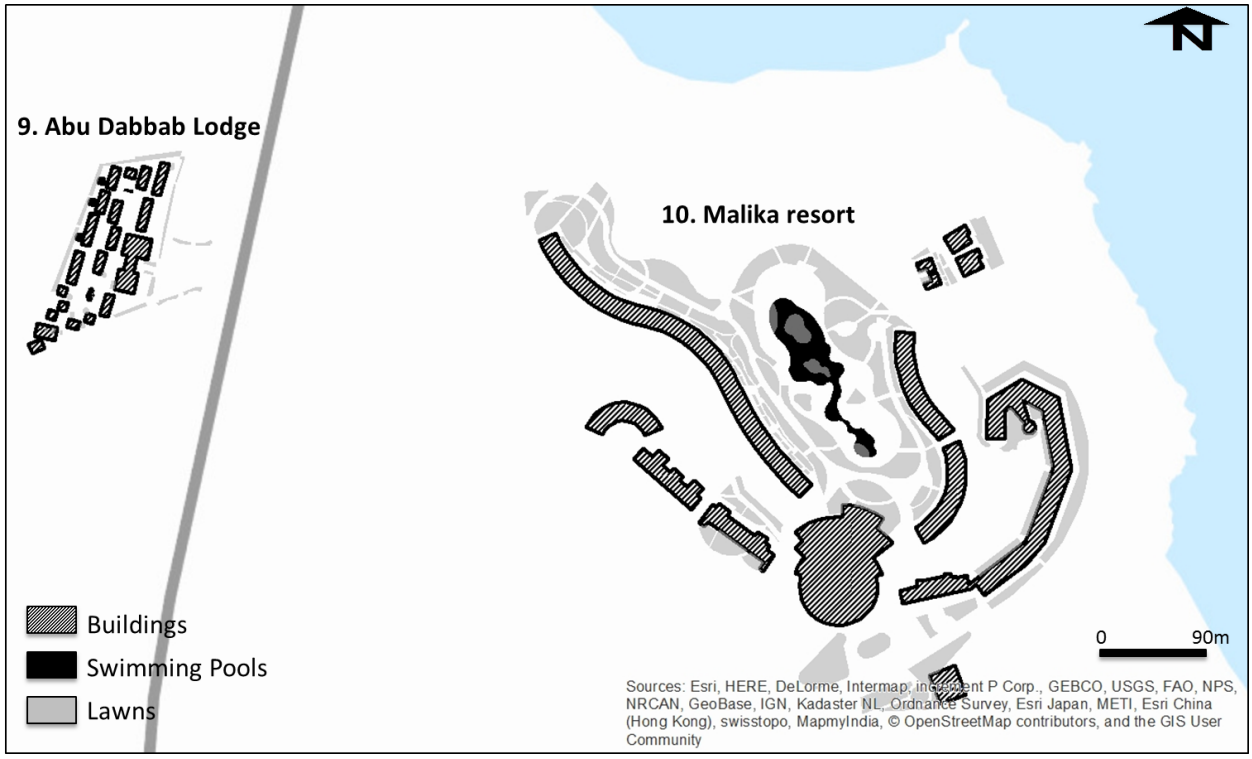
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


9. Abu Dabbab Lodge
10. Malika resort
Buildings
Swimming Pools
Lawns
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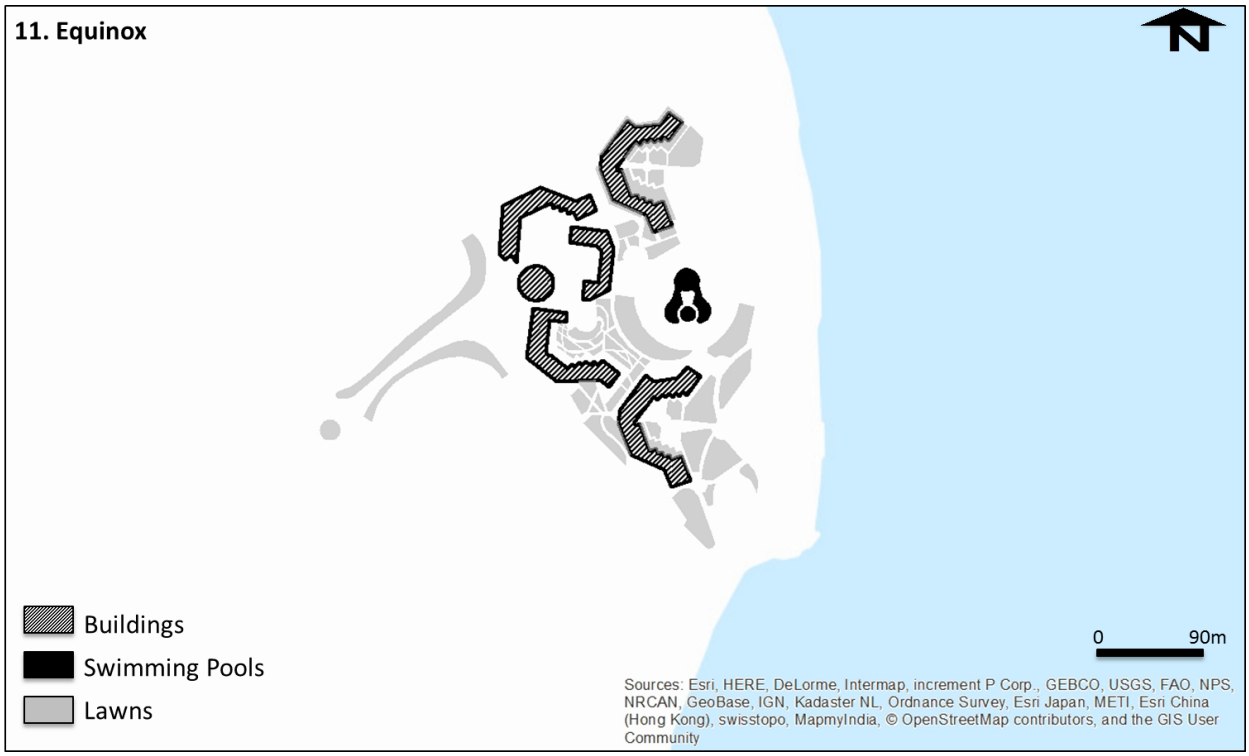
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


11. Equinox
Buildings
Swimming Pools
Lawns
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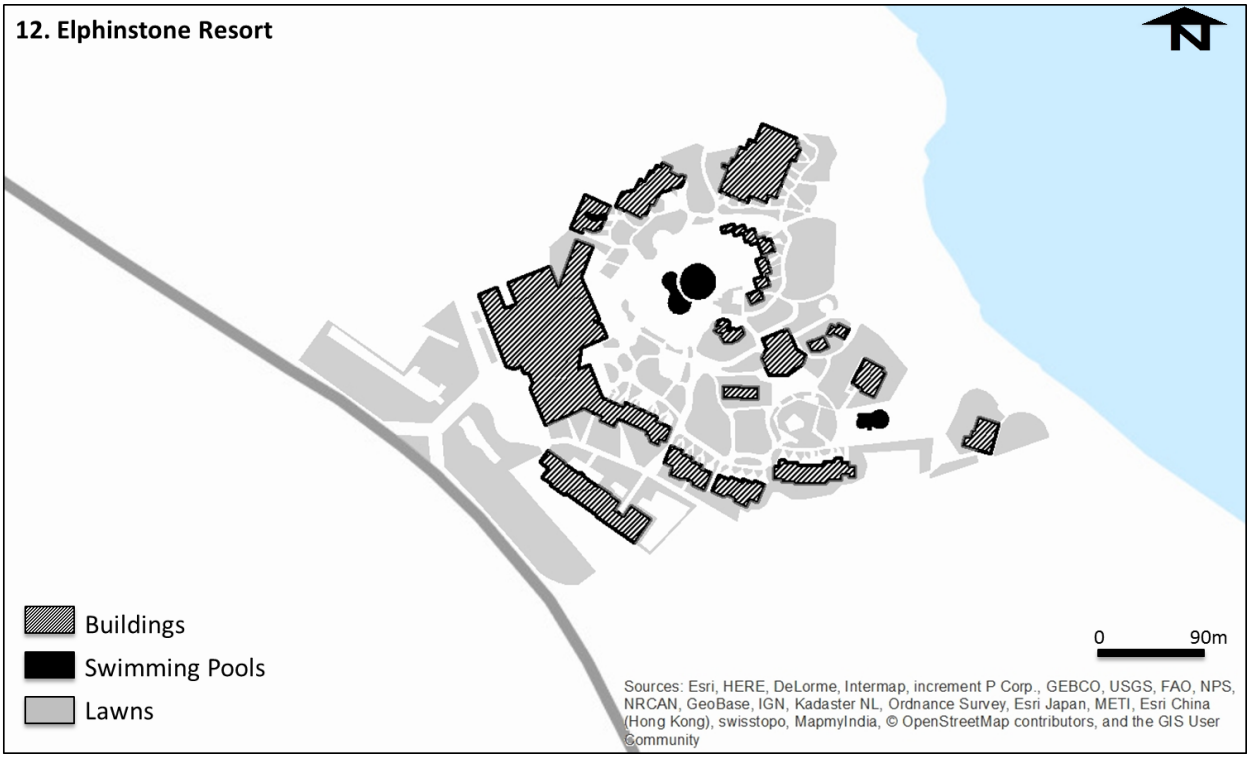
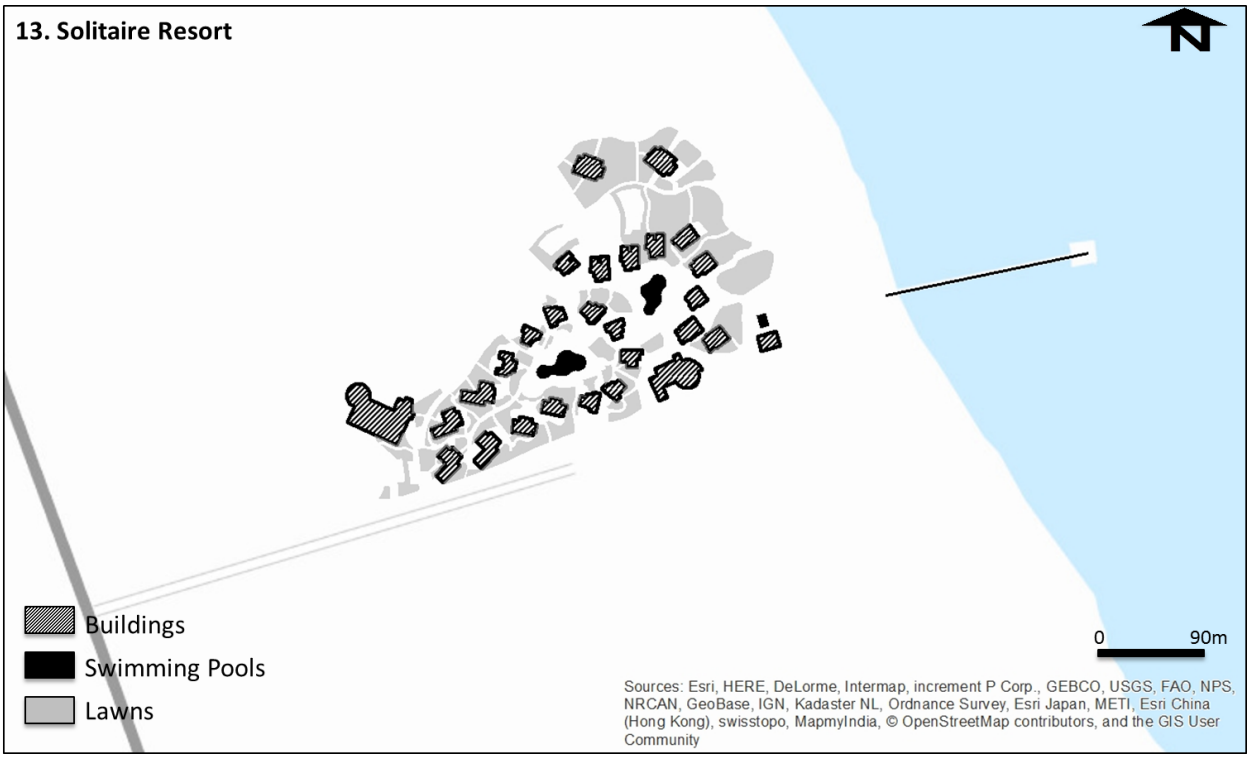
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


12. Elphinstone Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


13. Solitaire Resort
Buildings
Swimming Pools
Lawns
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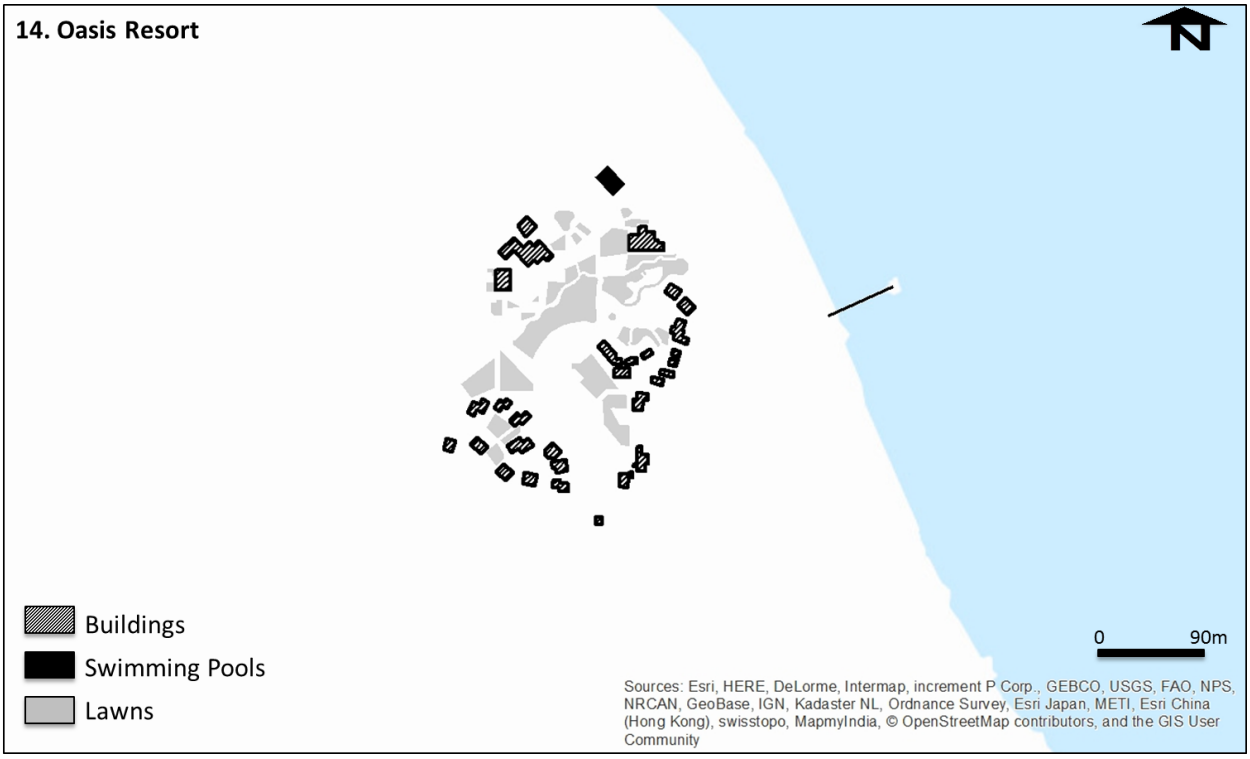
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


14. Oasis Resort
Buildings
Swimming Pools
Lawns
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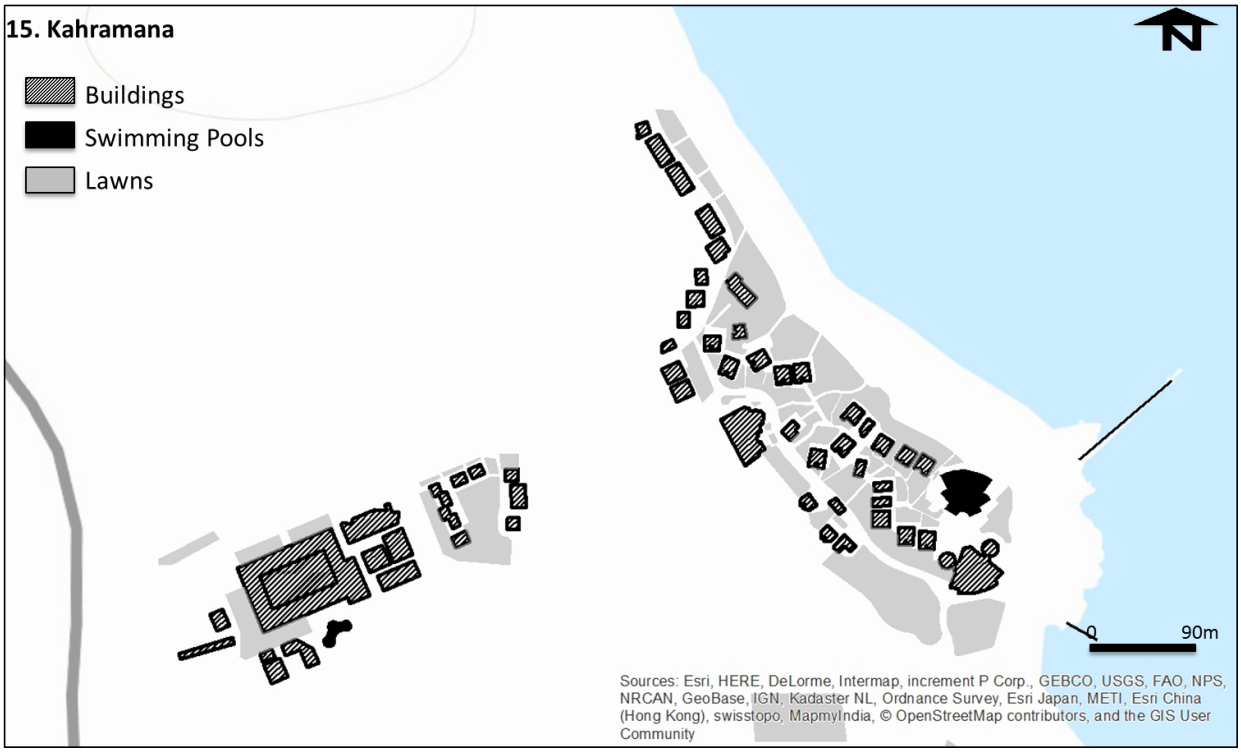
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


15. Kahramana
Buildings
Swimming Pools
Lawns
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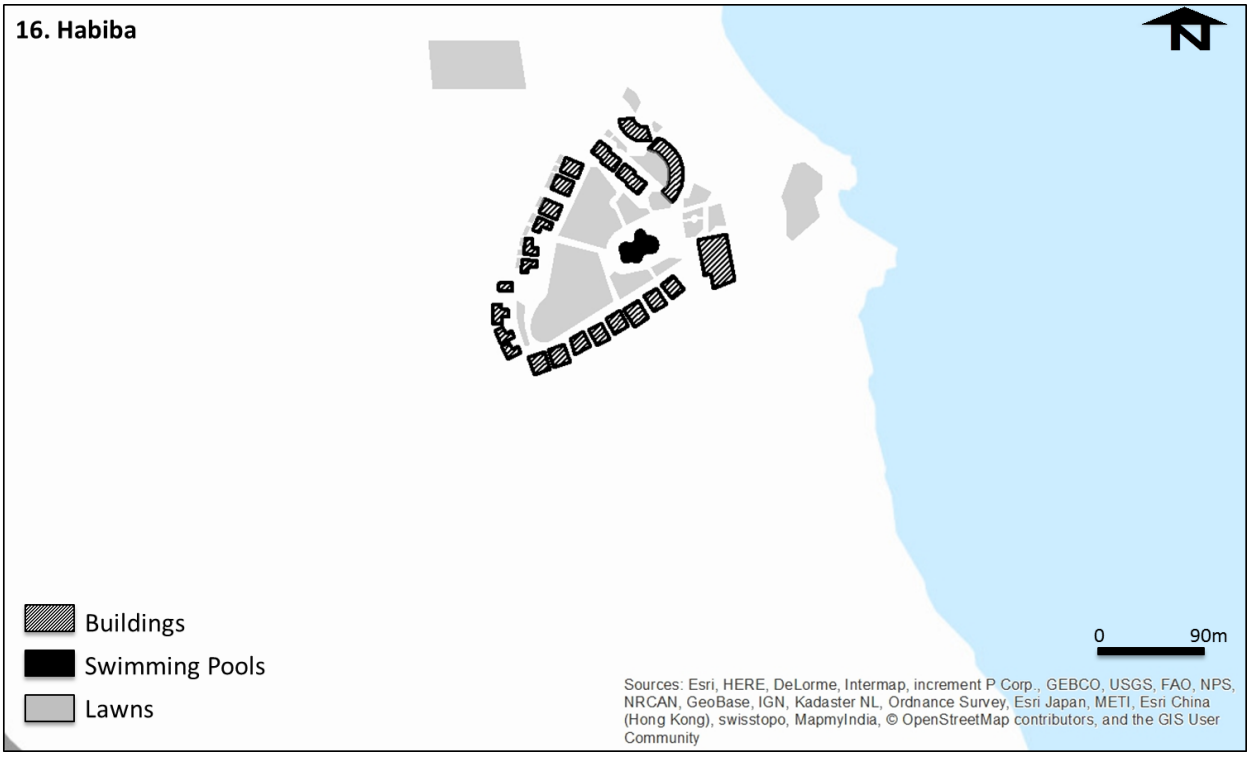
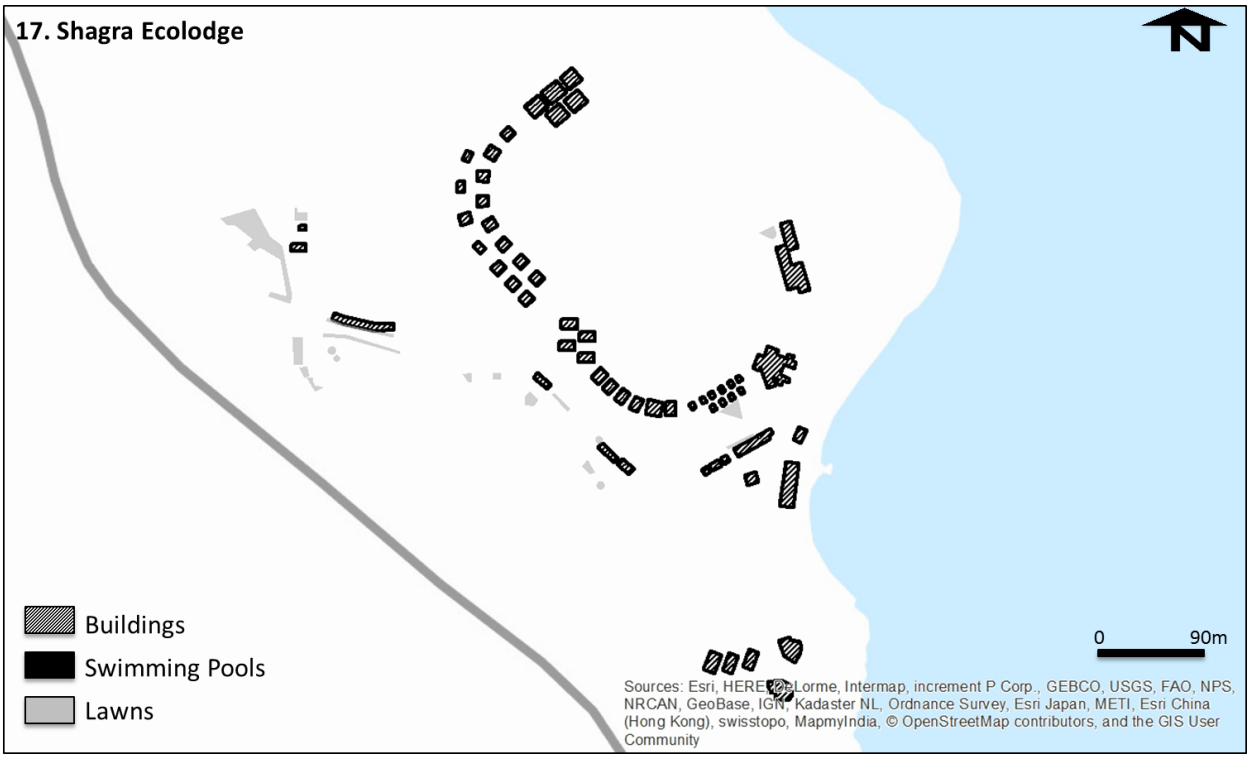
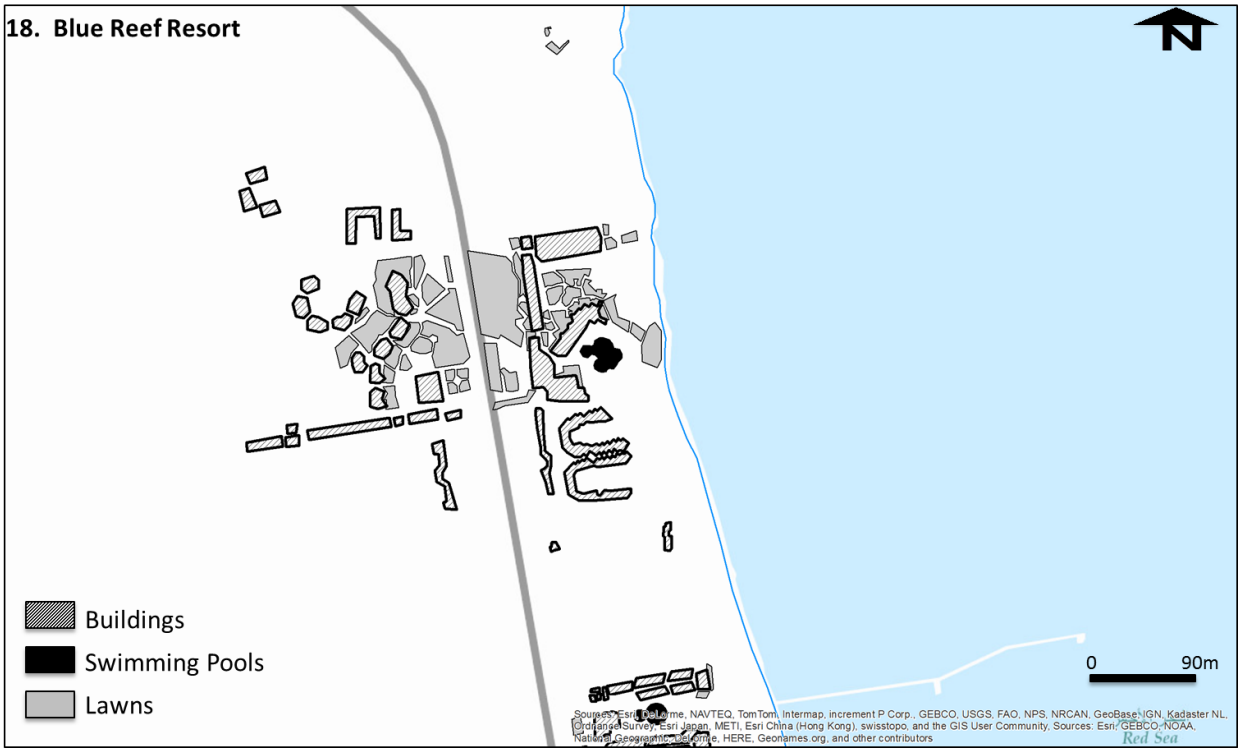
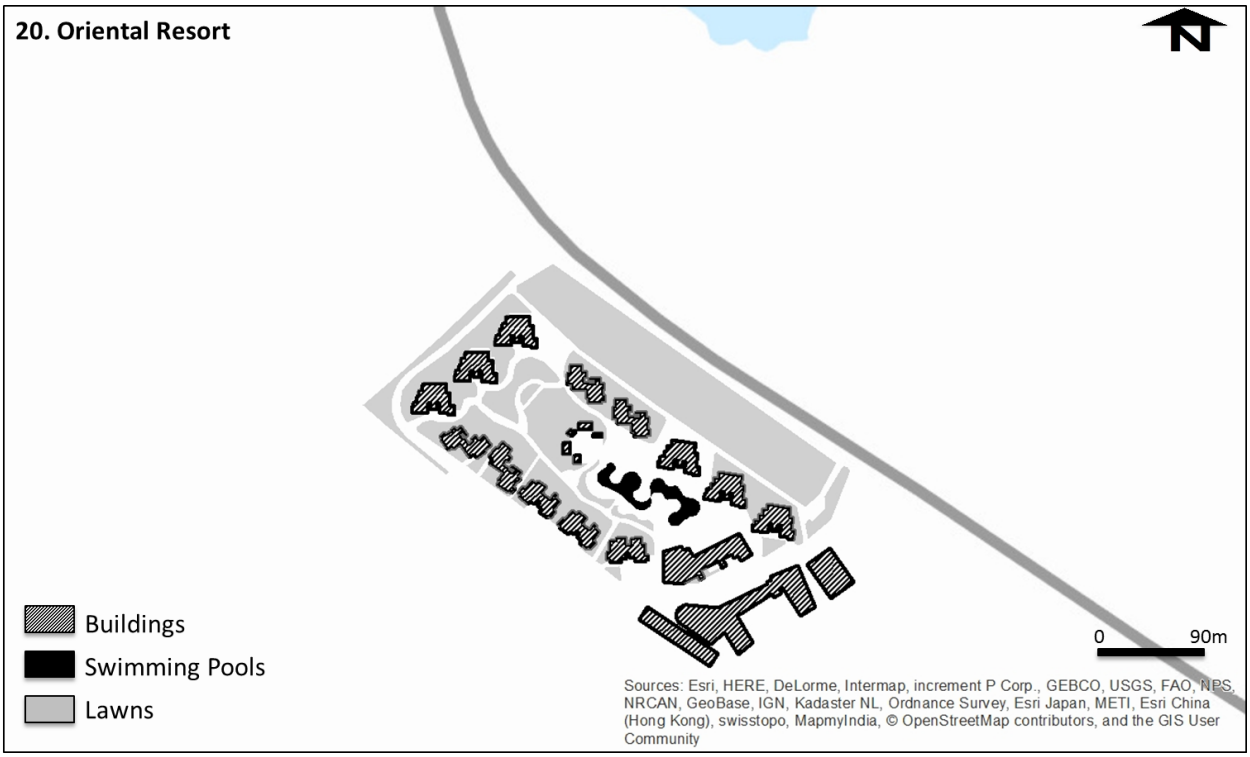
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

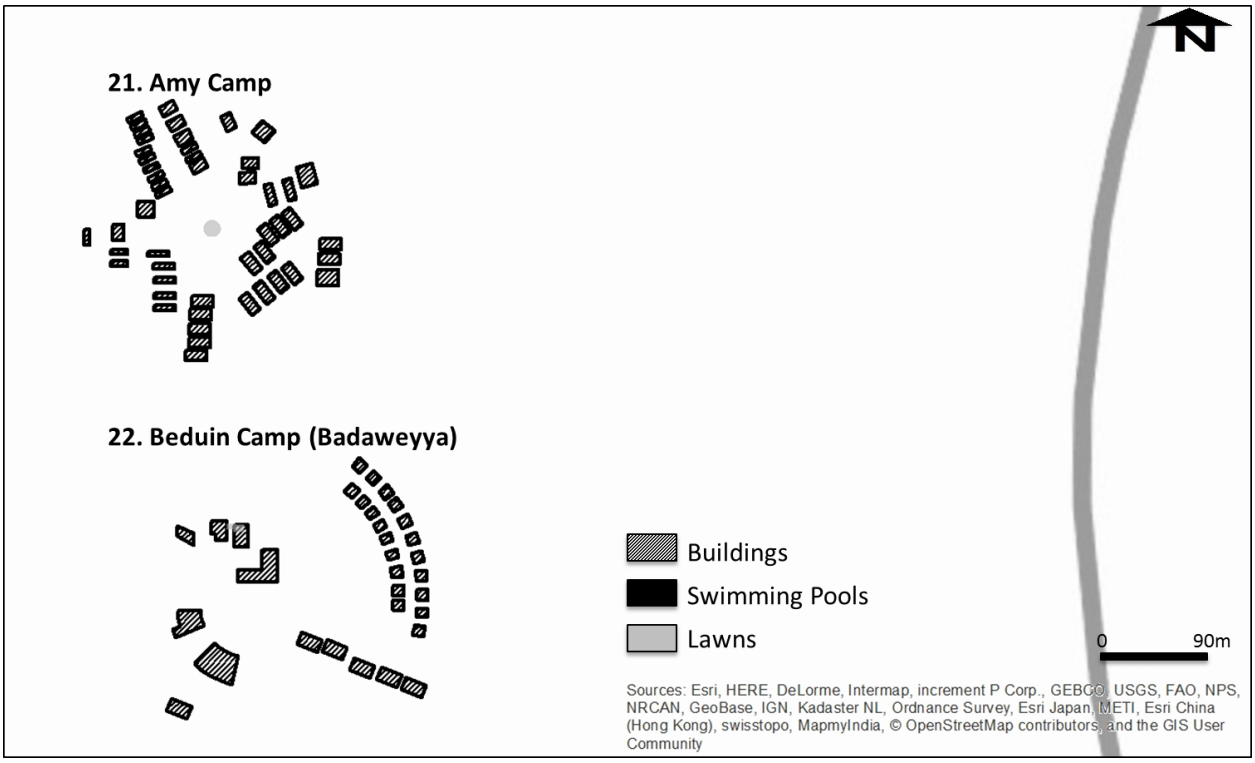

16. Habiba
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

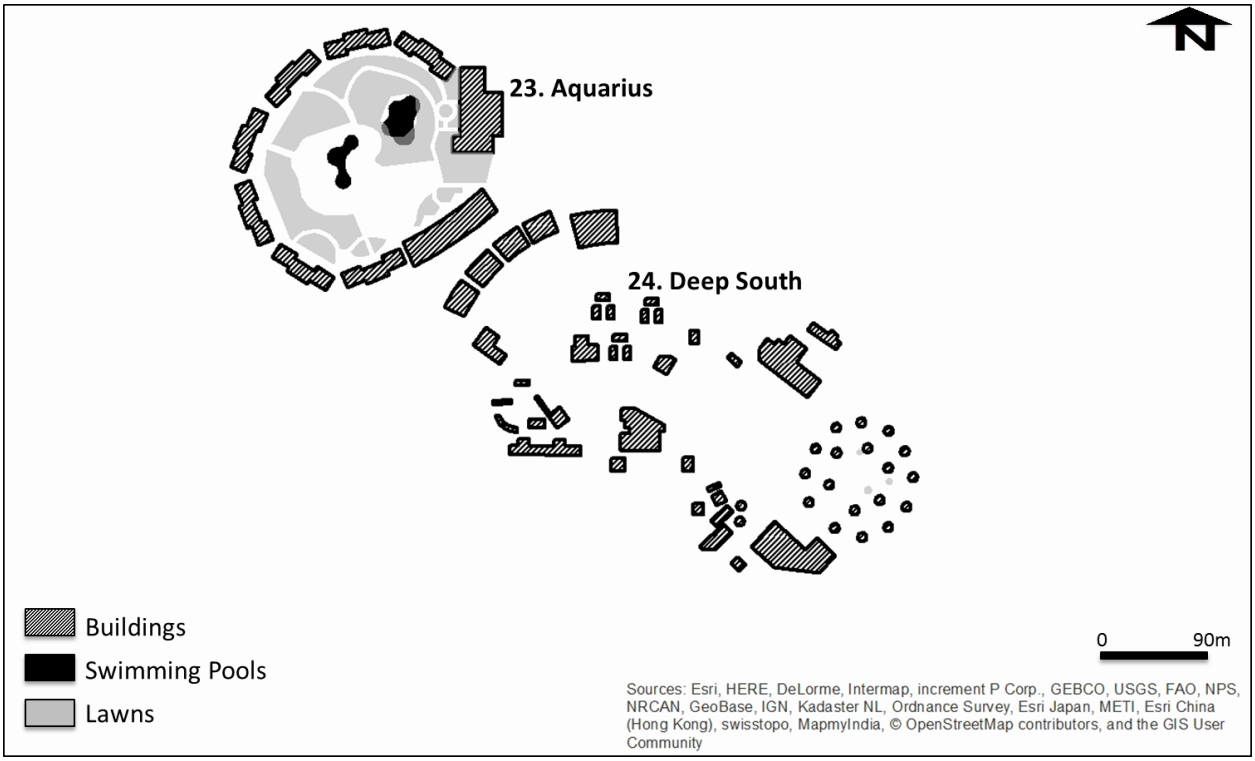

17. Shagra Ecolodge
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


18. Blue Reef Resort
Buildings
Swimming Pools
Lawns
0
90m
Red Sea

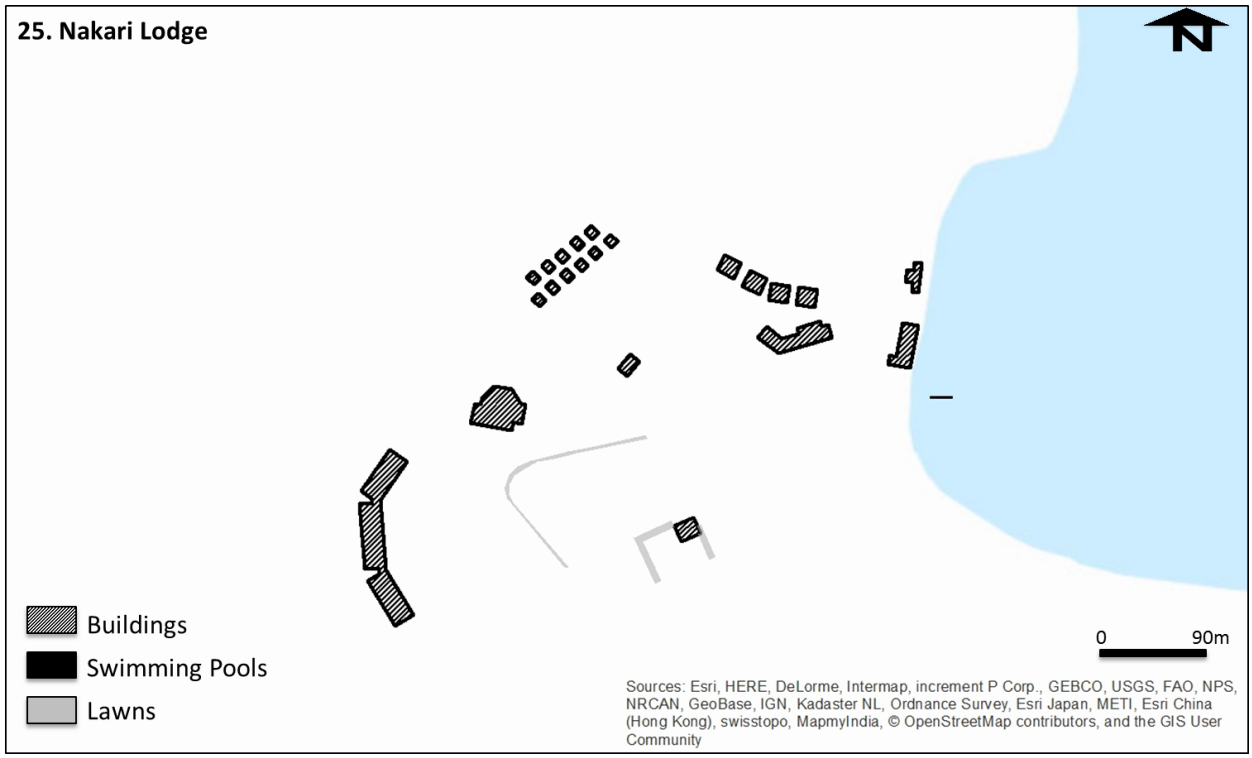

19. Brayka Bay Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


20. Oriental Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

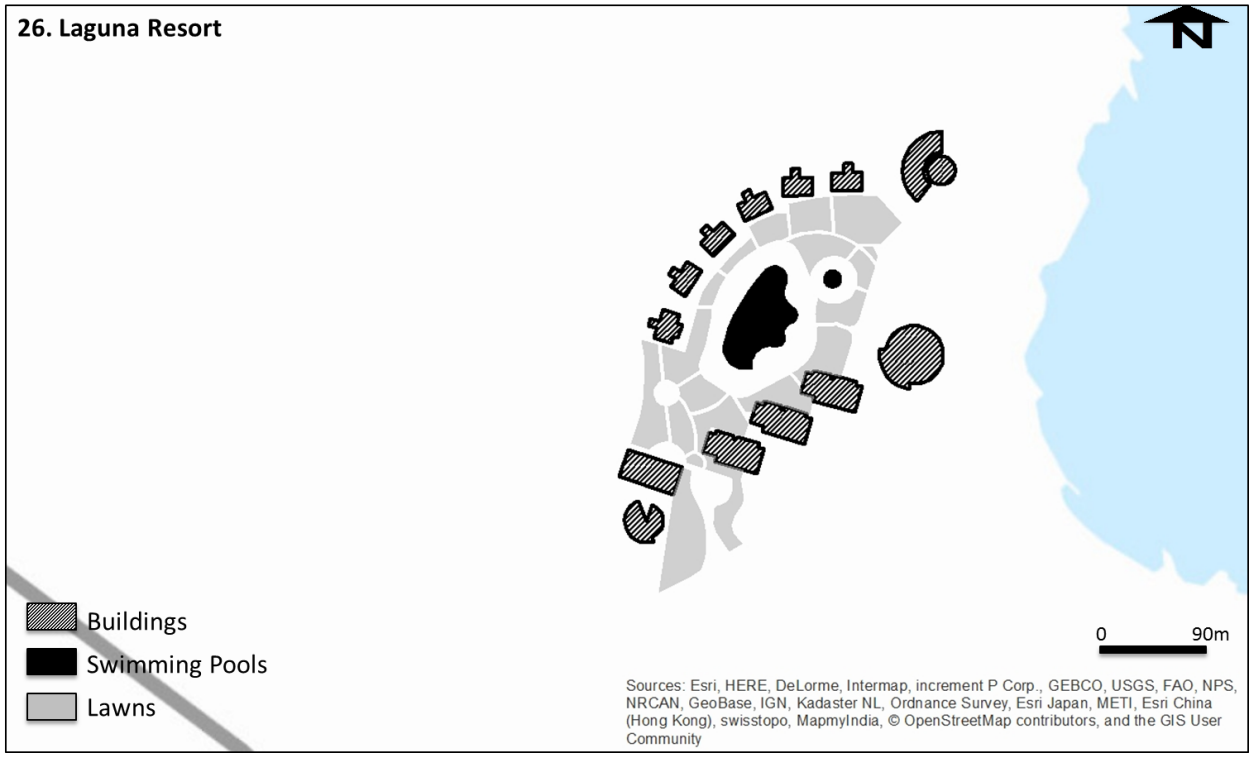

21. Amy Camp
22. Beduin Camp (Badaweyya)
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

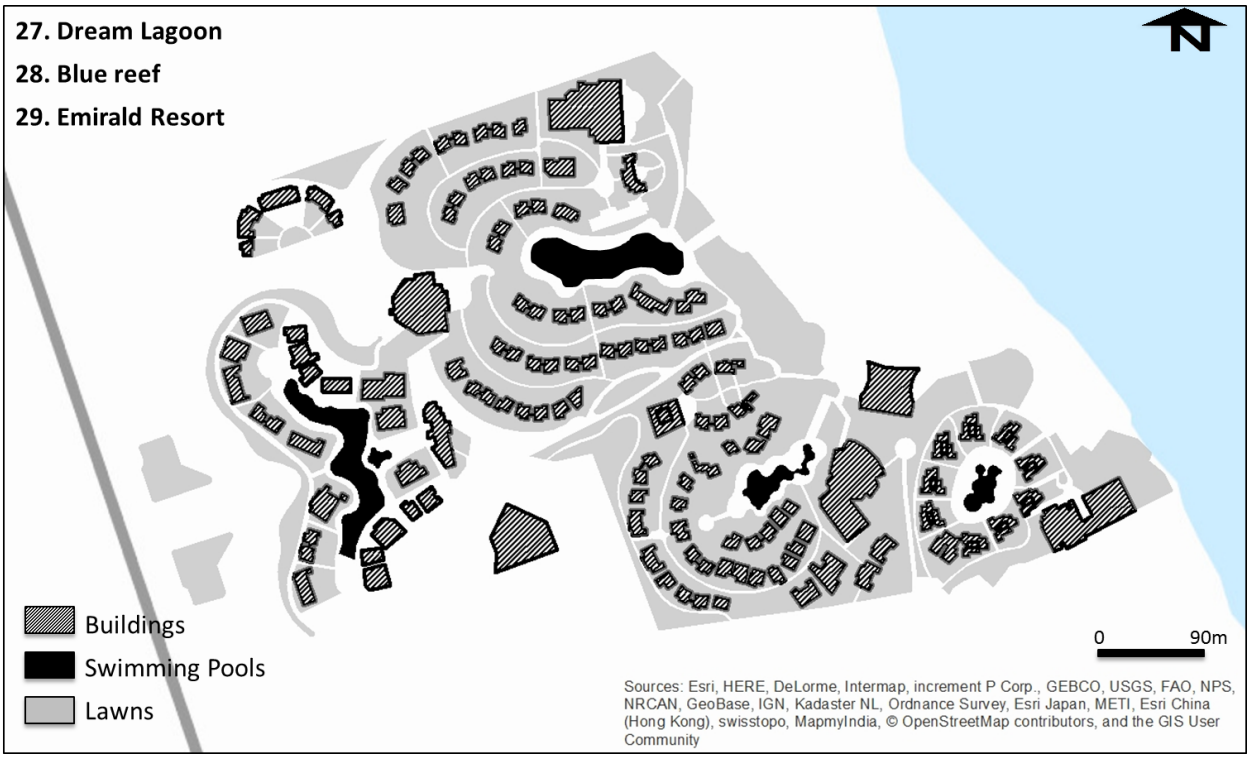

23. Aquarius
24. Deep South
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

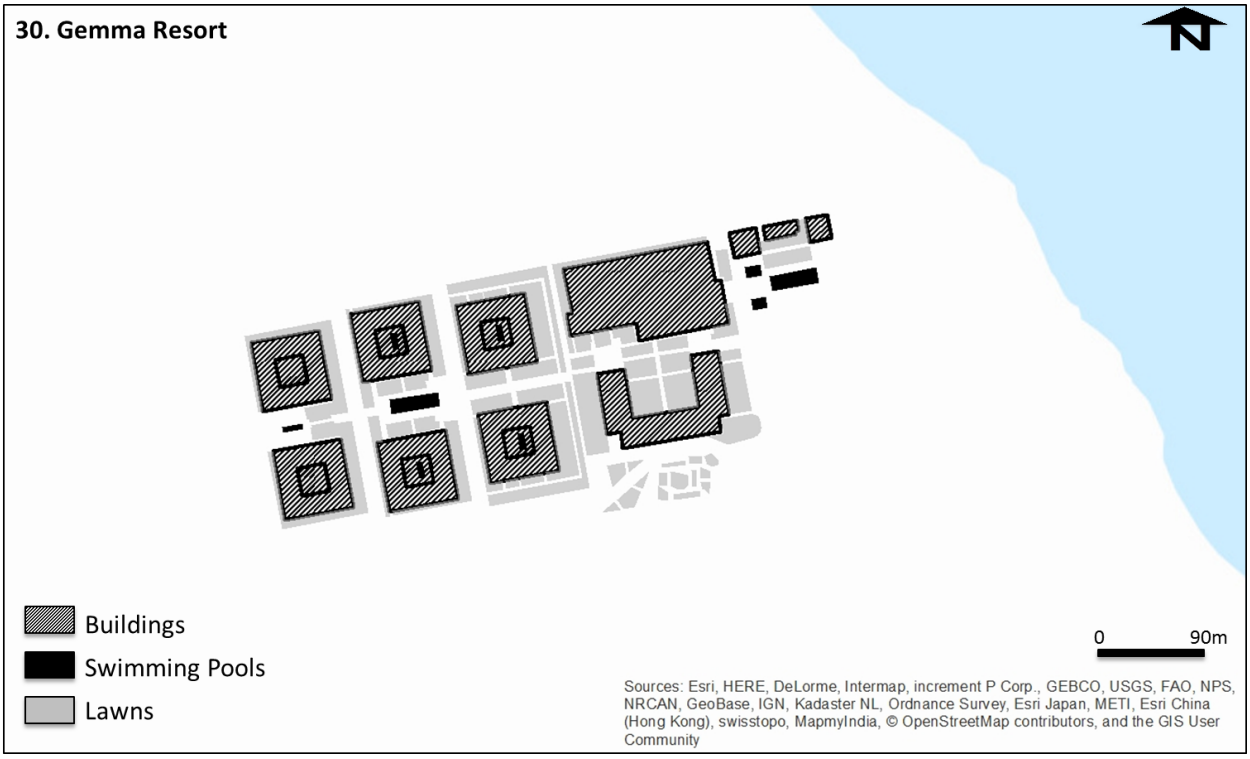
25. Nakari Lodge

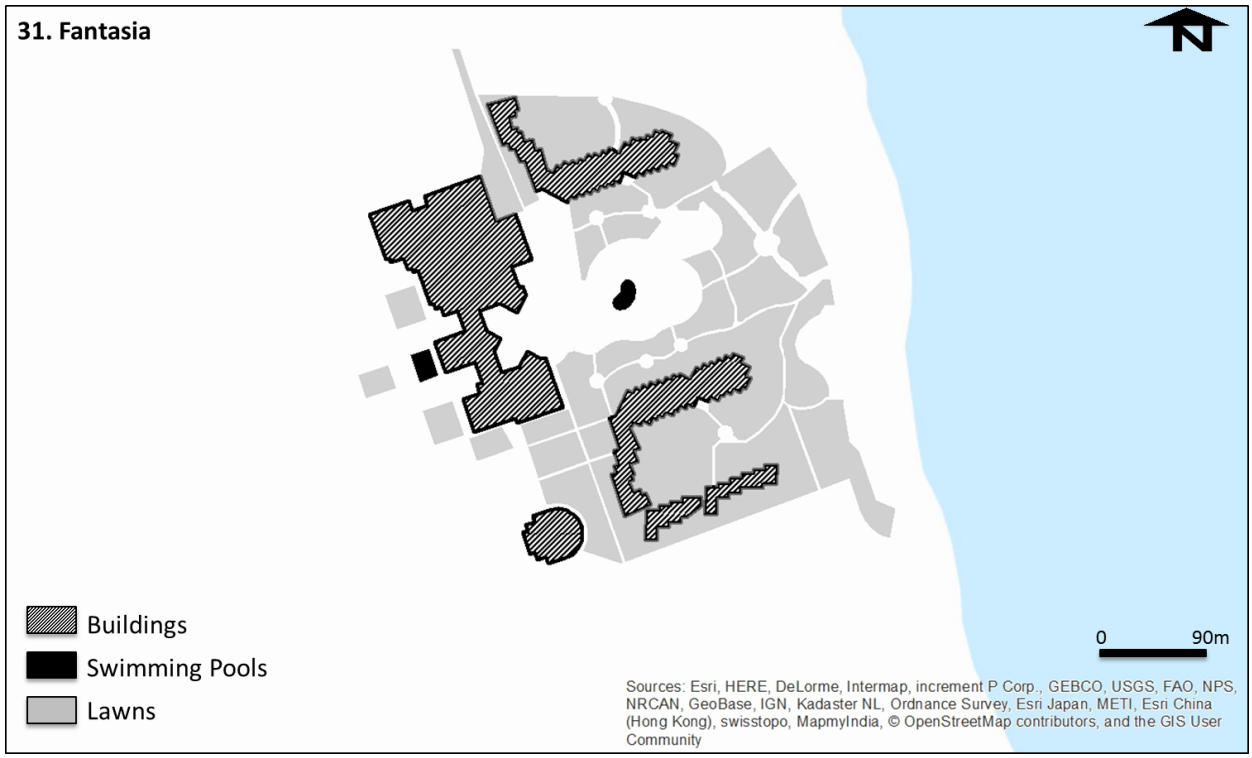


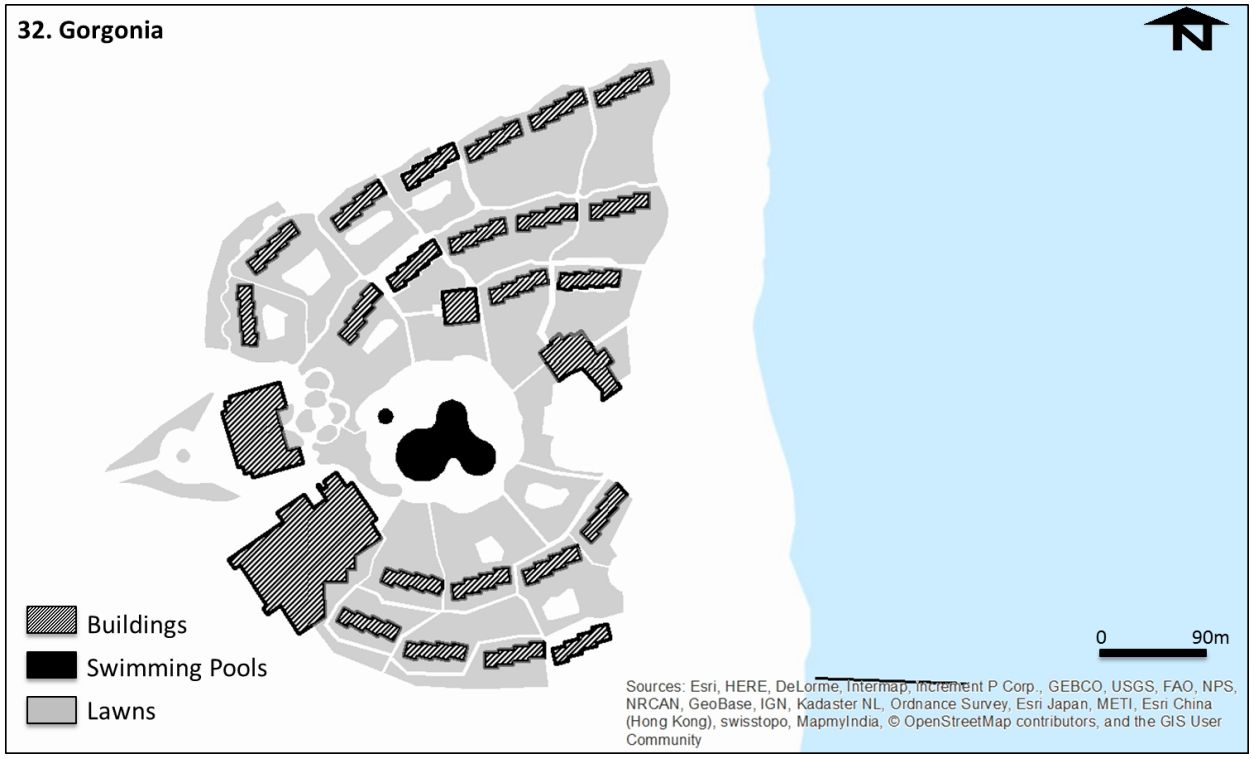
26. Laguna Resort



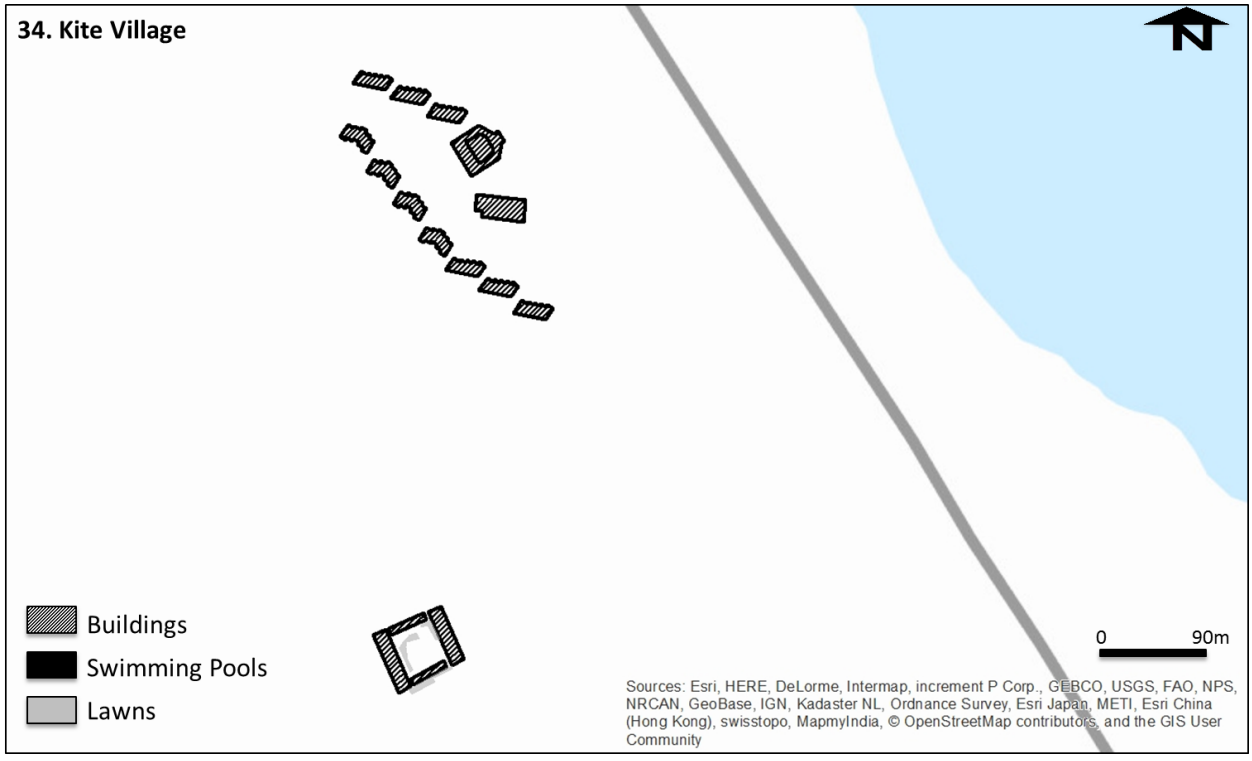

27. Dream Lagoon
28. Blue reef
29. Emirald Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

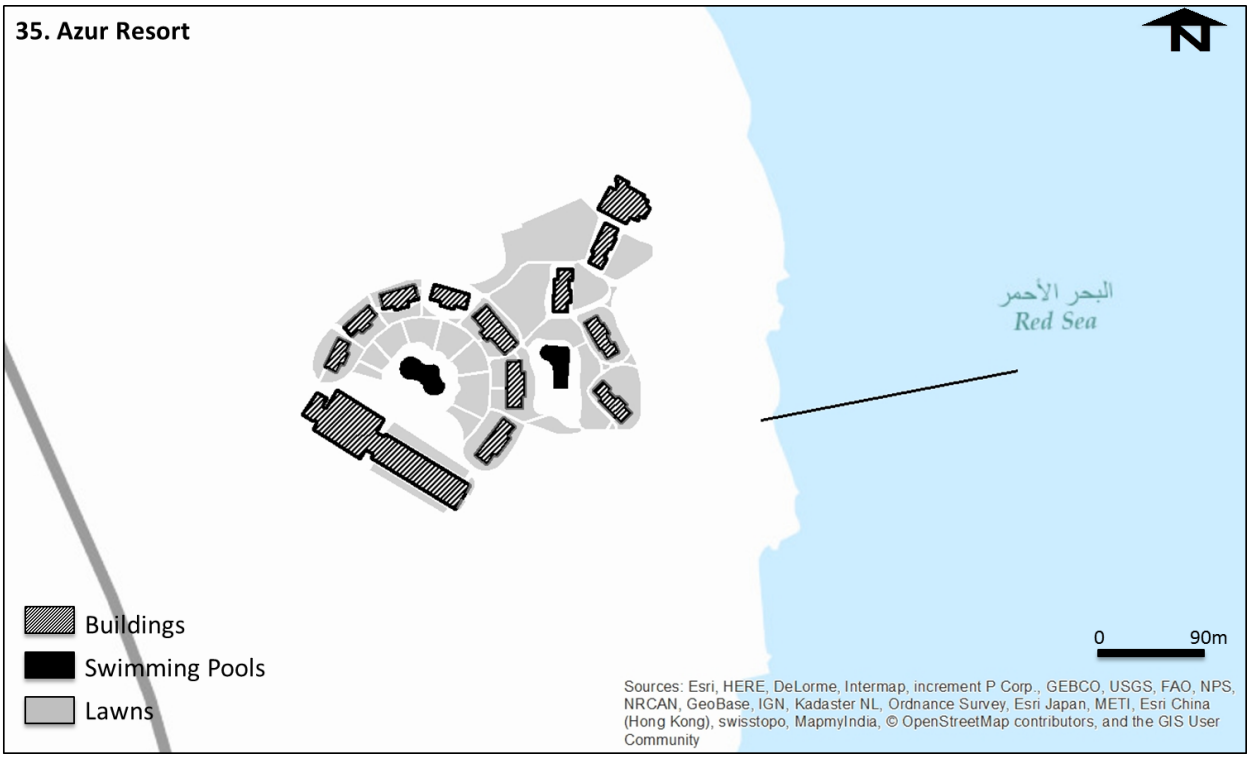

30. Gemma Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

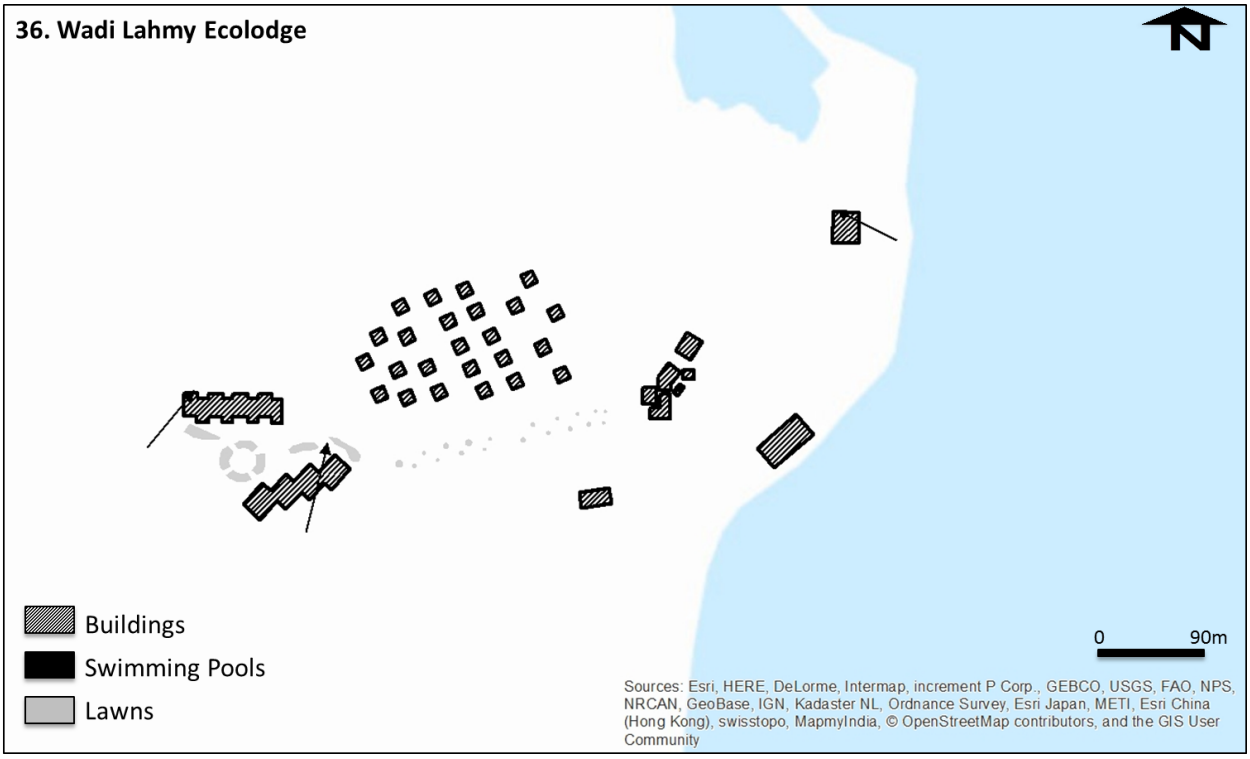

31. Fantasia
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

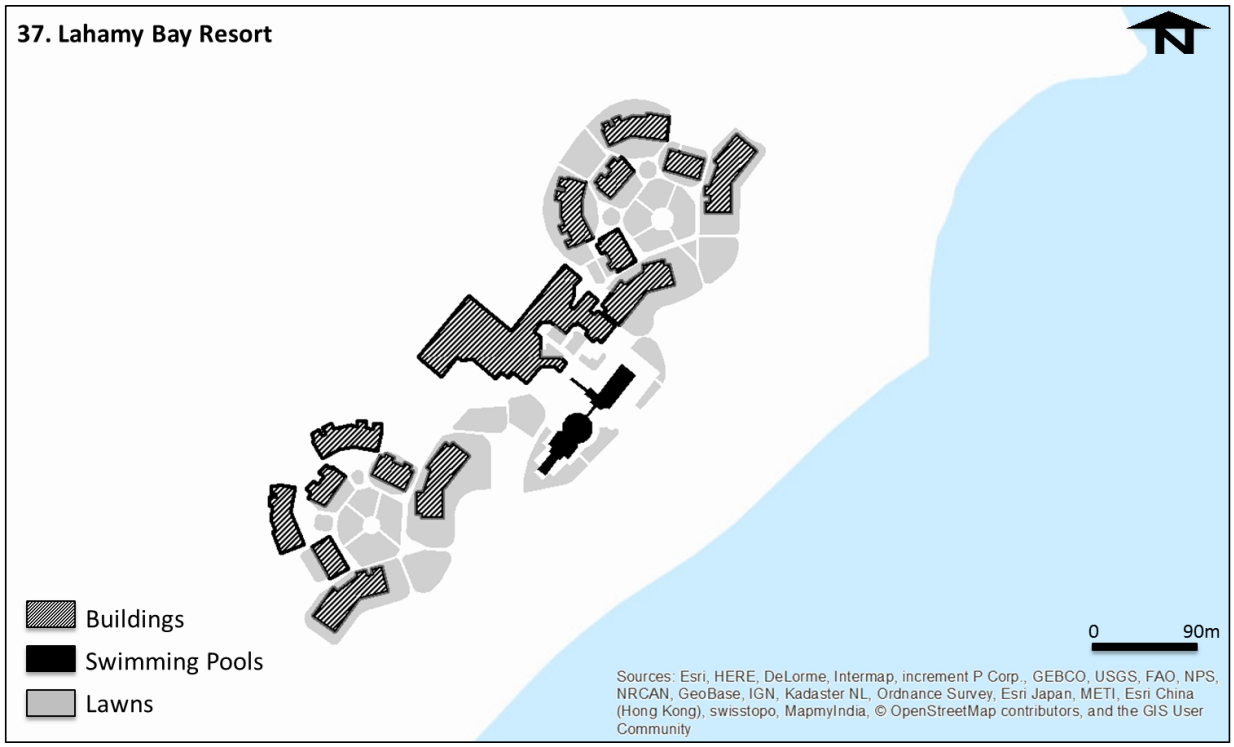

32. Gorgonia
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


33. Shams Alam
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


34. Kite Village
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


35. Azur Resort
البحر الأحمر
Red Sea
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


36. Wadi Lahmy Ecolodge
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


37. Lahamy Bay Resort
Buildings
Swimming Pools
Lawns
0
90m
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

(b) Table Showing Data of Resorts Mapped and Surveyed Resorts

NUMBER	NAME	SELF-LABELED (T/E)	DISTANCE FROM MARSA ALAM (KM)	TOTAL AREA	BUILT AREA	LAWN AREA	POOL AREA	WATER FRONT/ BEACH LENGTH	BUILDING ON SALT MARCHES	MARINA LENGTH
1	○ Fayrouz	T	58.67 N	467256	21724	33971	1165	444	No	291
2	○ Tulip A	T	47.8 N	45410	10782	5681	2848	129	No	0
3	○ Tulip B	T	47.6 N	130442	14467	30235	1420	219	No	677
4	○ Shony Bay	T	45.8 N	139385	11067	5658	932	596	No	0
5	○ Nada Resort	T	45 N	161533	11541	22777	870	437	No	110
6	○ Concord	T	40.5 N	123763	8142	5422	1445	510	No	0
7	○ Happy Life	T	39 N	88833	9319	0	951	286	No	0
8	○ Hilton	T	36.1 N	241606	18610	54518	2936	0	No	0
9	★Abu Dabbab	E	34.3 N	14949	1549	609	45	0	YES	0
10	○ Malika	T	34.3 N	314004	13958	16350	1531	680	No	0
11	○ Equinox	T	33.1 N	329055	6921	12612	769	593	No	0
12	○ Elphinstone	T	26.2 N	143142	14992	37348	1041	351	No	0
13	○ Solitaire	T	21.8 N	207597	6354	17440	722	328	No	152
14	○ Oasis	T	24.1 N	244707	2620	6068	219	341	No	52
15	○ Kahramana	T	22.39 N	482167	12069	26564	1193	627	No	117
16	○ Habiba	T	22.39 N	94737	4190	8115	482	222	No	0
17	★Shagra	E	21.95 N	488063	7754	2641	0	769	Yes	0
18	○ Blue Reef	T	21.5 N	169476	13298	28348	1104	227	No	0
19	○ Brayka	T	18.8 N	287654	36555	42153	1350	1305	Yes	0
20	○ Oriental	T	17 N	100788	13302	33154	1341	0	No	0
21	★Emy Camp	E	12.1 S	13909	1894	0	0	0	No	0
22	★Badaweyya	E	12.2 S	83919	1506	0	0	0	No	0
23	★Aquarius	E	12.3 S	12843	2627	0	349	0	No	0
24	★Deep South	E	12.5 S	21254	3341	0	0	0	No	0
25	★Nakari	E	17.8 S	113580	3487	274	0	246	Yes	13
26	○ Laguna	T	18.7 S	63100	5203	7817	1338	179	No	0

	Beach									
27	○ Dream Lagoon	T	19.6 S	198448	20278	66462	2888	483	No	0
28	○ Blue Reef	T	19.6 S	88199	9012	29538	1283	159	No	0
29	○ Emirald	T	19.6 S	52919	5407	17723	770	96	No	0
30	○ Gemma Resort	T	21.7 S	253386	22462	22081	1222	215	No	0
31	○ Fantasia	T	25.2 S	677160	20835	42173	3402	633	No	66
32	○ Gorgonia	T	46.9 S	405438	33562	104926	3937	519	No	113
33	○ Shams Alam	T	48.9 S	245627	4897	9676	235	592	Yes	129
34	★Kite Village	E	104.4 S	192720	4631	3685	0	0	No	0
35	○ Azur	T	113.1 S	165967	7762	15267	999	484	No	193
36	★Wadi Lahmy Ecolodge	E	115.7 S	160665	4692	1122	0	349	Yes	0
37	○ Lahamy Bay Resort	T	116.8 S	535662	18581	27315	1257	1199	Yes	0
	★TOTAL (E)	**9**		**1101902**	**31481**	**8331**	**394**	**1364**	**4 of 9 (44%)**	**13**
	○ TOTAL (T)	**28**		**6457461**	**377910**	**729392**	**39650**	**11854**	**3 of 28 (11%)**	**1900**
	TOTAL ALL	**37**		**7559363**	**409391**	**737723**	**40044**	**13218**		**1913**

(c) Table Showing Each Site's Distance from Marsa Alam, Power Sources, and Waste Collection Methods

NUMBER	NAME	SELF-LABELED (T/E)	DISTANCE FROM MARSA ALAM (KM)	Source of Power	Solid Waste Collection
1	○ Fayrouz	T	58.67 N	Diesel Generator	HEPCA
2	○ Tulip A	T	47.8 N	Diesel Generator	HEPCA
3	○ Tulip B	T	47.6 N	Diesel Generator	HEPCA
4	○ Shony Bay	T	45.8 N	Diesel Generator	HEPCA
5	○ Nada Resort	T	45 N	Diesel Generator	HEPCA
6	○ Concord	T	40.5 N	Diesel Generator	HEPCA
7	○ Happy Life	T	39 N	Diesel Generator	HEPCA
8	○ Hilton	T	36.1 N	Diesel Generator	HEPCA
9	★Abu Dabbab	E	34.3 N	Diesel Generator	HEPCA
10	○ Malika	T	34.3 N	Diesel Generator	HEPCA
11	○ Equinox	T	33.1 N	Diesel Generator	HEPCA
12	○ Elphinstone	T	26.2 N	Diesel Generator	HEPCA
13	○ Solitaire	T	21.8 N	Diesel Generator	HEPCA
14	○ Oasis	T	24.1 N	Diesel Generator	HEPCA
15	○ Kahramana	T	22.39 N	Diesel Generator	HEPCA
16	○ Habiba	T	22.39 N	Diesel Generator	HEPCA
17	★Shagra	E	21.95 N	Diesel Generator	HEPCA
18	○ Blue Reef	T	21.5 N	Diesel Generator	HEPCA
19	○ Brayka	T	18.8 N	Diesel Generator	HEPCA
20	○ Oriental	T	17 N	Diesel Generator	HEPCA
21	★Emy Camp	E	12.1 S	Diesel Generator	HEPCA
22	★Badaweyya	E	12.2 S	Diesel Generator	HEPCA
23	★Aquarius	E	12.3 S	Diesel Generator	HEPCA
24	★Deep South	E	12.5 S	Diesel Generator	HEPCA
25	★Nakari	E	17.8 S	Diesel Generator	HEPCA
26	○ Laguna Beach	T	18.7 S	Diesel Generator	HEPCA
27	○ Dream Lagoon	T	19.6 S	Diesel Generator	HEPCA

28	○ Blue Reef	T	19.6 S	Diesel Generator	HEPCA
29	○ Emirald	T	19.6 S	Diesel Generator	HEPCA
30	○ Gemma Resort	T	21.7 S	Diesel Generator	HEPCA
31	○ Fantasia	T	25.2 S	Diesel Generator	HEPCA
32	○ Gorgonia	T	46.9 S	Diesel Generator	HEPCA
33	○ Shams Alam	T	48.9 S	Diesel Generator	HEPCA
34	★Kite Village	E	104.4 S	Diesel Generator	HEPCA
35	○ Azur	T	113.1 S	Diesel Generator	HEPCA
36	★Wadi Lahmy Ecolodge	E	115.7 S	Diesel Generator	HEPCA
37	○ Lahamy Bay Resort	T	116.8 S	Diesel Generator	HEPCA